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## Connections Count: Understanding Gender And Race Differences in School-Based Problem Behavior During Adolescence

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Connections Count: Understanding Gender And Race Differences in School-Based  
Problem Behavior During Adolescence

by

Raymond C. Santa Lucia

A dissertation submitted in partial fulfillment  
of the requirements for the degree of  
Doctor of Philosophy  
Department of Psychology  
College of Arts and Sciences  
University of South Florida

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## Dedication

This paper is dedicated to my grandparents; Charles Santa Lucia, Josephine Santa Lucia, John Mazza, and Florence Mazza, for overcoming the challenges faced by immigrants to America to make a better life for their families. They are all in my heart. It is dedicated to my sister Tammy, for overcoming her challenges and making a big difference in the lives of many children and families through her work as a Licensed Clinical Social Worker. It is dedicated to my friends; Ryan Russon, Octavio Salcedo, Jim Dean, Demy Kamboukos, Paul Espinosa, Jennifer Welch, and Jill Welch in particular. They have taught me so much about the meaning of friendship, life, and love. It is dedicated to my mentors; Mr. de Santos, Dr. Warren, Terry Champlain, Brad Peterson, Ellis Gesten, Vicky Phares, Maria de Perczel, Charles Furman, Scott Van de Putte, and Lynn Dowell. I have been incredibly fortunate to work alongside such talented, supportive, and caring people. It is dedicated to children from high risk backgrounds, particularly children diagnosed with muscular dystrophy. They have been in my heart throughout and they are my inspiration. Above all, this paper is dedicated to my mother and father. Being lucky enough to watch two people from high risk backgrounds persist tirelessly to improve the lives of their children, of those in their community, and of each other would have a profound effect on anyone. Having them in my heart has made all the difference.

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Connections Count: Understanding Gender and Race Differences in School-Based Problem Behavior during Adolescence

Raymond C. Santa Lucia

ABSTRACT

Utilization of a large, diverse sample provided a rare opportunity to advance our understanding of gender, race, and socioeconomic differences in school-based problem behavior. Yearly assessment of discipline referrals and suspensions received within the school context from 5<sup>th</sup>- through 11<sup>th</sup>-grade, as well as assessment of school dropout, provided an opportunity to examine these issues through an extended prospective longitudinal design. Results highlight the middle school transition as a time when discipline referrals and suspensions increase markedly, while student reports of connections to others, motivation, and optimism decline sharply. Results indicate that boys, African-American students, and students from low socioeconomic status backgrounds report lower levels of connections to others, motivation, and optimism in 5<sup>th</sup>-grade. Boys, African-American students, and students from low socioeconomic status backgrounds also receive more discipline referrals and suspensions from 5<sup>th</sup>-grade onward and are more likely to experience dropout. However, regardless of demographic group membership, students who report stronger connections to others, motivation, and optimism in 5<sup>th</sup>-grade receive fewer referrals and suspensions from 5<sup>th</sup>- through 11<sup>th</sup>

grade, and are much less likely to dropout of school than are students who report lower levels of connections, motivation, and optimism in 5<sup>th</sup>-grade. These results highlight the need to address students' sharp declines in functioning across the middle school transition through both ecological and person-centered prevention and school restructuring efforts. Results also highlight the utility of movement away from a static, demographic based understanding of problem behavior toward a clearer understanding of person and environment factors that may underlie both between and within demographic group differences in outcomes. Placing emphasis upon factors that are potentially amenable through school based prevention efforts considerably increases the likelihood that all of our nation's children are provided with equal opportunity to achieve their fullest potential.

## Introduction

The goal of the present study is to further our understanding of school-based problem behavior in terms of students' connections to parents, peers, and school during the early adolescent period. This study is unique in that reports of more than four thousand students permit examination of problem behavior outcomes in terms of gender, ethnicity, socioeconomic status, and risk status across the seven-year timeframe of the study. Doing so provides an opportunity to advance our understanding of critical issues concerning the role of gender, ethnicity, and socioeconomic status in relation to problem behavior outcomes. Connections to others across systems are highlighted as potentially key to the risk and protection of students both across and within demographic groups. The middle school transition is highlighted as a potentially pivotal turning point in development. The nature of what students learn in school is highlighted as potentially encompassing much more than academics.

With respect to the mental health of our Nation's children, no less an authority than the former Surgeon General of the United States has stated, in no uncertain terms, that we are experiencing a "health crisis in this country" (United States Department of Health and Human Services, 1999; p. 1). Epidemiologic studies estimate that between 12% and 30% of school-aged children in the United States experience moderate to serious mental health problems that interfere with their daily functioning (Verhulst & Koot, 1992; Weist, 1997). Only about one in five of these children receive services to

address their difficulties (United States Department of Health and Human Services, 1999).

Of particular concern is that boys, African-American children, and children of low socioeconomic status are at heightened risk for both the expression of problem behaviors during childhood and relative increases in problem behavior beginning in early adolescence (Dryfoos, 1990). Ultimately our failure to prevent the development of problem behavior patterns and school dropout results in disproportionate representation of males, African-American individuals, and individuals of low socioeconomic status in our nation's criminal justice system (Council on Crime in America, 1996). The prevalence of children at risk for such severe outcomes "underscore the importance and urgency of treating and preventing mental disorders and of promoting health in our society" (United States Department of Health and Human Services, 1999; p.1).

Seminal research conducted by Richard Jessor and his colleagues introduced the concept of a "problem behavior syndrome" in which multiple problem behaviors clustered together among adolescents (Jessor & Jessor, 1977). Through this work, Jessor and colleagues focused attention upon the co-occurrence of problem behaviors, which later led to research cumulatively suggesting that the co-occurrence of such behaviors may be linked to similar underlying risk factors (Dryfoos, 1990). In her landmark review, Dryfoos (1990) outlined separate domains of risk associated with the later expression of multiple problem behaviors including delinquency, substance abuse, teen pregnancy, and school dropout. These risk domains included age, expectations for education and school grades, general behavior, peer influence, parental role, and neighborhood quality (Dryfoos, 1990). While understanding of the manner through which these risk factors are

associated with problem outcomes has improved since the time of Dryfoos' (1990) review, several gaps in our understanding remain (Hinshaw & Park, 1999).

### Systems Perspective

Writing the concluding chapter of the *Handbook of Disruptive Behavior Disorders*, Hinshaw and Park (1999) cited the need to expand research incorporating assessment of functioning across multiple systems within longitudinal investigations of the development of problem behavior (Hinshaw & Park, 1999; Richters, 1997). The present study integrates risk factors across multiple systems into a holistic longitudinal design. Risk factors incorporated in the present study are directly analogous to those that prior research has identified as the strongest and most consistent correlates of problem behavior (Dryfoos, 1990). These include parental role, peer influence, and expectations for school success (Dryfoos, 1990). Factors identified as associated with the development of problem behavior subsequent to Dryfoos' (1990) review including teacher-child interaction (Davis, 2001; Hughes, Cavell, & Jackson, 1999; Hughes, Cavell, & Willson, 2001; Pianta, 1999), as well as bonding to school (Marcus & Sanders-Reio, 2001; Najaka, Gottfredson, & Wilson, 2001) and motivation to achieve (Jimerson, Egeland, Sroufe, & Carlson, 2000; Najaka et al., 2001) were also integrated into the multisystemic framework of the present study..

Age, general behavior, and neighborhood quality have also demonstrated the ability to predict multiple problem outcomes (Dryfoos, 1990). Age is included in the present study, insofar as the rise in problem behavior at early adolescence highlights the developmental significance of examining students' connections and attitudes during this

time. General behavior is not assessed as a predictor in the present study, which is designed to move beyond prediction of later behavior from earlier behavior toward a broader multisystemic perspective. Neighborhood quality is often, though by no means always, associated with the influence of poverty. Socioeconomic status is examined in relation to problem outcomes in the present study. Taken together, risk factors examined in the present study are grounded solidly in the literature linking multiple domains of risk to the future expression of multiple problem behaviors.

#### Connection to Parents

Parent-child relations have long been viewed as a significant influence upon the expression and development of problem behavior (Maccoby & Martin, 1983). Meta-analytic findings have provided support for the existence of this relationship framed within a developmental perspective (Rothbaum & Weisz, 1994). Specifically, Rothbaum and Weisz (1994) found that cross-sectional relationships between parenting variables and behavioral problems were stronger for older children (6 to 15.5 years) than for younger children (10.5 months to 5 years). The strongest relationships found involved preadolescent boys and their mothers (Rothbaum & Weisz, 1994).

Prior work also indicates that students who drop out of school are likely to have parents who are less involved in their lives than do students who stay in school (Alpert & Dunham, 1986; Ekstrom, Goertz, Pollack, & Rock, 1986; Hanson & Ginsburg, 1988; Rumberger, Ghatak, Poulos, Ritter, & Dornbusch, 1990). Dropouts are also more likely to have relationships with parents characterized by less warmth, less communication, and higher levels of punitive forms of punishment (Bachman, Green, & Wirtanen, 1971; Ekstrom et al., 1986), and tend to have a more permissive parenting style (Rumberger et



al., 1990). Taken together, parent-child relations have consistently been implicated in the development of problem behavior.

#### Connection to Peers

Within the peer domain, studies have found that experiencing rejection by peers during childhood is associated with the later expression of problem behavior (Coie, Lochman, Terry, & Hyman, 1992; Kupersmidt, Coie, & Dodge, 1990; Parker & Asher, 1987; Tremblay, LeBlanc, & Schwartzman, 1988). The consensus of current studies indicates that rejection by prosocial peers in childhood is associated with having behaviorally deviant friends beginning in early adolescence (Dishion, 1990; Dishion, Patterson, Stoolmiller, & Skinner, 1991). Evidence suggests that groups of children displaying problem behavior are more likely to affiliate with peers outside of the school setting (Dryfoos, 1990). Prior work indicates that affiliation with deviant peers is associated with the development and progression of problem behavior through adolescence (Dishion, 1990; Dishion et al., 1991; Patterson, 1993; Vitaro, Tremblay, & Bukowski, 2001).

Similarly, prior work has indicated that peer rejection in childhood is associated with the establishment of networks of behaviorally deviant peers, who are more likely to drop out of school (Kupersmidt et al., 1990; Parker & Asher, 1987). Taken together, this research presents a picture in which the development of problem behavior is associated with rejection by a majority of peers within the school environment throughout development. The consequence of which appears to be gradual detachment from school in favor of affiliation with others at heightened risk to engage in problem behavior.

### Connection to School

In the present study, connection to teachers, bonding to school, school expectancies, and academic motivation are examined in relation to the development of problem behavior. With respect to teacher-child relations, existing evidence indicates that during childhood, engagement in problem behavior in the classroom setting is associated with poor teacher-child bonding relations in which children feel less supported (Dodge, Coie, & Brakke, 1982; Marcus & Sanders-Reio, 2001; Pianta, 1999). A growing body of work has suggested that children's connection to teachers is associated with the progression of problem behavior expressed within the school setting through adolescence (Marcus & Sanders-Reio, 2001; Pianta, 1999). Similarly, limited longitudinal evidence suggests that dropout is associated with poor relationships between teachers and students (Rutter, 1978; Rutter, Maughan, Mortimore, & Ouston, 1979; Werner, 1995).

Student attitudes toward school have also been associated with the expression of school-based problem behavior and school dropout. A recent meta-analysis examined the association between changes in school-based problem behavior and changes in bonding to school resulting from implementation of school-based prevention efforts (Najaka et al., 2001). Bonding to school was operationalized as encompassing liking school, possessing motivation to achieve, and having expectations for success in school. Across studies, positive changes in bonding to school were accompanied by reductions in problem behavior within the school setting (Najaka et al., 2001). Similarly, studies have indicated that school dropouts like school less (Ekstrom et al., 1986; Marcus & Sanders-Reio, 2001; Rumberger, 1987), are less motivated to achieve (Jimerson et al., 2000; Rumberger, 1987; Rumberger et al., 1990), and have lower educational aspirations

(Hanson & Ginsburg, 1988; Rumberger, 1987; Wehlage & Rutter, 1986) than students who stay in school.

### Developmental Perspective

From a developmental standpoint, early adolescence is known as the time when problem behaviors begin a steady increase in prevalence that continues through high school (Donovan & Jessor, 1985). For most students in our nation's schools, early adolescence is also coupled with the transition into middle school. The middle school transition has been identified as a key "turning point" in development (Carnegie Council on Adolescent Development, 1989). Drastic changes in the structure of schooling, combined with the onset of adolescence have been associated with declines across parent, peer, and school systems (Eccles et al., 1993).

The theoretical foundation for Eccles and her colleagues' work rests upon their application of a stage-environment fit perspective (Eccles et al., 1993). This approach is grounded in the person-environment fit theory, which proposes negative consequences for individuals when they are in environments that do not fit well with their needs (Lewin, 1935). Drawing upon the early work of Lewin (1935), Hunt (1975) proposed a developmental variant of the person-environment fit perspective and suggested applications of this model to students' education. Specifically, from the standpoint of this model, teachers should provide structure consistent with students' developmental level of maturity, while providing challenges that serve as opportunities for students to move toward higher levels of cognitive and social sophistication (Hunt, 1975).

Eccles et al. (1993) suggested that qualities of the middle school classroom environment represent a mismatch with the developmental needs of early adolescents.

These qualities include evidence suggesting that compared to elementary school, junior high school classrooms are characterized by a greater emphasis on teacher control and discipline, by fewer opportunities for student decision making, by less positive teacher-student relationships, and by more competitive grading practices.

Literature reviews have documented declines in motivation, teacher-child relations, bonding to school, and academic expectations for success across the transition (Eccles et al., 1993; Midgley & Edelin, 1998; Roeser, Eccles, & Strobel, 1998). Further, power struggles associated with an increased need for autonomy have been associated with declines in the quality of parent-child relations during early adolescence (Eccles et al., 1993). Early adolescence also appears to be the time when association with deviant peers solidifies for children on a developmental path toward future expression of problem behavior (Dishion, 1990).

Declines across these domains coupled with increases in problem behavior outcomes strongly support the need for primary prevention efforts designed to address these normative declines in functioning found across the transition to middle school (Carnegie Council on Adolescent Development, 1989; Durlak & Wells, 1997; Felner et al., 2001; Felner, Jackson, & Kasak, 1997). Equally important is the need to develop a means of identifying students at the highest levels of risk to engage in elevated levels of problem behavior following the transition to middle school. Ideally, it is important to identify these students while they are in elementary school and then to provide selective prevention efforts intended to decrease the likelihood that these students will engage in elevated levels of problem behavior following the transition to middle school (Durlak & Wells, 1998).

### Person-Focused Perspective

In addition to calling for expansion of more holistic longitudinal examinations of problem behavior development, Hinshaw and Park's (1999) critique also centered upon the need to "break set" by employing research methods that provide alternatives to the predominant variable-centered approach. Drawing upon Richters (1997) critique of variable-focused research methods, Hinshaw and Park (1999) argued strongly in favor of the use of person-centered methods such as cluster analysis (Magnusson & Bergmann, 1988). Person-focused methods are useful in that they identify more homogenous subgroups based upon underlying etiology. Consequently, this approach is ideally suited to the task of identifying a subgroup of students at highest risk to engage in increased levels of problem behavior based upon their standing across multiple risk domains (Magnusson & Bergmann, 1988).

Consistent with this approach and the review of risk factors above, students reporting the poorest connections to parents, peers, and school in fifth-grade would be expected to demonstrate the largest increases in problem behavior across the transition to middle school. These high risk students would also be expected to demonstrate elevated levels of disruptive behavior across middle school and high school. They would also be expected to drop out of school at higher rates than students who are not placed in the high risk group. These findings would support the need to direct selective prevention efforts toward this subgroup of students prior to and following entry into middle school (Durlak & Wells, 1998).

## Ethnicity and Socioeconomic Status

Importantly, a person-focused approach may enhance our understanding of ethnic and socioeconomic status differences in problem behavior. African-American students and those from low socioeconomic status backgrounds engage in higher levels of disruptive and delinquent behavior than do students from Caucasian and higher socioeconomic status backgrounds (Council on Crime in America, 1996; Elliot, 1994; Jones & Krisberg, 1994; United States Department of Health and Human Services, 1999). African-American students and those from low socioeconomic status backgrounds are also more likely to drop out of school (McLoyd, 1998; Tucker & Herman, 2002). While differences in problem behavior outcomes are clear, our understanding of factors associated with these ethnic and socioeconomic differences is limited (Hinshaw & Park, 1999; Jeynes, 2002; Yung & Hammond, 1997).

Existing research suggests that African-American students and those from low socioeconomic status backgrounds encounter higher levels of risk factors across parent, peer, and school-based systems. African-American and low socioeconomic status students are more likely to experience punitive interactions with parents and are less likely to experience positive interactions (Borkowski, Ramey, & Bristol-Power, 2002; McLoyd, 1998; Yung & Hammond, 1997). They are also more likely to perceive interactions with teachers as punitive and characterized by less reinforcement for successful performance (McLoyd, 1998; Polite, 1994). Low socioeconomic status and African-American students are also more likely to feel detached from school (Hirschi, 1969; McLoyd, 1998; Steele, 1997). Limited research suggests that detachment from school may be associated with declines in attachment to prosocial peers in the school

context (McAdoo & McAdoo, 1985). While socioeconomic and ethnic differences in motivation to succeed in school are unclear, low SES and African-American ethnicity are both associated with increased levels of negative expectations for school success (Tucker & Herman, 2002).

Taken together, these results suggest that African-American and students from lower socioeconomic status backgrounds engage in higher rates of problem behavior and present at higher levels of risk across domains found to be associated with problem behavior. A consequence of reliance upon findings derived from samples of middle-class, Caucasian children in longitudinal investigations of problem behavior is that our understanding of the how risk is related to problem behavior outcomes across and within ethnic groups is lacking (Loeber & Farrington, 1997; Loeber & Hay, 1997; Loeber & Stouthamer-Loeber, 1998; Tucker & Herman, 2002; Yung & Hammond, 1997). A primary goal of the present study is to move toward integration of these two bodies of research. Through doing so we may better understand both between and within group differences in problem behavior based upon ethnicity and socioeconomic status.

### Gender

There is broad consensus that boys engage in higher rates of disruptive behavior than do girls beginning in early childhood and continuing through adolescence at a rate of 4:1 (Giordano & Cernkovich, 1997). In contrast, dropout levels do not appear to differ as a function of gender (Ketterlinus & Lamb, 1994; Lerner & Galambos, 1998). Gender differences in rates of disruptive behavior have been used as justification for including only males in the majority of longitudinal studies examining disruptive behavior patterns (Giordano & Cernkovich, 1997; Loeber & Farrington, 1997). Consequently, our

understanding of factors associated with the development of problem behavior among girls is limited (Giordano & Cernkovich, 1997; Loeber & Stouthamer-Loeber, 1998).

Existing research suggests that boys encounter higher levels of risk factors across parent, peer, and school-based domains relative to girls. Existing data suggest that parental relations with boys are characterized by higher levels of conflict (Rothbaum & Weisz, 1994), which in turn is associated with higher levels of problem behavior. However, longitudinal data examining these gender differences is needed (Giordano & Cernkovich, 1997; Loeber & Hay, 1997; Loeber & Stouthamer-Loeber, 1998; Rothbaum & Weisz, 1994). Studies have also suggested that elementary school girls report having more supportive relationships with their teachers (Davis, 2001; Hamre & Pianta, 2001; Wentzel, 2002) and liking of school (Murray & Greenberg, 2000) than do boys. Studies indicate that boys are at higher risk for peer rejection in the elementary school years relative to girls (Dishion, 1990; Dishion et al., 1991). Research has also indicated that girls report higher levels of achievement motivation (Goodenow, 1993) and educational aspirations (Wentzel, 1997) during the elementary school years.

These findings suggest that gender differences in rates of problem behavior may be associated in part with a higher ratio of boys being classified as high risk based upon their standing across parent, peer, and school-based systems in elementary school. Importantly, within group differences must also exist in levels of risk for both boys and girls. Through examination of within group differences, investigators may better understand the nature of factors associated with problem behavior outcomes for both boys and girls alike.



## Hypotheses

In accord with the preceding review, students' connections to parents, peers, teachers, and school, as well as motivation, were expected to decline across the transition to middle school, while negative expectations were expected to rise (Eccles et al., 1993). Problem behavior was expected to increase across the middle school transition (Dryfoos, 1990). African-American students, boys, and students from low socioeconomic status backgrounds were expected to report lower levels of attachment to parents, peers, teachers, and school, as well as higher levels of negative expectations. Analyses of differences in motivation were exploratory. African-American students, boys and students from low socioeconomic status backgrounds were also expected to engage in higher rates of disruptive behavior and to dropout of school at higher rates than Caucasian students, girls, and students from higher socioeconomic status backgrounds.

In accord with the person-focused perspective of the present study, results of cluster analysis (Magnusson, 2000; Magnusson & Bergmann, 1988) were expected to place African-American students, boys, and students from low socioeconomic status backgrounds in a high risk group or groups at higher rates relative to Caucasian students, girls, and students from higher socioeconomic status backgrounds. Students within higher risk groups were expected to engage in higher levels of disruptive behavior and dropout relative to students in lower risk groups. Despite higher rates of African-American students, boys, and students from low socioeconomic status background in the high risk group, students from these demographics were expected to be represented in the average and low risk groups. These students were expected to engage in lower rates of future problem behavior

relative to their high risk counterparts. This would indicate within-demographic-group variability in terms of outcomes as a function of risk status.

## Method

### Participants

Participants include 4,695 students for whom survey data were collected in both fifth-grade and sixth-grade. The sample is drawn from a large (101,000) geographically diverse school district in central Florida. The sample is 79.7% Caucasian (1806 boys / 1937 girls), 15.1% African-American (359 boys, 350 girls), 2.8% Asian (54 boys / 76 girls), 2.3% Hispanic (48 boys / 58 girls), and 0.1% classified as Other (4 boys / 3 girls). Survey data were collected as part of a larger longitudinal study initiated and conducted by school district administrators and personnel. District personnel obtained passive parental consent and child assent. Five hundred children (9.6%) missing more than 20% of their data are not included in the study. The special education population was underrepresented in this study (16.2%) relative to the percentage of special education students in the entire fifth-grade class (22.1%) during the first year of the study. Underrepresented subgroups of special education students included students classified as EH (1.2% vs. 2.6%), SLD (11.6% vs. 12.5%), and SED (0.3% vs. 0.7%).

### Measures

#### School Adjustment Survey

The School Adjustment Survey is a self-report scale consisting of 33 items assessing students' motivation, achievement expectations, connection to school, connection to teachers, connection to peers, and connection to parents. Items were rationally selected by district personnel in accord with areas of interest to the district.

Students are asked to state the degree to which they agree with each of the 33 statements on a five-point scale ranging from (0) “Strongly Disagree” to (4) “Strongly Agree”. The Student Adjustment Survey was factor analyzed as part of the present study. Results are presented in the results section below.

#### Connection to Parents Scale

The Connection to Parents scale is a self-report scale consisting of six items (see Appendix A) assessing positive parent-child interaction. District personnel rationally selected scale items. Students are asked to state the degree to which they agree with each of the six statements on a five-point scale ranging from (0) “Strongly Disagree” to (4) “Strongly Agree”. The mean of these six items was calculated for each participant. Alpha reliabilities for the present sample were .68 for fifth-grade and .57 for sixth-grade.

#### School Discipline Records

School discipline records for all students present in the study were obtained for each year from 1994-1995, when the students were in fifth-grade, to the 2000-2001 school year. For each student present during each year of the study, the total number of school discipline referrals received was computed. The total number of violence-related referrals and the total number of classroom-related referrals was computed separately for each student present during each year of the study. Violence-related referrals include battery against another student, battery against an adult, fighting, weapons possession, sexual battery, and the use of threats/intimidation against other students. The school district uses the following codes in conjunction with classroom-related referrals: class disruption, lack of cooperation, use of profane or obscene language, disrespect/defiance/threats, and repeated misconduct. The total number of in-school

suspensions and out-of-school suspensions received by each student present during each year of the study was also calculated.

#### Student Dropout Status

The dropout status of each student was determined as of the conclusion of the 2000-2001 school year. Students will be classified as (1) Enrolled in High School, (2) Enrolled in Adult Education, (3) Dropout, or (4) Moved out of District. Although the district codes some students as having dropped out of school, there are several codes used and situations in which students that have dropped out of school are not classified as such. For the purpose of this study, students were coded as having dropped out of school if they were listed as: (1) Dropout, (2) Did Not Enter, (3) Non-Attendance, (4) Whereabouts Unknown, and (5) Other. Additionally, students who enrolled in adult education prior to graduation and were listed as inactive, meaning that they were not attending adult education classes were classified as having dropped out of school.

#### Demographic Data

Inclusion of gender and ethnicity were considered central to the present study, as was inclusion of an estimate of socioeconomic status (SES). Receipt of either free or reduced-cost lunch in school in fifth-grade was used as a rough estimate of students' socioeconomic status. Students were placed into groups in which they were either classified as receiving or not receiving free or reduced-cost lunch. Incorporation of this variable in the present study was considered essential due to sizable differences across ethnicities in rates of receiving free or reduced lunch. In the present sample, 7.4% of students received free lunch, while 29.7% of students received lunch at a reduced cost. Free and reduced lunch were received by significantly higher percentages of African-

American (79%), Hispanic (70.8%), and Asian (55.4%) students relative to Caucasian (27.5%) students ( $\chi^2(6) = 856.34, p < .001$ ).

### Procedure

School personnel conducted whole class administration of surveys during the spring of the 1994-1995 and 1995-1996 school years. Scale items were read aloud to all participants. School district personnel coded survey data, and compiled discipline and dropout data.

### Data Analysis

#### Factor Analysis of Student Adjustment Survey

A principal components factor analysis with varimax rotation was performed for the 5<sup>th</sup>-grade administration of the School Adjustment Survey. A five-factor solution consisting of Connection to Teachers, Connection to Peers, Connection to School, Motivation, and Negative Expectations was predicted. Other possible factor analytic solutions were explored as well. Approximate factor scoring was used. Sixth-grade subscales were formed based upon the fifth-grade solution chosen. As such, identical items were used to form subscales in both 5<sup>th</sup>-grade and 6<sup>th</sup>-grade. This permitted examination of stability or change in subscale means over time. Alpha reliabilities were calculated for all subscales. The mean of each subscale for each participant was computed.

#### Transition MANOVA

A four-way, 2 (Gender) x 2 (Ethnicity) x 2 (SES) x 2 (Time) MANOVA was conducted to examine if differences exist in mean levels of Connection to Parents, Connection to Peers, Connection to Teachers, Connection to School, Motivation, and

Negative Expectations across levels of these four independent variables. Only Caucasian and African-American participants were included in these analyses as concerns existed regarding the representativeness of Asian and Hispanic participants given limited sample size. To decrease the potential for Type I error in accord with the MANOVA design, effects for individual dependent variables were only examined if the omnibus F-test for an effect was significant, indicating that the effect was significant for at least one of the six dependent variables investigated.

### Cluster Analysis

Cluster analysis places participants into non-overlapping subgroups who each share similar scores on a set of continuous variables. The clusters are characterized by their mean scores on each of the variables used in the cluster analysis. For the present study, cluster analysis was used to identify fifth-grade students at risk for adjustment problems following the transition to middle school in 1995-1996 through the 2000-2001 school year. Participants' fifth-grade scores on each of the Student Adjustment Survey subscales and the Connection to Parents scale were included in the analysis. An agglomerative hierarchical analysis using Ward's method was used to form groups at different levels of risk based on the scales used.

### Risk Group Chi-Square Analyses

Following the cluster analysis, three separate chi-square analyses were used to determine if placement in risk groups varied by gender, ethnicity, and SES. Frequencies of participants classified as (1) High Risk, (2) Average Risk, and (3) Low Risk were compared against expected frequencies in each analysis.

### Problem Behavior MANOVAs

Six separate MANOVAs were computed in the present study. One five-way, 2 (Gender) x 2 (Ethnicity) x 2 (SES) x 3 (Risk) x 2 (Time) MANOVA examined mean differences in total discipline referrals, violence referrals, classroom referrals, in-school suspensions, and out-of-school suspensions received by this sample in fifth and sixth-grade. This first MANOVA was followed by a series of five MANOVAs in which mean differences in these same dependent variables were examined within a 2 (Gender) x 2 (Ethnicity) x 2 (SES) x 3 (Risk) factorial design for each of the remaining five years of the study (grades 7 through 11). These analyses were performed separately for each year as potentially selective attrition in these latter years of the study would have resulted in missing data that would have excluded these students from a single analysis incorporating all seven years of the study.

To control for Type I error, a conservative procedure was used to determine the significance of any single effect. To be considered significant, the omnibus F-test for a given effect was first checked for significance at the .05 level. If significant, individual F-tests for each of the five dependent variables were then examined for significance at the .05 level. If an effect was then significant for a particular dependent variable in a given year, conservative Bonferroni post-hoc tests were then performed to determine whether individual means were significantly different at the .05 level, controlling for family-wise error rate.

### Dropout Chi-Square Analyses

Four separate chi-square analyses were used to examine differences in dropout status as of the completion of the 2000-2001 school year across levels of Gender,

Ethnicity, SES, and Risk status. Frequencies of participants classified as (1) Enrolled in High School, (2) Enrolled in Adult Education, (3) Dropout, or (4) Moved out of District were compared against expected frequencies in each analysis.

## Results

### Factor Analysis of Student Adjustment Survey

Multiple principal components and principal axis factor solutions of the fifth-grade survey were examined to determine which solution best fit the data. Consistent with prediction, the five-factor principal components solution with varimax rotation with a .45 cutoff appeared to provide the best fit to the data (see Table 1). This solution accounted for 42% of the total variance. This solution was used to create subscales for both fifth and sixth-grade administrations of the survey to allow for comparison of mean differences across time for subscales comprised of identical items. Factors, with alpha reliability coefficients for fifth and sixth-graders respectively, were labeled Connection to Teachers (.78/.74), Connection to School (.78/.71), Connection to Peers (.69/-.11), Motivation (.55/.60), and Negative Expectations (.61/.57).

The Connection to Peers subscale in sixth-grade was the only subscale that did not manifest an acceptable level of internal reliability. Items with a positive tone (e.g. “A student can be himself/herself and still be accepted by other students in this school”) and negative tone (e.g. “Making friends is very difficult in this school”) did not show a strong negative correlation.



**TABLE 1****Student Adjustment Survey<sup>a</sup>**

	<b><u>Factor Loading</u></b>
<b><u>Connection to Teachers</u></b>	
10. Most teachers like my friends and me.	.65
7. I think my teachers care about me.	.65
9. My teachers often get to know me well.	.64
11. I care about what most of my teachers think about me.	.53
12. Some teachers would choose me as one of their favorite students.	.53
25. I feel that I can go to my teachers for advice or help with schoolwork.	.51
26. I feel that I can go to my teachers for advice and help with non-school work.	.48
<b><u>Connection to School</u></b>	
13. I like school.	.67
17. I feel a sense of school spirit.	.66
22. School is important to me.	.59
21. I feel like I am learning a lot in school.	.58
23. I believe I am learning important things in school.	.54
20. Discipline is fair at this school.	.51
<b><u>Connection to Peers</u></b>	
5. Most students include me in their activities.	.72
16. Other kids in my class have more friends than I do.	-.64
2. Making friends is difficult at this school.	-.63
6. I always seem to be left out of important school activities.	-.56
4. A student can be him/herself and still be a part of this school.	.46
<b><u>Motivation</u></b>	
32. Education is important for success in life.	.69
34. I think I will go to college.	.63
29. I try as hard as I can to do my best in school.	.54
31. It bothers me when I don't do something well.	.46
<b><u>Negative Expectancies</u></b>	
27. Most of my teachers don't really expect good work from me.	.52
28. I don't care how well I do in school.	.51
14. My teachers don't pay much attention to me.	.47
18. I don't feel safe at school.	.46

a.

Items that did not load on any factor include:

1. Students usually get along well with each other in this school.
3. I am in the wrong group to feel a part of this school.
8. Teachers are not usually available before class to talk with students.
15. I get a lot of encouragement at my school.
19. I have friends who are of different racial and ethnic backgrounds at this school.
24. I liked school more last year than I do this year.
33. I feel prepared for middle school.

## Transition MANOVA

### Main Effects

School Adjustment Survey MANOVA results for main effects are highly consistent across all six dependent variables. For each variable, the main effects of Gender (see Table 2), Ethnicity (see Table 2), SES (see Table 2) and Time (see Table 3) were all significant with only one exception. The exception being that a significant main effect of Gender was not found for the Connection to Parents dependent variable. With this exception, 5th-grade students, Girls, Caucasian students, and Regular Lunch students reported higher levels of Connection to Teachers, Connection to School, Connection to Parents, and Motivation. Fifth-grade students, Girls, and Regular Lunch students also reported higher levels of Connection to Peers, while African-American students reported higher levels of Connection to Peers than did Caucasian students. Fifth-grade students, Girls, Caucasian students, and Regular Lunch students also reported significantly lower mean Negative Expectations at the main effect level.

**TABLE 2****Student Adjustment Survey- Main Effects**

	GENDER			ETHNICITY						SES					
	Boys		Girls		F	Caucasian		African-American		F	Regular		Free/Reduced		
	M	(SD)	M	(SD)		M	(SD)	M	(SD)		M	(SD)	M	(SD)	F
Connection to Teachers	2.62	(.64)	2.74	(.60)	9.30**	2.70	(.62)	2.55	(.63)	10.59**	2.73	(.61)	2.58	(.63)	12.24***
Connection to School	2.64	(.65)	2.85	(.59)	29.55***	2.77	(.63)	2.63	(.62)	5.07*	2.80	(.61)	2.65	(.65)	15.52***
Connection to Peers	2.38	(.56)	2.49	(.52)	10.15**	2.43	(.55)	2.47	(.51)	16.05***	2.47	(.55)	2.38	(.53)	22.20***
Motivation	2.87	(.52)	2.92	(.47)	4.13*	2.92	(.48)	2.79	(.54)	11.59**	2.95	(.45)	2.81	(.55)	14.90***
Negative Expectations	1.56	(.59)	1.35	(.55)	55.63***	1.43	(.56)	1.57	(.63)	7.16**	1.40	(.55)	1.53	(.61)	17.94***
Connection to Parents	2.83	(.48)	2.86	(.46)	ns	2.87	(.46)	2.71	(.49)	21.37***	2.90	(.44)	2.75	(.51)	21.32***

**TABLE 3****Student Adjustment Survey- Main Effect of TIME**

	Connection to Teachers		Connection to School		Connection to Peers		Motivation		Negative Expectations		Connection to Parents	
	5th	6th	5th	6th	5th	6th	5th	6th	5th	6th	5th	6th
M	2.78	2.58	2.78	2.71	2.70	2.17	3.29	2.50	.86	2.04	3.09	2.59
(SD)	(.75)	(.88)	(.81)	(.87)	(.78)	(.57)	(.64)	(.75)	(.75)	(.80)	(.66)	(.68)
F (TIME)	63.56***		7.16**		610.50***		971.58***		1820.76***		405.57***	

### Interaction Effects

Omnibus F-tests indicated significant interaction effects for Time x SES ( $F(6,4439) = 10.42, p < .001$ ) and Time x Gender ( $F(6,4439) = 7.51, p < .001$ ). Follow-up F-tests indicated that the significance of these interaction effects varied across dependent variables.

The Time x SES interaction (see Table 4) was significant for Connection to Peers, Motivation, Negative Expectations, and Connection to Parents. Connection to Peers, Motivation and Connection to Parents declined more and Negative Expectations increased more for Regular Lunch students relative to students who received Free/Reduced Lunch.

The Time x Gender interaction (see Table 4) was significant for students' Connection to Teachers, Connection to School, and Motivation. Girls showed a larger decline relative to boys in Connection to Teachers, Connection to School, and Motivation across the transition to middle school.

### Cluster Analysis

Cluster solutions resulting in three through seven clusters were generated using the agglomerative method. All solutions were compared in terms of their ability to generate theoretically meaningful and homogenous subgroups demonstrating discriminant validity in relation to the outcomes considered. Consistent with prediction, the three cluster solution best met these criteria (see Table 5). High, Average, and Low Risk subgroups were clearly differentiated across each of the six subscales entered into the analysis. Further, reduction of standard deviation values in the Average and Low Risk subgroups relative to the Overall variability present prior to formation of subgroups

indicated that increased homogeneity was achieved in these subgroups relative to the overall sample. Finally, examination of three- to seven-cluster groups in relation to outcomes indicated strong discriminant validity for the three cluster solution across the range of outcomes examined, while increasing the number of clusters did not provide solid evidence of increased discriminant validity.

**TABLE 4**

<b>Student Adjustment Survey Interaction Effects</b>											
	SES					GENDER					
	Regular		Free/Reduced			Girls		Boys			
	M	(SD)	M	(SD)	F (Time x SES)	M	(SD)	M	(SD)	F (Time x Gender)	
Connection to Teach	5th	2.84	(.74)	2.68	(.76)	ns	2.89	(.69)	2.66	(.80)	3.94*
	6th	2.63	(.87)	2.48	(.91)		2.59	(.88)	2.57	(.89)	
Connection to Schoc	5th	2.83	(.79)	2.71	(.82)	ns	2.96	(.71)	2.59	(.86)	27.48***
	6th	2.78	(.84)	2.59	(.90)		2.74	(.86)	2.68	(.87)	
Connection to Peers	5th	2.77	(.79)	2.59	(.77)	21.27**	2.76	(.75)	2.64	(.82)	ns
	6th	2.17	(.57)	2.17	(.57)		2.22	(.56)	2.12	(.57)	
Motivation	5th	3.36	(.58)	3.16	(.73)	3.93*	3.38	(.59)	3.20	(.69)	28.07***
	6th	2.53	(.71)	2.46	(.82)		2.47	(.72)	2.54	(.79)	
Negative Expectatior	5th	.76	(.70)	1.02	(.80)	11.41**	.74	(.71)	.98	(.78)	ns
	6th	2.03	(.76)	2.05	(.87)		1.95	(.78)	2.14	(.81)	
Connection to Paren	5th	3.19	(.62)	2.93	(.69)	21.48***	3.13	(.64)	3.05	(.67)	ns
	6th	2.60	(.65)	2.57	(.73)		2.58	(.67)	2.60	(.70)	

**TABLE 5****Cluster Analysis Results**

	RISK GROUP						TOTAL	
	Low Risk <sup>1</sup>		Average Risk <sup>2</sup>		High Risk <sup>3</sup>		M	(SD)
	M	(SD)	M	(SD)	M	(SD)		
Connection to Teachers	3.26	(.44)	2.52	(.60)	1.88	(.76)	2.78	(.75)
Connection to School	3.34	(.43)	2.51	(.60)	1.70	(.78)	2.79	(.80)
Connection to Peers	3.05	(.61)	2.50	(.75)	2.05	(.79)	2.70	(.78)
Motivation	3.61	(.36)	3.22	(.53)	2.40	(.78)	3.29	(.64)
Negative Expectations	.40	(.41)	1.09	(.66)	1.77	(.76)	.86	(.75)
Connection to Parents	3.38	(.47)	3.00	(.57)	2.32	(.78)	3.09	(.66)

1. n = 2201 for the Low Risk group

2. n = 1867 for the Average Risk group

3. n = 627 for the High Risk group

**Risk Group Chi-Square Analyses**

Following the cluster analysis, chi-square analyses were used to determine if placement in risk groups varied by gender (Table 6), ethnicity (Table 7), and SES (Table 8). Results indicated that boys, African-American students, and students of low socioeconomic status were more likely to be placed in the high risk group relative to girls, Caucasian students, and students of higher socioeconomic status.

**TABLE 6****Gender x Risk Chi-Square<sup>1</sup>**

	GENDER		CLUSTER			Total
			High Risk	Average Risk	Low Risk	
	Boys	Count	375	1008	782	2165
		Expected Count	286.4	866.1	1012.5	2165
	Girls	Count	214	773	1300	2287
		Expected Count	302.6	914.9	1069.5	2287
	Total	Count	589	1781	2082	4452
		Expected Count	589	1781	2082	4452

1.  $X^2(2) = 200.70, p < .001$

**TABLE 7****Ethnicity x Risk Chi-Square<sup>1</sup>**

			CLUSTER			
			High Risk	Average Risk	Low Risk	Total
ETHNICITY	Caucasian	Count	456	1481	1806	3743
		Expected Count	495.2	1497.4	1750.4	3743
	African-American	Count	133	300	276	709
		Expected Count	93.8	283.6	331.6	709
Total		Count	589	1781	2082	4452
		Expected Count	589	1781	2082	4452

1.  $X^2(2) = 31.68, p < .001$

**TABLE 8****SES x Risk Chi-Square<sup>1</sup>**

			CLUSTER			
			High Risk	Average Risk	Low Risk	Total
SES	Regular	Count	295	1105	1460	2860
		Expected Count	378.4	1144.1	1337.5	2860
	Free/Reduced	Count	294	676	622	1592
		Expected Count	210.6	636.9	744.5	1592
Total		Count	589	1781	2082	4452
		Expected Count	589	1781	2082	4452

1.  $X^2(2) = 82.50, p < .001$

**Problem Behavior MANOVAs**

A series of six MANOVAs were conducted to examine mean differences in students' referrals and suspensions from fifth to eleventh-grade using Risk Group, Ethnicity, SES, and Gender as independent variables. Results are divided into six sections. Main effects are presented first. Then two-way interactions of main effects x time are presented. These are followed by two-way interactions involving Ethnicity, SES, and Gender, including Ethnicity x SES, Ethnicity x Gender, and SES x Gender. These are followed by two-way interactions involving Risk, including Risk x Ethnicity, Risk x SES, and Risk x Gender. These are followed by three-way interactions involving Risk,

including Ethnicity x SES x Risk, Ethnicity x Gender x Risk, and SES x Gender x Risk. These are followed by four-way interactions of Ethnicity x SES x Gender x Risk.

#### Main Effects

With few exceptions, main effects of Ethnicity, SES, Gender, and Risk were each significant across outcomes throughout the course of the study (see Tables 9-15). The only cases in which effects were not significant involved the effect of SES on Classroom Referrals in fifth-grade, Ethnicity on Total Referrals in eleventh-grade, Risk Group effects on Violence Referrals in fifth-grade (post-hoc not significant) and IS Suspensions in eleventh-grade, and five of the eight main effects upon Violence Referrals in ninth- and eleventh-grades. With these exceptions, higher risk groups, students who received free and reduced lunch, African-American students, and boys received higher mean referrals and suspensions than lower risk groups, students who did not receive free or reduced lunch, Caucasian students, and girls respectively. The significant main effect of Time across the middle school transition upon referrals and suspensions is presented in Table 16. These results indicate that total referrals, violence referrals, classroom referrals, in-school suspensions, and out-of-school suspensions increase across the middle school transition.



**TABLE 9****Problem Behavior Main Effects- 5th-Grade**

		Total Referrals- 5th			Violence Referrals- 5th			Classroom Referrals- 5th			IS Suspensions 5th			OS Suspensions- 5th		
		M	(SD)	F	M	(SD)	F	M	(SD)	F	M	(SD)	F	M	(SD)	F
RISK GROUP	Low Risk	.11	(.61)	15.19***	.02	(.15)	4.13* <sup>a</sup>	.05	(.37)	6.25**	.01	(.12)	10.56***	.01	(.11)	4.47* <sup>a</sup>
	Average Risk	.26	(.98)		.05	(.28)		.10	(.51)		.04	(.32)		.04	(.26)	
	High Risk	.45	(1.33)		.08	(.35)		.15	(.60)		.09	(.59)		.06	(.36)	
SES	Regular	.11	(.59)	38.22***	.02	(.17)	15.98***	.05	(.40)	3.03	.01	(.13)	14.28***	.01	(.11)	32.90***
	Free/Reduced	.41	(1.25)		.07	(.32)		.13	(.57)		.07	(.48)		.06	(.34)	
ETHNICITY	Caucasian	.14	(.65)	45.50***	.03	(.19)	21.01***	.06	(.41)	11.07**	.02	(.19)	18.45***	.01	(.14)	21.18***
	African-American	.62	(1.62)		.12	(.41)		.18	(.69)		.11	(.63)		.11	(.45)	
GENDER	Girls	.08	(.50)	52.93***	.01	(.10)	46.53***	.03	(.24)	19.69***	.01	(.10)	32.44***	.01	(.08)	33.06***
	Boys	.36	(1.16)		.07	(.32)		.14	(.62)		.06	(.43)		.05	(.31)	

a. Average and High Risk means not significantly different

**TABLE 10****Problem Behavior Main Effects- 6th-Grade**

		Total Referrals- 6th			Violence Referrals- 6th			Classroom Referrals- 6th			IS Suspensions- 6th			OS Suspensions- 6th		
		M	(SD)	F	M	(SD)	F	M	(SD)	F	M	(SD)	F	M	(SD)	F
RISK GROUP	Low Risk	1.06	(3.31)	27.05***	.10	(.46)	12.33***	.59	(2.28)	16.66***	.32	(1.22)	26.62***	.11	(.71)	14.06***
	Average Risk	2.17	(5.25)		.23	(.73)		1.24	(3.55)		.66	(1.78)		.26	(1.05)	
	High Risk	4.16	(7.50)		.40	(.96)		2.36	(4.85)		1.44	(3.31)		.49	(1.34)	
SES	Regular	1.06	(3.17)	87.48***	.10	(.43)	63.50***	.59	(2.21)	55.49***	.34	(1.24)	62.86***	.07	(.45)	87.14***
	Free/Reduced	3.45	(6.86)		.35	(.93)		1.97	(4.54)		1.09	(2.61)		.48	(1.45)	
ETHNICITY	Caucasian	1.30	(3.60)	102.24***	.13	(.49)	46.01***	.72	(2.43)	81.43***	.41	(1.36)	80.62***	.10	(.57)	86.50***
	African-American	5.16	(8.57)		.54	(1.17)		3.01	(5.75)		1.67	(3.34)		.82	(1.92)	
GENDER	Girls	1.04	(3.46)	82.86***	.07	(.35)	87.80***	.56	(2.30)	70.97***	.35	(1.40)	56.99***	.11	(.69)	86.50***
	Boys	2.84	(6.02)		.32	(.86)		1.63	(4.04)		.88	(2.25)		.33	(1.18)	

**TABLE 11****Problem Behavior Main Effects- 7th-Grade**

		Total Referrals- 7th			Violence Referrals- 7th			Classroom Referrals- 7th			IS Suspensions- 7th			OS Suspensions- 7th		
		M	(SD)	F	M	(SD)	F	M	(SD)	F	M	(SD)	F	M	(SD)	F
RISK GROUP	Low Risk	1.62	(4.80)	12.12***	.10	(.48)	17.95***	.84	(3.21)	9.67***	.58	(1.81)	16.83***	.18	(.86)	9.54***
	Average Risk	2.70	(5.54)		.19	(.57)		1.44	(3.64)		.98	(2.31)		.36	(1.18)	
	High Risk	4.97	(8.04)		.44	(.96)		2.90	(5.89)		1.87	(3.17)		.73	(1.77)	
SES	Regular	1.50	(4.14)	58.01***	.10	(.43)	41.96***	.79	(2.87)	39.45***	.54	(1.67)	66.75***	.14	(.68)	89.91***
	Free/Reduced	4.29	(7.49)		.32	(.82)		2.37	(5.10)		1.58	(2.96)		.65	(1.66)	
ETHNICITY	Caucasian	1.87	(4.73)	64.66***	.13	(.52)	23.26***	.97	(3.15)	52.09***	.70	(2.00)	35.98***	.20	(.81)	55.79***
	African-American	5.69	(8.58)		.42	(.90)		3.27	(6.11)		1.98	(3.10)		.96	(2.08)	
GENDER	Girls	1.45	(3.78)	72.09***	.08	(.37)	42.34***	.71	(2.43)	52.33***	.54	(1.59)	41.17***	.17	(.79)	45.21***
	Boys	3.59	(7.06)		.29	(.77)		2.02	(4.90)		1.30	(2.76)		.48	(1.43)	

**TABLE 12****Problem Behavior Main Effects- 8th-Grade**

		Total Referrals- 8th			Violence Referrals- 8th			Classroom Referrals- 8th			IS Suspensions- 8th			OS Suspensions- 8th		
		M	(SD)	F	M	(SD)	F	M	(SD)	F	M	(SD)	F	M	(SD)	F
RISK GROUP	Low Risk	1.93	(4.90)	14.47***	.09	(.39)	6.65**	1.03	(3.30)	6.16**	.71	(2.00)	11.31***	.23	(.96)	14.15***
	Average Risk	3.41	(6.49)		.16	(.52)		1.81	(4.15)		1.26	(2.85)		.44	(1.28)	
	High Risk	5.07	(7.10)		.27	(.67)		2.85	(4.78)		1.85	(2.92)		.81	(1.80)	
SES	Regular	1.83	(4.34)	48.37***	.08	(.37)	14.05***	.97	(2.87)	36.01***	.69	(1.90)	46.71***	.17	(.82)	60.95***
	Free/Reduced	4.95	(7.78)		.25	(.64)		2.68	(5.14)		1.78	(3.26)		.78	(1.70)	
ETHNICITY	Caucasian	2.27	(5.03)	50.74***	.10	(.40)	54.19***	1.21	(3.35)	28.42***	.87	(2.27)	14.82***	.25	(.97)	54.24***
	African-American	6.24	(8.68)		.37	(.76)		3.38	(5.66)		2.10	(3.35)		1.07	(2.02)	
GENDER	Girls	1.85	(4.33)	48.05***	.07	(.33)	39.76***	.85	(2.50)	50.05***	.69	(1.89)	25.61***	.23	(.85)	46.34***
	Boys	4.07	(7.16)		.22	(.61)		2.34	(4.87)		1.48	(3.00)		.56	(1.54)	

**TABLE 13****Problem Behavior Main Effects- 9th-Grade**

		Total Referrals- 9th			Violence Referrals- 9th			Classroom Referrals- 9th			IS Suspensions- 9th			OS Suspensions- 9th		
		M	(SD)	F	M	(SD)	F	M	(SD)	F	M	(SD)	F	M	(SD)	F
RISK GROUP	Low Risk	1.99	(4.57)	14.18***	.04	(.21)	2.50	.75	(2.27)	11.84***	.52	(1.47)	19.43***	.25	(.88)	11.38***
	Average Risk	3.49	(6.38)		.06	(.27)		1.42	(3.07)		1.08	(2.37)		.42	(1.16)	
	High Risk	5.04	(7.62)		.09	(.37)		2.32	(4.16)		1.72	(3.08)		.71	(1.58)	
SES	Regular	2.05	(4.63)	46.29***	.03	(.18)	23.11***	.78	(2.24)	43.68***	.58	(1.71)	35.27***	.22	(.78)	40.56***
	Free/Reduced	4.71	(7.39)		.10	(.36)		2.03	(3.80)		1.48	(2.70)		.67	(1.51)	
ETHNICITY	Caucasian	2.58	(5.45)	8.07**	.04	(.21)	24.87***	1.02	(2.75)	9.65***	.74	(1.97)	14.80***	.30	(.95)	16.69***
	African-American	4.97	(7.37)		.14	(.43)		2.22	(3.61)		1.66	(2.78)		.78	(1.66)	
GENDER	Girls	2.37	(5.03)	7.11**	.04	(.20)	3.07	.77	(2.19)	24.36***	.63	(1.62)	8.30**	.29	(.92)	9.89**
	Boys	3.62	(6.61)		.07	(.31)		1.69	(3.51)		1.17	(2.57)		.47	(1.28)	

**TABLE 14****Problem Behavior Main Effects- 10th-Grade**

		Total Referrals- 10th			Violence Referrals- 10th			Classroom Referrals- 10th			IS Suspensions- 10th			OS Suspensions- 10th		
		M	(SD)	F	M	(SD)	F	M	(SD)	F	M	(SD)	F	M	(SD)	F
RISK GROUP	Low Risk	1.94	(4.35)	8.95***	.03	(.20)	8.10***	.64	(1.85)	6.96**	.39	(1.20)	7.45**	.21	(.90)	6.74**
	Average Risk	3.27	(5.75)		.05	(.25)		1.23	(2.94)		.71	(1.57)		.42	(1.20)	
	High Risk	4.43	(7.08)		.09	(.34)		1.87	(4.24)		1.06	(2.31)		.64	(1.61)	
SES	Regular	2.11	(4.48)	28.21***	.02	(.17)	4.28*	.67	(1.95)	40.51***	.42	(1.15)	23.87***	.22	(.82)	29.64***
	Free/Reduced	4.10	(6.68)		.09	(.35)		1.74	(3.75)		.98	(2.08)		.61	(1.58)	
ETHNICITY	Caucasian	2.36	(4.87)	12.95***	.03	(.19)	31.21***	.82	(2.41)	8.03**	.47	(1.33)	22.74***	.26	(.93)	15.60***
	African-American	4.77	(7.11)		.12	(.41)		2.02	(3.77)		1.23	(2.21)		.78	(1.81)	
GENDER	Girls	2.07	(4.46)	15.21***	.03	(.20)	4.52*	.66	(2.17)	13.92***	.42	(1.23)	9.37**	.22	(.83)	19.25***
	Boys	3.49	(6.13)		.06	(.28)		1.41	(3.15)		.79	(1.79)		.48	(1.38)	

**TABLE 15****Problem Behavior Main Effects- 11th-Grade**

		Total Referrals- 11th			Violence Referrals- 11th			Classroom Referrals- 11th			IS Suspensions- 11th			OS Suspensions- 11th		
		M	(SD)	F	M	(SD)	F	M	(SD)	F	M	(SD)	F	M	(SD)	F
RISK GROUP	Low Risk	1.41	(2.97)	3.60*	.02	(.16)	1.43	.45	(1.39)	3.34*	.28	(.89)	2.50	.13	(.54)	4.45*
	Average Risk	2.16	(4.11)		.03	(.17)		.80	(1.95)		.51	(1.31)		.25	(.77)	
	High Risk	3.09	(5.76)		.04	(.20)		1.21	(2.35)		.66	(1.57)		.44	(1.18)	
SES	Regular	1.58	(3.51)	18.12***	.01	(.12)	6.80**	.51	(1.50)	19.87***	.31	(.92)	17.69***	.15	(.59)	26.10***
	Free/Reduced	2.56	(4.49)		.05	(.24)		1.02	(2.20)		.64	(1.55)		.35	(.97)	
ETHNICITY	Caucasian	1.69	(3.58)	3.53	.02	(.14)	2.56	.56	(1.60)	5.85*	.34	(1.02)	8.83**	.17	(.65)	3.99*
	African-American	2.86	(4.96)		.06	(.27)		1.17	(2.38)		.77	(1.66)		.40	(1.05)	
GENDER	Girls	1.15	(2.52)	42.26***	.02	(.15)	< 1	.35	(1.17)	40.26***	.26	(.85)	19.20***	.11	(.48)	18.43***
	Boys	2.69	(4.81)		.03	(.19)		1.02	(2.19)		.58	(1.41)		.32	(.92)	

**TABLE 16****Mean Changes in Problem Behavior across the Middle School Transition**

	Total Referrals		Violence Referrals		Classroom Referrals		IS Suspensions		OS Suspensions	
	5th-Grade	6th-Grade	5th-Grade	6th-Grade	5th-Grade	6th-Grade	5th-Grade	6th-Grade	5th-Grade	6th-Grade
M	.22	1.91	.04	.19	.08	1.08	.03	.61	.03	.22
(SD)	(.90)	(4.96)	(.24)	(.66)	(.47)	(3.31)	(.31)	(1.88)	(.22)	(.96)
F	514.05***		180.35***		400.95***		389.09***		214.45***	

### Main Effects x Time

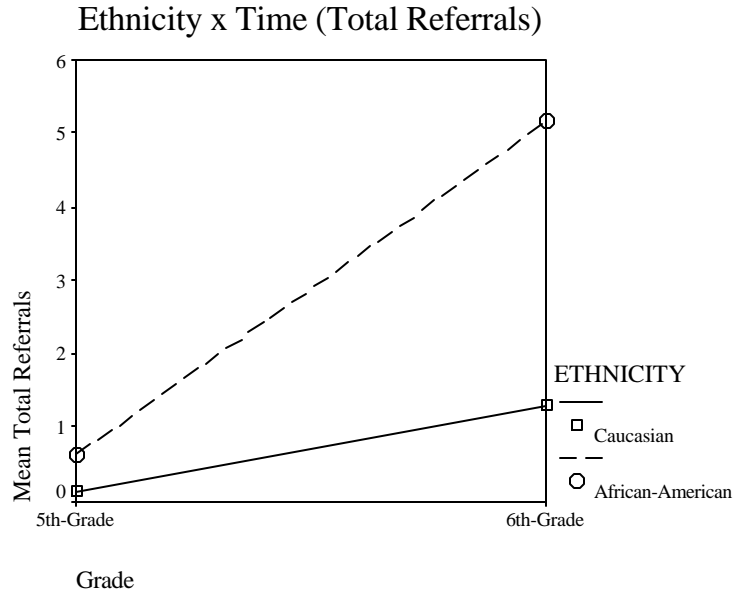
Results presented in Tables 17 and 18 indicate that mean differences between levels for each independent variable increase significantly across the middle school transition. This effect is significant across each dependent variable. For example, as shown in Figure 1, the difference in Total Referrals between Caucasian and African-American students increases from .48 (.62 - .14) in 5<sup>th</sup>-grade to 3.86 (5.16 – 1.30) in 6<sup>th</sup>-grade.

**TABLE 17****Main Effects x Time 2-Way Interactions for Referrals**

		Total Referrals					Violence Referrals					Classroom Referrals				
		5th		6th		F	5th		6th		F	5th		6th		F
		M	(SD)	M	(SD)		M	(SD)	M	(SD)		M	(SD)	M	(SD)	
RISK GROUP	Low	.11	(.61)	1.06	(3.31)	22.01***	.02	(.15)	.10	(.46)	7.84***	.05	(.37)	.59	(2.28)	14.94***
	Average	.26	(.98)	2.17	(5.25)		.05	(.28)	.23	(.73)		.10	(.51)	1.24	(3.55)	
	High	.45	(1.33)	4.16	(7.50)		.08 <sup>a</sup>	(.35)	.40	(.96)		.15	(.60)	2.36	(4.85)	
SES	Regular	.11	(.59)	1.06	(3.17)	72.74***	.02	(.17)	.10	(.43)	42.40***	.05	(.40)	.59	(2.21)	54.71***
	Free/Reduced	.41	(1.25)	3.45	(6.86)		.07	(.32)	.35	(.93)		.13	(.57)	1.97	(4.54)	
ETHNICITY	Caucasian	.14	(.65)	1.30	(3.60)	84.79***	.03	(.19)	.13	(.49)	26.98***	.06	(.41)	.72	(2.43)	76.96***
	African-American	.62	(1.62)	5.16	(8.57)		.12	(.41)	.54	(1.17)		.18	(.69)	3.01	(5.75)	
GENDER	Girls	.08	(.50)	1.04	(3.46)	64.86***	.01	(.10)	.07	(.35)	47.00***	.03	(.24)	.56	(2.30)	63.76***
	Boys	.36	(1.16)	2.84	(6.02)		.07	(.32)	.32	(.86)		.14	(.62)	1.63	(4.04)	

a. Average and High Risk means not significantly different for 5th-grade Violence referrals

**FIGURE 1**



**TABLE 18**

**Main Effects x Time 2-Way Interactions for Suspensions**

		IS Suspensions					OS Suspensions				
		5th		6th		F	5th		6th		F
		M	(SD)	M	(SD)		M	(SD)	M	(SD)	
RISK GROUP	Low	.01	(.12)	.32	(1.22)	22.05***	.01	(.11)	.11	(.71)	11.54***
	Average	.04	(.32)	.66	(1.78)		.04	(.26)	.26	(1.05)	
	High	.09	(.59)	1.44	(3.31)		.06 <sup>a</sup>	(.36)	.49	(1.34)	
SES	Regular	.01	(.13)	.34	(1.24)	54.65***	.01	(.11)	.07	(.45)	69.80***
	Free/Reduced	.07	(.48)	1.09	(2.61)		.06	(.34)	.48	(1.45)	
ETHNICITY	Caucasian	.02	(.19)	.41	(1.36)	70.05***	.01	(.14)	.10	(.57)	73.84***
	African-American	.11	(.63)	1.67	(3.34)		.11	(.45)	.82	(1.92)	
GENDER	Girls	.01	(.10)	.35	(1.40)	44.57***	.01	(.08)	.11	(.69)	26.21***
	Boys	.06	(.43)	.88	(2.25)		.05	(.31)	.33	(1.18)	

a. Average and High Risk means not significantly different for 5th-grade OS Suspensions

## Two-Way Interactions involving Ethnicity, SES, and Gender

### Ethnicity x SES (x Time)

Results presented in Table 19 indicate that mean differences in referrals and suspensions between Regular and Free/Reduced Lunch students differ across levels of Ethnicity. For each of the 17 significant Ethnicity x SES interactions, the mean difference between Regular and Free-Reduced Lunch groups is larger for African-American students than for Caucasian students.

The five significant Ethnicity x SES x Time interactions indicate that from 5th to 6th-grade mean differences between Regular and Free/Reduced Lunch groups become larger for African-American students relative to Caucasian students for each of the five outcomes. For example, as shown in Figures 2a and 2b, the difference in Total Referrals for those receiving Regular Lunch and those receiving Free/Reduced Lunch changes from .14 (.24 - .10) in 5<sup>th</sup>-grade to 1.15 (2.13 – 0.98) for Caucasian students, and from .49 (.73 - .24) to 3.41 (5.88 – 2.47) for African-American students.

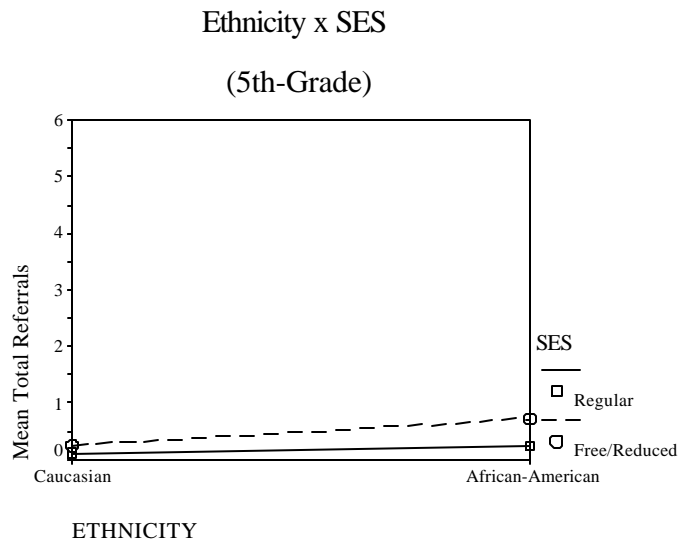


**TABLE 19****Ethnicity x SES (x Time) Interactions**

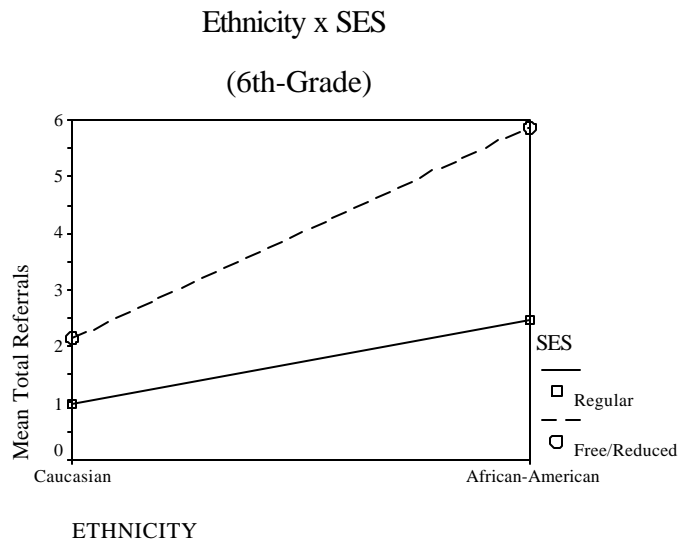
		Caucasian				African-American				F (Ethnicity x SES)	F (Ethnicity x SES x Time)
		Regular		Free/Reduced		Regular		Free/Reduced			
		M	(SD)	M	(SD)	M	(SD)	M	(SD)		
Total	5th	.10	(.56)	.24	(.84)	.24	(.95)	.73	(1.74)	10.84**	22.89***
	6th	.98	(2.96)	2.13	(4.80)	2.47	(5.54)	5.88	(9.08)	27.18***	
	7th	1.40	(3.77)	3.13	(6.51)	3.34	(8.17)	6.31	(8.59)	4.84*	
	11th	1.58	(3.54)	2.08	(3.67)	1.60	(2.80)	3.27	(5.42)	9.71**	
Violence	5th	.02	(.16)	.04	(.23) <sup>a</sup>	.06	(.29)	.13	(.44)	4.37*	20.06***
	6th	.10	(.41)	.20	(.66)	.19	(.71)	.63	(1.24)	27.39***	
	7th	.10	(.42)	.23	(.72)	.20	(.57)	.48	(.96)	5.62*	
Classroom	5th	.05	(.38)	.09	(.48)	.12	(.65)	.19	(.70)	< 1	16.56***
	6th	.53	(2.07)	1.19	(3.15)	1.59	(3.89)	3.39	(6.10)	15.96***	
	11th	.50	(1.48)	.81	(1.95)	.68	(1.88)	1.33	(2.50)	4.95*	
ISS	5th	.01	(.12)	.04	(.30)	.05	(.29)	.13	(.70)	3.31	18.96***
	6th	.31	(1.15)	.66	(1.78)	.81	(2.28)	1.89	(3.53)	21.16***	
	7th	.52	(1.65)	1.19	(2.67)	.93	(1.88)	2.26	(3.30)	7.40**	
	11th	.31	(.92)	.48	(1.32)	.41	(.93)	.88	(1.82)	6.86**	
OSS	5th	.01	(.11)	.03	(.20) <sup>a</sup>	.02	(.14)	.13	(.50)	15.74***	29.50***
	6th	.06	(.41)	.22	(.85)	.26	(.92)	.96	(2.08)	37.62***	
	7th	.13	(.62)	.38	(1.17)	.35	(1.39)	1.13	(2.20)	25.51***	
	8th	.15	(.75)	.52	(1.38)	.47	(1.69)	1.22	(2.06)	5.77*	
	11th	.15	(.60)	.25	(.78)	.12	(.35)	.49	(1.18)	12.06**	

a. post hoc test of mean difference between Regular and Free/Reduced Lunch Caucasian students

**Figure 2a**



**Figure 2b**



### Ethnicity x Gender (x Time)

Results presented in Table 20 indicate that mean differences in referrals and suspensions between Boys and Girls differ across levels of Ethnicity. For each of the nine significant Ethnicity x Gender interactions, Gender differences in means were larger for African-American students than for Caucasian students.

The five significant Ethnicity x Gender x Time interactions indicate that from 5<sup>th</sup> to 6<sup>th</sup>-grade mean differences between Boys and Girls become larger for African-American students relative to Caucasian students.

**TABLE 20****Ethnicity x Gender (x Time) Interactions**

		Caucasian				African-American					
		Girls		Boys		Girls		Boys			
		M	(SD)	M	(SD)	M	(SD)	M	(SD)	F (Ethnicity x Gender)	F (Ethnicity x Gender x Time)
Total	5th	.04	(.28)	.25	(.88)	.33	(1.06)	.91	(1.98)	5.72*	4.45*
	6th	.58	(2.03)	2.07	(4.62)	3.61	(6.90)	6.67	(9.71)	6.13*	
Violence	5th	.00	(.06)	.05	(.26)	.04	(.22)	.19	(.53)	8.27**	5.20*
	6th	.03	(.23)	.22	(.65)	.27	(.69)	.80	(1.45)	11.19**	
Classroom	5th	.02	(.17)	.11	(.56)	.09	(.48)	.26	(.84)	< 1	6.67*
	6th	.29	(1.36)	1.17	(3.15)	2.05	(4.68)	3.95	(6.50)	6.55*	
ISS	5th	.00	(.08)	.03	(.26)	.03	(.20)	.19	(.86)	9.39**	3.87*
	6th	.19	(.84)	.64	(1.72)	1.24	(2.81)	2.08	(3.74)	6.06*	
OSS	5th	.00	(.02)	.03	(.20)	.03	(.20)	.18	(.60)	7.93**	4.44*
	6th	.03	(.25)	.18	(.77)	.55	(1.59)	1.08	(2.16)	7.22**	

SES x Gender (x Time)

Results presented in Table 21 below indicate that mean differences in referrals and suspensions between Boys and Girls differ across levels of SES. For Violence Referrals in 6th and 7th-grade, Out-of-School Suspensions in 5th-grade, and Classroom Referrals in 8th-grade, Gender differences are larger among students who receive Free/Reduced Lunch.

The significant SES x Gender x Time interaction for Violence Referrals indicates that from 5<sup>th</sup> to 6<sup>th</sup>-grade the mean difference between Boys and Girls becomes larger among students receiving Free/Reduced Lunch than among students receiving Regular Lunch.

**TABLE 21**

**SES x Gender (x Time) Interactions**

		Regular				Free/Reduced				F (SES x Gender)	F (SES x Gender x Time)
		Girls		Boys		Girls		Boys			
		M	(SD)	M	(SD)	M	(SD)	M	(SD)		
Violence	5th	.00	(.05)	.04	(.24)	.02	(.16)	.13	(.43)	2.31	5.58*
	6th	.03	(.22)	.18	(.56)	.15	(.50)	.56	(1.19)	8.51**	
	7th	.03	(.22)	.18	(.56)	.17	(.53)	.48	(1.02)	8.99**	
OSS	5th	.00	(.03)	.02	(.16) <sup>a</sup>	.01	(.14)	.11	(.46)	15.60***	na
Classroom	8th	.49	(1.87)	1.49	(3.59)	1.54	(3.29)	3.82	(6.28)	7.55**	na

a. Means of Girls and Boys receiving Regular Lunch are not significantly different for OSS in 5th-grade

Two-Way Interactions involving Risk

Risk x SES (x Time)

Results presented in Table 22 indicate that mean differences in referrals and suspensions between Regular and Free/Reduced Lunch students differ across levels of Risk. For each of the eight significant Risk x SES interactions, the mean difference

between Regular and Free/Reduced lunch students increases significantly as Risk increases.

Significant Risk x SES x Time interactions indicate that from 5th to 6th-grade the mean difference between Regular and Free/Reduced lunch students becomes larger across levels of Risk. For Total Referrals, Classroom Referrals, and In-School Suspensions, the Risk x SES interaction was not significant in 5th-Grade. However, by 6th-grade the interaction was significant.

**TABLE 22****Risk Group x SES (x Time) Interactions**

		Low Risk				Average Risk				High Risk					
		Regular		Free/Reduced		Regular		Free/Reduced		Regular		Free/Reduced		F (Risk x SES)	F (Risk x SES x Time)
		M	(SD)	M	(SD)	M	(SD)	M	(SD)	M	(SD)	M	(SD)		
Total	5th	.07	(.51)	.21	(.79)	.13	(.60)	.49	(1.36)	.24	(.82)	.66	(1.66)	1.29	3.47*
	6th	.56	(1.93)	2.23	(5.09)	1.35	(3.72)	3.52	(6.87)	2.43	(4.87)	5.89	(9.11)	3.75*	
	7th	1.03	(3.95)	3.03	(6.16)	1.69	(3.71)	4.38	(7.38)	3.15	(5.80)	6.79	(9.46)	4.70**	
Classroom	5th	.04	(.37)	.07	(.37)	.06	(.42)	.15	(.64)	.12	(.44)	.19	(.72)	< 1	3.24*
	6th	.31	(1.41)	1.25	(3.49)	.75	(2.57)	2.03	(4.63)	1.39	(3.41)	3.34	(5.81)	3.08*	
	7th	.54	(2.84)	1.57	(3.87)	.86	(2.36)	2.39	(4.96)	1.75	(4.27)	4.07	(6.97)	6.61**	
ISS	5th	.00	(.09)	.02	(.17)	.01	(.14)	.08	(.48)	.02	(.24)	.16	(.80)	2.49	5.89**
	6th	.17	(.75)	.69	(1.87)	.44	(1.46)	1.02	(2.16)	.78	(1.92)	2.10	(4.16)	6.86**	
OSS	5th	.00	(.05)	.02	(.18) <sup>a</sup>	.02	(.16)	.07	(.37)	.00	(.06)	.12	(.50)	4.50*	2.88
	6th	.03	(.33)	.28	(1.17)	.10	(.53)	.51	(1.53)	.15	(.63)	.83	(1.72)	4.18*	
	7th	.08	(.55)	.41	(1.30)	.20	(.83)	.63	(1.56)	.24	(.67)	1.22	(2.31)	11.41***	

a. post hoc test of mean difference between Regular and Free/Reduced Lunch students not significant

### Risk x Ethnicity (x Time)

Results presented in Table 23 indicate that mean differences in referrals and suspensions between Caucasian and African-American students differ across levels of Risk. For each of the four significant Risk x Ethnicity interactions, the mean difference between Caucasian and African-American students increases significantly as Risk increases.

The significant Risk x Ethnicity x Time interaction for Out-of-School suspensions indicates that from 5th to 6th grade the mean difference between Caucasian and African-American students becomes larger across levels of Risk.



**TABLE 23****Risk x Ethnicity (x Time) Interactions**

		Low Risk				Average Risk				High Risk					
		Caucasian		African-American		Caucasian		African-American		Caucasian		African-American			
		M	(SD)	M	(SD)	M	(SD)	M	(SD)	M	(SD)	M	(SD)	F (Risk x Ethnicity)	F (Risk x Ethnicity x Time)
Total	5th	.08	(.53)	.32	(.96)	.16	(.70)	.75	(1.74)	.29	(.87)	.98	(2.21)	4.77**	1.61
	6th	.70	(2.37)	3.43	(6.28)	1.52	(3.95)	5.40	(8.62)	2.97	(5.41)	8.23	(11.30)	2.62	
ISS	5th	.01	(.11)	.02	(.20) <sup>a</sup>	.02	(.21)	.13	(.61)	.04	(.31)	.27	(1.09)	5.80**	2.46
	6th	.21	(.84)	1.05	(2.46)	.47	(1.41)	1.62	(2.82)	.97	(2.34)	3.03	(5.14)	3.82*	
OSS	5th	.00	(.05)	.05	(.26)	.02	(.18)	.13	(.49)	.03	(.22)	.17	(.63)	< 1	3.12*
	6th	.05	(.37)	.51	(1.64)	.13	(.66)	.89	(1.97)	.26	(.84)	1.28	(2.19)	3.46*	

a. post hoc test of mean difference between Caucasian and African-American students not significant

### Risk x Gender

Results presented in Table 24 indicate that mean differences in referrals and suspensions between Boys and Girls differ across levels of Risk. For each of the four significant Risk x Gender interactions, the mean difference between Caucasian and African-American students increased significantly as Risk increased.

**TABLE 24****Risk x Gender Interactions**

	Low Risk		Average Risk				High Risk		F				
	Girls		Boys		Girls		Boys						
	M	(SD)	M	(SD)	M	(SD)	M	(SD)					
Total- 5th	.04	(.31)	.22	(.90)	.12	(.68)	.37	(1.14)	.18	(.63)	.60	(1.58)	4.29*
Violence- 5th	.01	(.07)	.04	(.22)	.01	(.09)	.09	(.36)	.03	(.22)	.10	(.40)	3.15*
ISS- 5th	.00 <sup>1</sup>	(.05)	.02 <sup>1</sup>	(.19)	.01	(.16)	.06	(.40)	.01	(.12)	.14	(.74)	7.40*
OSS- 5th	.00 <sup>1</sup>	(.07)	.02 <sup>1</sup>	(.15)	.01	(.08)	.07	(.34)	.01	(.15)	.09	(.44)	3.46*

<sup>1</sup>. Means not significantly different

### Three-way Interactions involving Risk

#### Ethnicity x SES x Risk (x Time)

Significant Ethnicity x SES x Risk interactions were found for In-School Suspensions in 6<sup>th</sup>-grade, Classroom referrals in 7<sup>th</sup>-grade, and Out-of-School Suspensions in 7<sup>th</sup>-grade. Results presented in Table 25 indicate that in three cases, the Ethnicity x SES interaction was only significant at one or two, but not all three levels of Risk. For Classroom Referrals in 7th-Grade, mean differences between Regular and Free/Reduced Lunch groups were only larger for African-American students relative to Caucasian students at Average and High levels of Risk. For Out-of-School Suspensions in 7th-Grade, mean differences between Regular and Free/Reduced Lunch groups were only larger for African-American students relative to Caucasian students at the High Risk level. For In-School Suspensions in 6th-Grade, mean differences between Regular and Free/Reduced Lunch groups were only larger for African-American students relative to Caucasian students at Low and High levels of Risk. The Ethnicity x SES x Risk x Time interaction for In-School Suspensions indicates that the Ethnicity x SES x Risk interaction for In-School Suspensions became significant in 6<sup>th</sup>-grade, whereas it had not been significant in 5<sup>th</sup>-grade.

**TABLE 25****Ethnicity x SES x Risk (x Time) Interactions**

			Caucasian				African-American					
			Regular		Free/Reduced		Regular		Free/Reduced			
			M	(SD)	M	(SD)	M	(SD)	M	(SD)	F (Ethnicity x SES x Risk)	F )Ethnicity x SES x Risk x Time)
ISS	5th	Low Risk	.00	(.09)	.01	(.14)	.00	(.00)	.02	(.23)	1.23	3.16*
		Average Risk	.01	(.11)	.05	(.35)	.08	(.38)	.14	(.65)		
		High Risk	.02	(.22)	.08	(.41)	.09	(.43)	.31	(1.18)		
	6th	Low Risk	.16	(.69)	.41	(1.19)	.40	(1.49)	1.26	(2.67) <sup>a</sup>	3.75*	
		Average Risk	.40	(1.35)	.63	(1.54)	1.17	(2.69)	1.74	(2.84)		
		High Risk	.75	(1.83)	1.31	(2.92)	1.09	(2.88)	3.41	(5.41) <sup>a</sup>		
Classroom	7th	Low Risk	.46	(2.13)	1.02	(3.00)	2.05	(8.98)	2.60	(4.97)	3.26*	na
		Average Risk	.81	(2.32)	1.63	(3.99) <sup>a</sup>	1.68	(2.80)	3.69	(6.08) <sup>a</sup>		
		High Risk	1.72	(4.29)	3.18	(6.80) <sup>a</sup>	2.10	(4.15)	5.43	(7.04) <sup>a</sup>		
OSS	7th	Low Risk	.07	(.47)	.23	(.96)	.25	(1.41)	.75	(1.73)	4.62*	na
		Average Risk	.18	(.76)	.36	(1.05)	.53	(1.58)	1.09	(2.10)		
		High Risk	.25	(.69)	.76	(1.69) <sup>a</sup>	.14	(.36)	1.92	(2.90) <sup>a</sup>		

a. post hoc test of mean difference between Regular and Free/Reduced Lunch students IS significant (All others are NOT significant)

### Ethnicity x Gender x Risk

Significant Ethnicity x Gender x Risk interactions were found for Violence Referrals in 7<sup>th</sup>-grade and for Out-of-School Suspensions in 8<sup>th</sup>-grade. Results presented in Table 26 indicate that the Ethnicity x Gender interaction differed across levels of Risk. For Violence Referrals in 7<sup>th</sup>-grade, gender differences existed across all three levels of Risk for Caucasian students, while gender differences existed only at Average and High Risk levels for African-American students. For Out-of-School Suspensions in 8<sup>th</sup>-grade, gender differences existed only at the Low Risk level for Caucasian students, while gender differences existed only at the Average and High Risk levels for African-American students.

**TABLE 26****Ethnicity x Gender x Risk Interactions <sup>1</sup>**

		Caucasian				African-American				
		Girls		Boys		Girls		Boys		
		M	(SD)	M	(SD)	M	(SD)	M	(SD)	F (Ethnicity x Gender x Risk)
Violence- 7th	Low Risk	.02a	(.16)	.17b	(.61)	.21a	(.69)	.30a	(.95)	3.53*
	Average Risk	.06a	(.33)	.19b	(.53)	.22a	(.50)	.64b	(1.06)	
	High Risk	.16a	(.53)	.46b	(1.05)	.46a	(.76)	.89b	(1.17)	
OSS- 8th	Low Risk	.06a	(.35)	.28b	(1.13)	.66a	(1.63)	.88a	(1.79)	3.56*
	Average Risk	.21a	(.86)	.34a	(1.05)	.56a	(1.21)	1.57b	(2.46)	
	High Risk	.34a	(.97)	.69a	(1.71)	1.14a	(1.49)	1.96b	(2.85)	

1. Pairwise comparisons between Boys and Girls within Ethnicity across levels of Risk with different letters are significantly different

### SES x Gender x Risk

Significant SES x Gender x Risk interactions were found for Total Referrals, Violence Referrals, Classroom Referrals, In-School Suspensions, and Out-of-School Suspensions in 7<sup>th</sup>-grade, and for Total Referrals and Classroom Referrals in 8<sup>th</sup>-grade. Results presented in Table 27 indicate that the SES x Gender interaction differed across levels of Risk. For Total Referrals in 7<sup>th</sup>-grade, gender differences for students receiving Regular lunch existed only at the Low and Average Risk levels, while for students receiving Free/Reduced lunch gender differences existed across all three levels of Risk. For Violence Referrals and for Classroom Referrals in 7<sup>th</sup>-grade, gender differences for students receiving Regular lunch existed only at the Low Risk level, while for students receiving Free/Reduced lunch, gender differences existed only at the Average and High Risk levels. For In-School Suspensions in 7<sup>th</sup>-grade, gender differences existed across all three levels of Risk for both Regular and Free/Reduced lunch students. However, gender differences were larger among students receiving Free/Reduced lunch. For Out-of-School Suspensions in 7<sup>th</sup>-grade, gender differences did not exist at any level of Risk for Regular lunch students. However, gender differences at Average and High Risk levels for students receiving Free/Reduced Lunch.

For Total Referrals and for Classroom Referrals in 8<sup>th</sup>-grade, gender differences for students receiving Regular lunch existed only at the Low Risk level, while for students receiving Free/Reduced lunch gender differences existed across all three levels of Risk.



**TABLE 27****SES x Gender x Risk Interactions**

		Regular				Free/Reduced				
		Girls		Boys		Girls		Boys		
		M	(SD)	M	(SD)	M	(SD)	M	(SD)	F
Total- 7th	Low Risk	.50	(1.73)	1.93	(5.96)	2.36	(4.96)	4.11	(7.60)	7.59**
	Average Risk	.95	(2.30)	2.23	(4.41)	2.64	(5.19)	5.80	(8.52)	
	High Risk	2.05	(4.66)	3.70	(6.23) <sup>1</sup>	4.54	(6.80)	8.20	(10.58)	
Violence- 7th	Low Risk	.01	(.12)	.14	(.51)	.13	(.51)	.29	(.93) <sup>1</sup>	3.16*
	Average Risk	.05	(.27)	.16	(.48) <sup>1</sup>	.15	(.48)	.46	(.90)	
	High Risk	.13	(.50)	.34	(.84) <sup>1</sup>	.34	(.69)	.78	(1.27)	
Classroom- 7th	Low Risk	.18	(.81)	1.13	(4.47)	1.13	(2.98)	2.26	(4.92)	10.05***
	Average Risk	.49	(1.56)	1.14	(2.78) <sup>1</sup>	1.31	(3.43)	3.28	(5.78)	
	High Risk	1.20	(3.65)	2.02	(4.54) <sup>1</sup>	2.63	(4.94)	4.96	(7.87)	
ISS- 7th	Low Risk	.18	(.85)	.67	(2.00)	.85	(1.95)	1.52	(3.02)	3.16*
	Average Risk	.35	(1.12)	.83	(2.09)	.99	(2.20)	2.04	(3.31)	
	High Risk	.75	(1.61)	1.33	(2.51)	1.93	(2.86)	3.04	(4.13)	
OSS- 7th	Low Risk	.03	(.22)	.17	(.84) <sup>1</sup>	.33	(1.15)	.56	(1.51) <sup>1</sup>	3.73*
	Average Risk	.08	(.43)	.28	(1.02) <sup>1</sup>	.37	(1.22)	.84	(1.77)	
	High Risk	.09	(.41)	.32	(.76) <sup>1</sup>	.75	(1.50)	1.51	(2.66)	
Total- 8th	Low Risk	.68	(2.17)	2.03	(5.02)	2.88	(5.78)	5.05	(7.98)	4.11*
	Average Risk	1.64	(4.13)	2.67	(5.02) <sup>1</sup>	3.19	(5.11)	7.18	(9.92)	
	High Risk	2.34	(4.33)	4.25	(6.16) <sup>1</sup>	5.05	(6.58)	7.48	(8.70)	
Classroom- 8th	Low Risk	.25	(1.02)	1.20	(3.73)	1.45	(3.56)	2.97	(5.71)	5.62**
	Average Risk	.80	(2.59)	1.48	(3.23) <sup>1</sup>	1.39	(2.87)	4.02	(6.59)	
	High Risk	1.34	(3.10)	2.42	(4.13) <sup>1</sup>	2.24	(3.36)	4.54	(6.27)	

1. Pairwise comparisons between Boys and Girls within SES across levels of Risk not significantly different

Ethnicity x SES x Gender x Risk

Four-way Ethnicity x SES x Gender x Risk interactions (see Figures 3-6) were significant for Total Referrals ( $F(2,4141) = 6.37, p < .01$ ;  $F(2,3979) = 4.51, p < .05$ ) and Classroom Referrals ( $F(2,4141) = 8.19, p < .001$ ;  $F(2,3979) = 4.96, p < .01$ ) in 7th and 8th-grades respectively. Post-hoc pairwise comparisons were performed for Regular-Free/Reduced Lunch pairs across Risk Levels within each of the four Ethnicity/Gender groups for each of the four significant dependent variables.

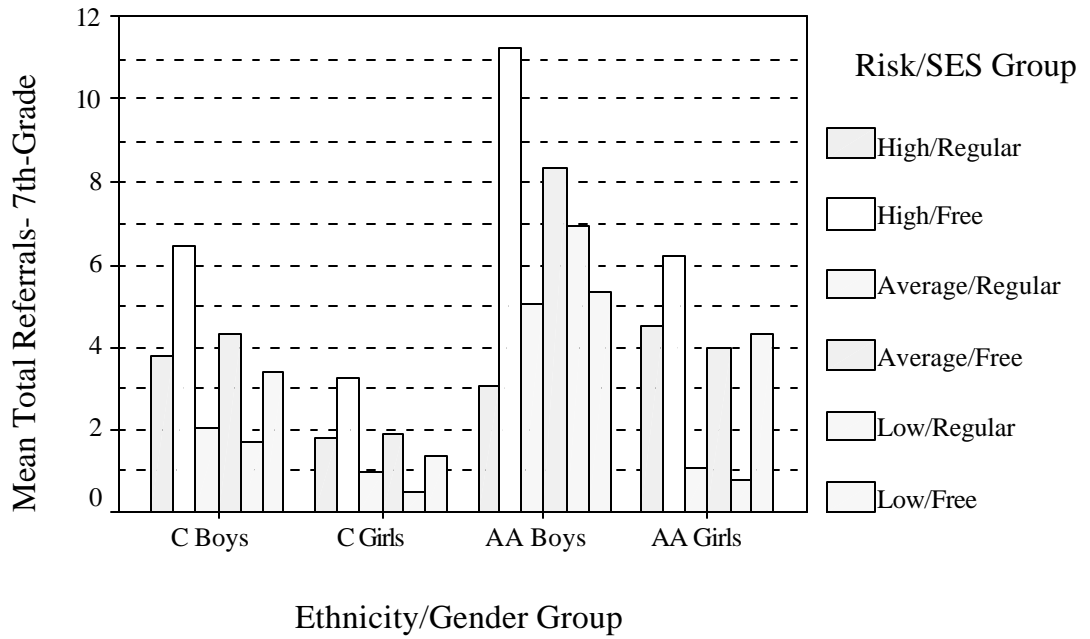
For both Total Referrals (Figure 3) and Classroom Referrals (Figure 4) in 7th-grade, SES differences were significant for High Risk Caucasian Boys, Average Risk Caucasian Boys, and High Risk African-American Boys. The SES discrepancy in mean Total Referrals was larger for African-American than for Caucasian Boys. Highlighted is the highest bar representing High Risk, Low SES, African-American Boys' mean of 11.25 Total Referrals received in the 7th-grade.

For both Total Referrals (Figure 5) and Classroom Referrals (Figure 6) in 8th-grade, SES differences were significant for Average and Low Risk Caucasian Boys and for Average Risk African-American Boys. Additionally, for Total Referrals in 8th-grade only, SES differences were significant for Low Risk African-American Girls.

**Figure 3**

Ethnicity x SES x Gender x Risk

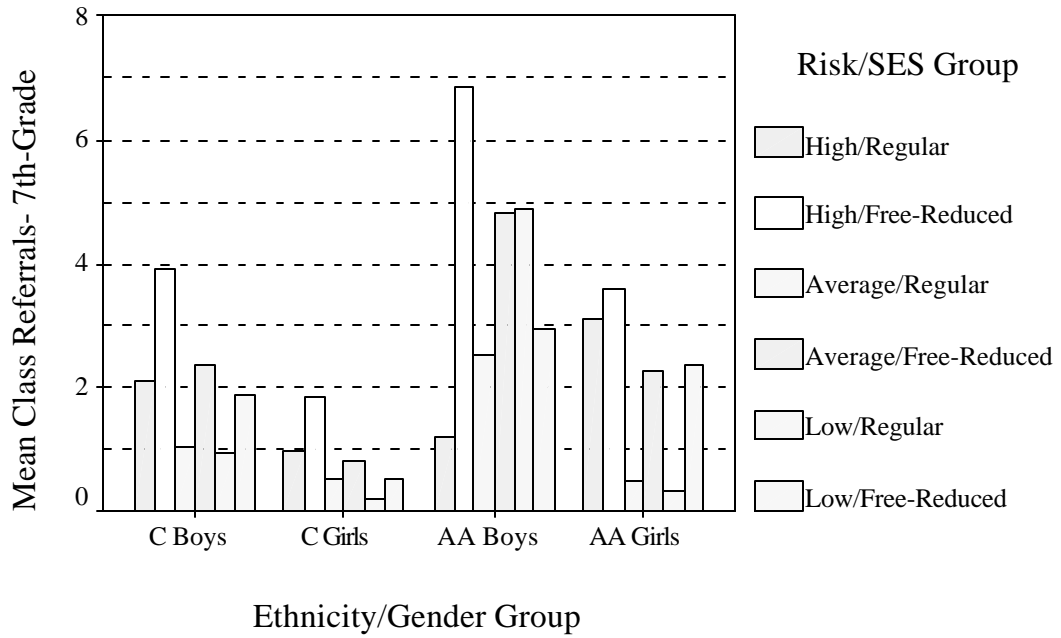
Total Referrals in 7th-Grade



**Figure 4**

### Ethnicity x SES x Gender x Risk

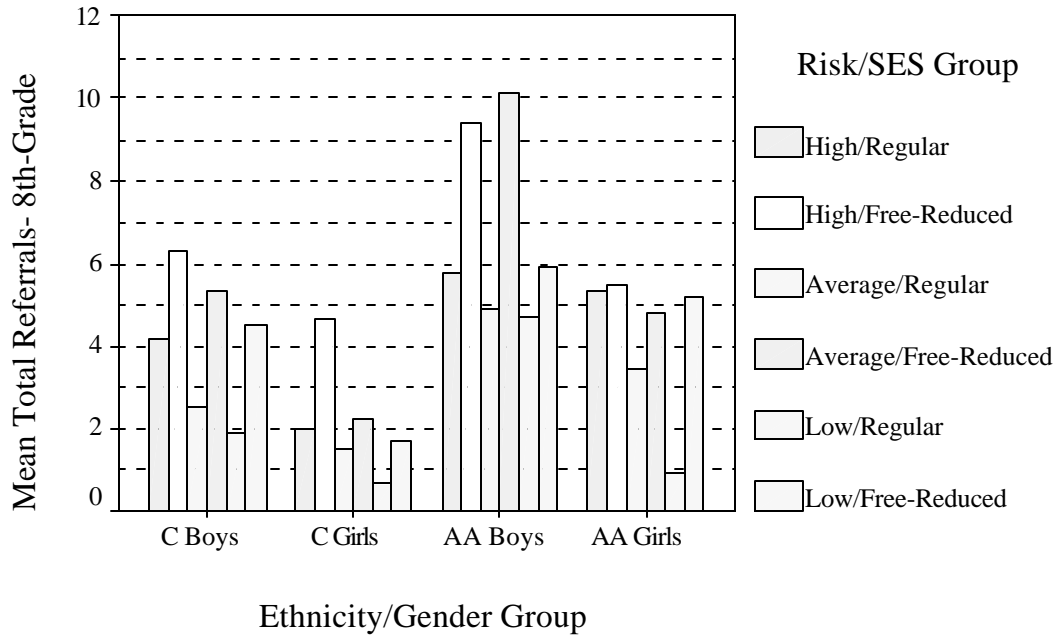
### Classroom Referrals in 7th-Grade



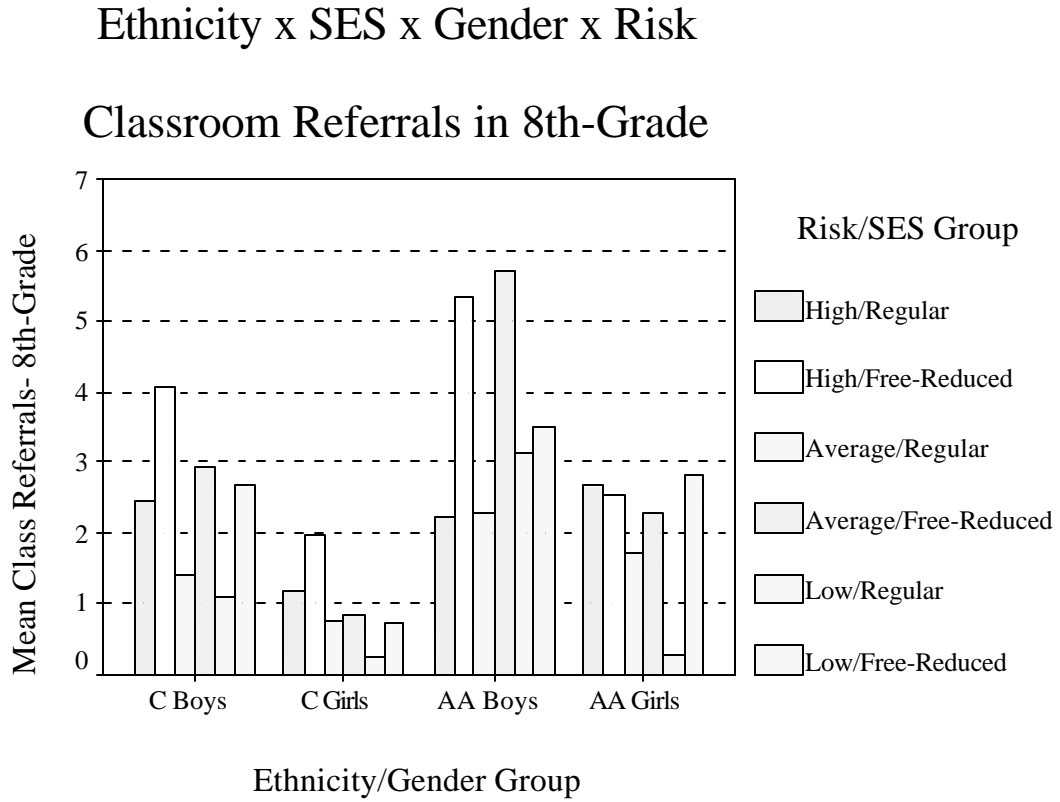
**Figure 5**

Ethnicity x SES x Gender x Risk

Total Referrals in 8th-Grade



**Figure 6**



Dropout Chi-Square Analyses

Results of chi-square analyses presented in tables 28-31 indicate that being male, African-American, low SES, and High Risk were each associated with significantly elevated levels of dropout. SES bore the strongest association with dropout ( $\chi^2 = 185.65$ ), while gender bore the weakest association with dropout ( $\chi^2 = 14.87$ ).

**TABLE 28****GENDER x STATUS Chi-Square <sup>1</sup>**

			STATUS				
			Dropout	Moved	Present	Adult Education	Total
GENDER	Boys	Count	323	328	1381	133	2165
		Expected Count	285.5	328.7	1429.2	121.6	2165.0
	Girls	Count	264	348	1558	117	2287
		Expected Count	301.5	347.3	1509.8	128.4	2287.0
Total	Count		587	676	2939	250	4452
	Expected Count		587.0	676.0	2939.0	250.0	4452.0

1.  $X^2(3) = 14.87, p < .01$

**TABLE 29****ETHNICITY x STATUS Chi-Square <sup>1</sup>**

			STATUS				
			Dropout	Moved	Present	Adult Education	Total
ETHNICITY	Caucasian	Count	470	621	2471	181	3743
		Expected Count	493.5	568.3	2471.0	210.2	3743.0
	African-American	Count	117	55	468	69	709
		Expected Count	93.5	107.7	468.0	39.8	709.0
Total	Count		587	676	2939	250	4452
	Expected Count		587.0	676.0	2939.0	250.0	4452.0

1.  $X^2(3) = 63.12, p < .001$

**TABLE 30****SES x STATUS Chi-Square <sup>1</sup>**

			STATUS				
			Dropout	Moved	Present	Adult Education	Total
SES	Regular	Count	259	416	2068	117	2860
		Expected Count	377.1	434.3	1888.0	160.6	2860.0
	Free/Reduced	Count	328	260	871	133	1592
		Expected Count	209.9	241.7	1051.0	89.4	1592.0
Total	Count		587	676	2939	250	4452
	Expected Count		587.0	676.0	2939.0	250.0	4452.0

1.  $X^2(3) = 186.65, p < .001$

**TABLE 31****RISK x STATUS Chi-Square<sup>1</sup>**

		STATUS					
		Dropout	Moved	Present	Adult Education	Total	
CLUSTER	High Risk	Count	135	97	311	46	589
		Expected Count	77.7	89.4	388.8	33.1	589.0
	Average Risk	Count	250	277	1125	129	1781
		Expected Count	234.8	270.4	1175.7	100.0	1781.0
	Low Risk	Count	202	302	1503	75	2082
		Expected Count	274.5	316.1	1374.4	116.9	2082.0
Total		Count	587	676	2939	250	4452
		Expected Count	587.0	676.0	2939.0	250.0	4452.0

1.  $X^2(3) = 122.18, p < .001$

## Discussion

### Factor Analysis of the Student Adjustment Survey

Factor analysis of the Student Adjustment Survey supported the proposed five factor solution. Factors included connection to teachers, connection to school, connection to peers, motivation, and negative expectancies. When combined with the connection to parents scale utilized in the present study, incorporation of constructs assessing students' connection to teachers, school, and peers, as well as motivation and negative expectations permitted examination of students' self-reported functioning across domains considered central to the development of problem behavior (Dryfoos, 1990; Hirschi, 1969; Marcus & Sanders-Reio, 2001; Najaka et al., 2001; Pianta, 1999; Rothbaum & Weisz, 1994; Vitaro et al., 2001).

Internal reliability estimates for the Student Adjustment Survey factors and the Connection to Parents scale were generally acceptable. The presence of a wealth of validity data based upon these constructs indicates that a sufficient level of reliability was present. However, further refinement of the Student Adjustment Survey and the



Connection to Parents scale is warranted given relatively low internal reliability estimates for connection to parents, connection to peers, motivation, and negative expectations, and the absence of test-retest data at this time. In particular, the connection to peers factor proved unreliable among sixth-graders. Items with a positive tone (e.g. “A student can be himself/herself and still be accepted by other students in this school”) and negative tone (e.g. “Making friends is very difficult in this school”) did not show a strong negative correlation. This finding is consistent with research indicating that students in middle school are more likely to associate with subgroups of peers with whom they can “be themselves”, while experiencing or perceiving rejection from a majority of peers (Dishion et al., 1991; Patterson, Forgatch, Yoerger, & Stoolmiller, 1998).

#### Student Adjustment Survey and Connection to Parents Scale: Main Effects

Findings derived from examination of mean differences across gender, ethnicity, socioeconomic status, and time in students’ connections to parents, peers, teachers, and school, as well as their levels of motivation and negative expectations were generally consistent with those found in prior work and the hypotheses of the present study.

##### Gender

Findings indicated that boys’ self-reported connections with peers, school, and teachers in 5<sup>th</sup>- and 6<sup>th</sup>-grade, were generally lower than were girls’ reports. These results are consistent with prior studies indicating that girls report having more supportive relationships with their peers (Dishion, 1990; Dishion et al., 1991), and teachers (Davis, 2001; Hamre & Pianta, 2001; Wentzel, 2002) and report liking school to a greater degree (Murray & Greenberg, 2000) than do boys. Heightened levels of motivation reported by girls in the present study are consistent with the work of Goodenow (1993), while

heightened levels of negative expectations reported by boys are consistent with the work of Wentzel (1997) indicating that girls report heightened levels of educational aspirations than do boys.

In contrast to these findings, the hypothesis that girls would report stronger connection to parents was not supported by the findings of the present study. Prior research suggests that parental relations with boys are characterized by higher levels of conflict than are parental relations with girls (Rothbaum & Weisz, 1994). Based upon these data, girls were expected to report higher levels of connection to parents in the present study. Differences were not found between boys and girls in their reports of connection to parents. Failure to find a significant gender difference is likely attributable to issues associated with scale construction including item content and reliability. While the weight of data support the validity of the measure used in the present study, failure to obtain expected differences highlight the need for further scale refinement.

#### Ethnicity and SES

Findings indicated that African-American students and those from low socioeconomic status backgrounds generally report higher levels of risk across domains relative to their Caucasian and higher socioeconomic status counterparts. These results are consistent with prior research suggesting that African-American and low SES students are more likely to experience punitive interactions with parents and are less likely to experience positive interactions (Borkowski et al., 2002; McLoyd, 1998; Yung & Hammond, 1997). Results are also consistent with work suggesting that African-American students and those from low socioeconomic status backgrounds are more likely to perceive interactions with teachers as punitive and characterized by less reinforcement

for successful performance (McLoyd, 1998; Polite, 1994), are more likely to feel detached from school (Hirschi, 1969; McLoyd, 1998; Steele, 1997), and are likely to experience increased levels of negative expectations for school success (Tucker & Herman, 2002).

Although no a priori predictions were made based upon insufficient prior research, results of the present study indicated that African-American students and students from lower socioeconomic status backgrounds reported lower levels of motivation than did their Caucasian and higher socioeconomic status counterparts. Given the lack of prior research in this area, these findings must be considered preliminary. These findings are consistent with prior research suggesting that African-American students and students from lower socioeconomic status backgrounds are more likely to feel detached from school and to experience increased levels of negative expectations for school success (Hirschi, 1969; McLoyd, 1998; Steele, 1997; Tucker & Herman, 2002). However, relationships among these variables and student motivation are presently unclear. As such, further research in this area is warranted.

Contrary to prediction, African-American students reported higher levels of connections to peers relative to Caucasian students. This finding may reflect a somewhat stronger orientation toward peer involvement among African-American students relative to Caucasian students. However, lacking systematic prior research examining ethnic differences in connections to peers, this finding is considered preliminary. In contrast, consistent with prediction, students from lower socioeconomic status backgrounds reported lower levels of connection to peers. This finding is consistent with the hypothesis that students from lower socioeconomic status backgrounds would report

lower levels of connection to peers as they are more likely to engage in disruptive behavior, which may serve to alienate them from peers in the school setting (Dishion, 1990; Moffitt & Caspi, 2001; Patterson et al., 1998).

### The Middle School Transition

The strongest findings concerning mean differences in Student Adjustment Survey factors and Connection to Parents involved changes across the middle school transition. Findings indicated that students reported declines in functioning across the middle school transition in each of the six domains assessed. From 5<sup>th</sup>- to 6<sup>th</sup>-grade, students' mean self-reports of connections to parents, peers, teachers, and school declined. Students' reports of their motivation declined as well, while reports of negative expectations increased dramatically. These declines are consistent with a body of research marking the middle school transition as a pivotal turning point in development (Carnegie Council on Adolescent Development, 1989; Eccles & Wigfield, 2002; Eccles et al., 1993; Goodenow, 1993; Lord, Eccles, & McCarthy, 1994; Midgley & Edelin, 1998; Wentzel, 2002; Wentzel, 1997).

These findings provide strong support for Eccles et al.'s (1993) stage-environment fit perspective. Eccles et al. (1993) suggested that qualities of the middle school classroom environment represent a mismatch with the developmental needs of early adolescents. These qualities include evidence suggesting that compared to elementary school, junior high school classrooms are characterized by a greater emphasis on teacher control and discipline, by fewer opportunities for student decision making, by less positive teacher-student relationships, and by more competitive grading practices. Sharp declines across domains in the present study support the hypothesis that the middle

school environment may not effectively support the developmental needs of early adolescents. Further, declines in students' connections to parents across the middle school transition support work documenting declines in the quality of parent-child relations during early adolescence (Eccles et al., 1993).

### Student Adjustment Survey and Connection to Parents Scale: Interaction Effects

#### Gender x Time

Findings indicated that declines in functioning across the middle school transition were particularly strong for girls. Self reports of connection to teachers, connection to school, and motivation each declined to a greater degree for girls than for boys. Whereas girls had enjoyed a stronger connection to teachers and school in elementary school, self reports in these domains were essentially equal for boys and girls in middle school. This finding is consistent with research suggesting that the closer relationship that girls share with their teachers in elementary school dissipates across the transition to middle school (Goodenow, 1993; Lynch & Cicchetti, 1997; Wentzel, 2002). Prior work has also suggested that declines in girls' connection to teachers in middle school may be associated with disproportionate declines in motivation among girls relative to boys across the transition to middle school (Goodenow, 1993; Wentzel, 2002; Wentzel, 1997). While the relationship between girls' connection to teachers and school with levels of motivation were not tested directly, disproportionate declines in each of these domains for girls relative to boys highlights gender differences in declines across these domains found in prior work (Goodenow, 1993; Wentzel, 2002; Wentzel, 1997).

### SES x Time

Findings indicated that self reports of connections to parents and peers, as well as motivation declined to a greater degree for students not receiving free or reduced lunch relative to students receiving free or reduced lunch. Negative expectations for school success also increased to a greater degree across the transition for students not receiving free or reduced lunch. These findings are analogous to those found for gender differences. These findings are troubling in that equity is only achieved through a decreased sense of connectedness and an increased sense of academic disengagement from students of higher socioeconomic status across the middle school transition. However, as prior research has not examined socioeconomic differences in changes in these domains across the transition to middle school, these results must be considered preliminary.

### Cluster Analysis

Gender, ethnic, and socioeconomic differences found in the present study in students' connections to parents, peers, teachers, and school, as well as their motivation and negative expectations have been in accord with prior research. However, there are considerable gaps in our understanding of how these differences may be associated with differences in problem behavior outcomes (Dryfoos, 1990; Giordano & Cernkovich, 1997; Tucker & Herman, 2002; Yung & Hammond, 1997). A central goal of the present study was to incorporate a person-based perspective to examine the manner through which differences in levels of risk factors may be associated with differences in outcomes experienced across gender, ethnic, and socioeconomic groups.

Prior research suggests that the expression of problem behavior is associated with cumulative risk (Rutter, 1978; Rutter & Sroufe, 2000; Simmons, Burgeson, Carlton-Ford, & Blyth, 1987) where a number of risk factors aggregate to orient a child toward expression of problem behavior. A weakness of this research is that ethnicity and socioeconomic status in particular are either themselves used as risk factors (Dryfoos, 1990; Rutter, 1978; Rutter & Sroufe, 2000), or are not examined in studies of risk for the expression of problem behavior (Yung & Hammond, 1997). Through use of a person-based perspective (Magnusson, 2000; Magnusson & Bergmann, 1988), the present study moved beyond a social address orientation to understanding the expression of problem behavior toward a person-based understanding of why boys, African-Americans, and students from lower socioeconomic status may be at risk to engage in higher rates of problem behavior.

Cluster analysis results identified groups of students reporting high, average, and low levels of risk across parent, peer, teacher, school, motivation, and negative expectation domains in 5<sup>th</sup>-grade. Consistent with the cumulative risk model, the high risk group reported elevated levels of risk across domains (Rutter, 1978; Rutter & Sroufe, 2000). Essentially, these are students without an “arena of comfort” as discussed in Simmons et al.’s (1987) classic study of the middle school transition. Consistent with prediction, boys, African-American students, and students from low socioeconomic status backgrounds were more likely to be in the high risk group relative to girls, Caucasian students, and students from higher socioeconomic status backgrounds. The advantage of this approach is that risk status in the present study is based upon factors that are likely amenable to change, as opposed to demographic factors and social addresses (Lochman,

1995; Lochman, 2000). Use of a person-based perspective permitted examination of problem behavior outcomes both between and within gender, ethnic, and socioeconomic groups.

### Problem Behavior MANOVAs

Classifying students into high, average, and low risk groups based upon self-reports of connections to others, motivation, and expectations proved highly useful in terms of broadening our understanding of students who are at risk for engagement in problem behavior following the transition to middle school through eleventh-grade. While the weight of data supported the existence of between group differences in outcomes based upon gender, ethnicity, and socioeconomic status, unique and interactive effects of risk status supported movement toward a model in which these differences are understood at least partly in terms of differences in students' connections to others, motivation, and expectations.

### Main Effects of Gender, Ethnicity, and Socioeconomic Status

With few exceptions, results indicated that referrals and suspensions received from fifth- through eleventh-grade differed based upon gender, ethnicity, socioeconomic status, and risk status. As predicted based upon prior research, boys, African-American students, and students from lower socioeconomic status backgrounds received higher mean levels of referrals and suspensions throughout the course of the study than did girls, Caucasian students, and students from higher socioeconomic status backgrounds (Giordano & Cernkovich, 1997; Loeber & Farrington, 1997; McLoyd, 1998; Tremblay, Masse, Pagani, & Vitaro, 1996; Tucker & Herman, 2002). Importantly, risk status was



associated with referral and suspension outcomes throughout the course of the study independent of the effects of gender, ethnicity, and socioeconomic status.

The main effect of risk indicates that connections, motivation, and expectations do in fact count. The systematic main effects of risk across years indicate that regardless of demographic background, children's reports of their connections, motivation, and expectations in fifth-grade relate to mean levels of referrals and suspensions received each year from fifth- through eleventh-grade. The implications of these effects should not be understated. No matter which demographic group a student belongs to, from lower socioeconomic status, African-American boys to higher socioeconomic status, Caucasian girls, students who are connected, motivated, and optimistic have more successful academic outcomes in terms of referrals and suspensions than those who are less connected, motivated, and optimistic.

These results are critical from a screening and prevention standpoint. The vast majority of research and prevention trials focus upon reducing levels of problem behavior among boys (Loeber & Farrington, 1997; Loeber et al., 2002; Loeber & Stouthamer-Loeber, 1998). Doing so is supported by a vast body of research indicating that boys are more likely than girls to engage in physically aggressive forms of problem behavior (Loeber & Farrington, 1997; Loeber & Hay, 1997; Loeber & Stouthamer-Loeber, 1998), and the main effect of gender upon discipline referrals and suspensions throughout the course of the present study are consistent with these findings. However, to address the overwhelming focus upon boys in research and prevention trials focused upon problem behavior, advances have been made in understanding qualitative differences in aggression in which girls are more likely to engage in relational forms of aggression

(Crick, 1997; Crick & Rose, 2000). Results of the present study add to our understanding of the relationship between gender and problem behavior by indicating that within group differences exist in referrals and suspensions. While girls are less likely to receive referrals and suspensions than are boys, quantitative differences exist in mean levels of referrals and suspensions among boys as well as girls based upon levels of risk. Girls who are less connected, motivated and optimistic in fifth-grade are more likely receive referrals and suspensions from fifth- to eleventh-grade than those who are less connected, motivated, and optimistic.

The effect of risk status also extends research examining socioeconomic status and ethnicity in relation to problem behavior. The present study addressed a clear ethnicity and socioeconomic status paradox existing not only in problem behavior research, but research in general. The paradox being that we know African-American students and students from low socioeconomic status backgrounds are in general at higher risk to experience a range of problem outcomes, while the vast majority of research is conducted using Caucasian, middle class samples (Tucker & Herman, 2002; Yung & Hammond, 1997). Paucity of research examining within group differences in problem behavior outcomes perpetuates a stereotyped view of functioning among African-American and lower socioeconomic status students. Findings from the present study indicate that mean differences in referrals and suspensions exist within ethnic and socioeconomic groups based upon risk status. While African-American students and lower socioeconomic status students do clearly receive higher levels of referrals and suspensions from fifth- to eleventh-grade, mean levels of referrals and suspensions differ

within groups based upon levels of risk associated with reports of connections, motivation, and expectations in fifth-grade.

#### Main Effect of Time

Prior work has documented a steady increase in problem behavior outcomes beginning in early adolescence that continues through high school (Donovan & Jessor, 1985). For most students in our nation's schools, early adolescence is also coupled with the transition into middle school. The middle school transition has been identified as a key "turning point" in development (Carnegie Council on Adolescent Development, 1989). The present study examined students' referrals and suspensions during this critical time period. Findings indicated a drastic increase in mean levels of discipline referrals and suspensions received across the middle school transition. For example, students averaged one discipline referral per five students, or an average of 0.22 total discipline referrals in fifth-grade. In sixth-grade, students averaged almost two discipline referrals per student, or a mean of 1.91. In fifth-grade, students averaged one out of school suspension per thirty-three students, or an average of .03. In sixth-grade, students averaged one out of school suspension per five students, or a mean of 0.22.

These results are consistent with those suggesting that early adolescence marks the beginning of an increase in problem behavior (Donovan & Jessor, 1985). Findings are also consistent with research marking the middle school transition as a key turning point in development (Carnegie Council on Adolescent Development, 1989). While prior research has indicated that the middle school transition is associated with declines in student functioning across several areas (Eccles, Lord, & Roeser, 1996; Eccles et al., 1993), changes in levels of discipline referrals and suspensions received have not

previously been highlighted. This may be due in part to the primary focus upon self-esteem and other constructs assessed through survey methods used in research examining the middle school transition (Eccles et al., 1996; Eccles et al., 1993). Results of the present study strongly indicate the need to incorporate assessment of actual discipline referrals and suspensions received by students prior to and following the middle school transition. Inclusion of these outcomes in the present study complements existing research documenting declines in functioning across several key domains.

Importantly, the sizable changes in referrals and suspensions received from fifth- to sixth-grade suggest that developmental factors are not solely responsible. Moving from one referral per five students in fifth-grade to two referrals per student in sixth-grade strongly suggests that there is a “disconnect” between elementary and middle schools in the way that problem behavior is addressed. Elementary schools in this school district are likely to have addressed problem behavior through means other than issuing discipline referrals and suspensions. In contrast, middle school policies were likely such that formal discipline referrals and use of suspensions were utilized more frequently as a means of addressing problem behavior. Based upon this disconnect, differences in policies, rather than differences in problem behavior may have accounted for low levels of referrals and suspensions in elementary school and the sharp rise in referrals and suspensions across the middle school transition.

Both the magnitude of this disconnect, if it does in fact exist, and the degree to which it may exist in other school districts is presently unclear. Consequently, research is necessary that compares levels of problem behavior exhibited in elementary and middle school environments in relation to the number of discipline referrals and suspensions

received. Through doing so, research will quantify the magnitude of the disconnect, if one exists, between behavior and formal discipline referrals received from elementary to middle school. Different patterns of addressing school based problem behavior through time can then be evaluated in relation to future outcomes (Atkins et al., 2002; Costenbader & Markson, 1998; Raffaele-Mendez, Knoff, & Ferron, 2002).

### Interaction Effects

#### Main Effects x Time

Findings indicated that increases in mean levels of referrals and suspensions across the middle school transition were particularly strong for boys, African-American students, low socioeconomic status students, and students at higher levels of risk. These differences are also likely due to both a normative developmental increase in problem behavior and a change in the manner through which schools address discipline problems. Consistent with the developmental model of Moffitt and Caspi (2001), these data suggest that high risk students are more likely to show increases in problem behavior beginning in early adolescence. Further, students at average levels of risk are likely to form an “adolescent starter” group in which problem behavior is manifested in adolescence in the absence of high levels of both risk and problem behavior in childhood.

These data also suggest that shifts in the manner through which problem behavior is addressed from elementary to middle school may have a particularly strong effect upon groups exhibiting higher levels of problem behavior. If elementary schools in this school district addressed problem behavior through means other than issuing discipline referrals and suspensions then those students exhibiting the highest levels of problem behavior in elementary school are those most likely to be “protected” from use of referrals and

suspensions. Consequently, the group benefiting most from lack of referrals and suspensions in response to problem behavior in elementary school is the group most likely to show the largest increases in referrals and suspensions when problem behavior is met with formal referrals and suspensions in middle school.

This shift toward institutionalized punitive responses to students' behavior likely creates a feedback loop consisting of problem behavior and institutional punishment. If punishment is provided in the absence of remediation, the goal for students then necessarily becomes to "not get into trouble", or to avoid being caught and punished for offenses. To the degree to which these supports are absent in the middle school setting, students who engage in problem behavior are likely to adopt a view of schooling and perhaps institutions, laws, and society in general that is more adversarial than communal (Atkins et al., 2002; Costenbader & Markson, 1998; Raffaele-Mendez et al., 2002). Findings of the present study suggest that this effect may be particularly strong for boys, African-American students, students from lower socioeconomic status backgrounds, and those at higher levels of risk.

#### Ethnicity x SES (x Time)

While differences across the middle school transition were stronger for African-American students and students from lower socioeconomic status, findings also indicated that the combination of ethnicity and socioeconomic status was associated with multiplicative increases in referrals and suspensions across the middle school transition. From fifth- to sixth-grade, mean differences between regular and free/reduced lunch groups in referrals and suspensions became larger for African-American students relative to Caucasian students. This effect is illustrated by African-American students from lower

socioeconomic status backgrounds who change from receiving an average of 2.47 total referrals in fifth-grade to an average of 5.88 total referrals in sixth-grade. These findings indicate that the disconnect described above is magnified for African-American students from lower socioeconomic status backgrounds (Atkins et al., 2002; Costenbader & Markson, 1998; Raffaele-Mendez et al., 2002).

Findings further indicated that the combination of ethnicity and socioeconomic status were associated with multiplicative increases in referrals and suspensions within years of the study. Effects were significant in all but ninth- and tenth-grade. Low socioeconomic status was associated with higher elevations in mean referrals and suspensions for African-American students relative to Caucasian students. These results are consistent with prior studies indicating that students of low socioeconomic status and African-American ethnicity are more likely to receive disciplinary actions throughout their school careers relative to their higher SES and Caucasian peers (Atkins et al., 2002; Costenbader & Markson, 1998).

#### Ethnicity x Gender (x Time)

Multiplicative effects were also found for the combination of ethnicity and gender. However, these findings were restricted to fifth- and sixth-grades only. Findings indicated that stronger gender differences in referrals and suspensions existed for African-American students relative to Caucasian students. African-American boys received the highest numbers of referrals and suspensions in fifth- and sixth-grade. African-American boys also received the largest increases in referrals and suspensions from fifth- to sixth-grade. These findings are consistent with prior work indicating the particular difficulties experienced by African-American males in the school environment

(Atkins et al., 2002; Costenbader & Markson, 1998; Raffaele-Mendez et al., 2002). They also suggest that African-American boys are most likely to become alienated from the school environment across the middle school transition as they experience an increase from a mean of .91 total referrals in fifth-grade to a mean of 6.67 total referrals in sixth-grade.

#### SES x Gender (x Time)

Findings indicated a multiplicative effect of socioeconomic status and gender as well. However, this effect was restricted primarily to violence referrals in fifth-, sixth-, and seventh-grade. In each case, gender differences were stronger among lower socioeconomic status students than among higher socioeconomic status students, with boys receiving higher mean referrals. Boys from lower socioeconomic status backgrounds also experienced the largest increase in mean violence referrals from fifth- to sixth-grade. These findings represent the only case in which there was a clear distinction based upon the type of referral. Otherwise, throughout the course of the study, distinctions were not apparent between mean differences in violence, classroom, and total referrals. That this distinction was apparent in terms of violence referrals in fifth-, sixth-, and seventh-grades is consistent with prior work indicating that boys from lower socioeconomic status backgrounds experience multiplicative levels of risk in terms of engagement in violent behavior (Loeber et al., 2002; McLoyd, 1998; Rutter et al., 1979; Sameroff & Chandler, 1975). Findings further indicate that these differences are associated with differential levels of punishment received in the school environment and that these differences are magnified across the middle school transition.



### Risk x SES (x Time)

While multiplicative effects involving gender, ethnicity, and socioeconomic status found in the present study support prior work examining differences in levels of problem behavior, multiplicative effects involving risk extend prior work by indicating that particular subgroups of students within levels of gender, ethnicity, and socioeconomic status are at multiplicative risk to experience elevated levels of referrals and suspensions. Multiplicative effects involving socioeconomic status indicated that mean differences in levels of total and classroom referrals, as well as in-school and out-of-school suspensions from fifth- to seventh-grade between students receiving regular lunch and students receiving free or reduced lunch were larger at higher levels of risk. For example, in the low risk group, regular lunch students received 1.03 total referrals in seventh-grade while free/reduced lunch students received 3.03 referrals. In contrast, among high risk students, those receiving regular lunch received 3.15 total referrals, while those receiving free or reduced lunch received an average of 6.79 total referrals.

These findings indicated that the effect of socioeconomic status upon referrals and suspensions was strongest for high risk students. Conversely, the effect of socioeconomic status was weakest for low risk students who reported higher levels of connections and motivation, and lower levels of negative expectations in fifth-grade. While risk status has an additive effect across all outcomes and years, a particularly strong multiplicative effect exists during the crucial middle school transition period for lower socioeconomic status students.

### Risk x Ethnicity (x Time)

Similar results were obtained in terms of ethnicity. Findings indicated that mean differences in total referrals, in-school, and out-of-school suspensions become larger across levels of risk during fifth- and sixth-grade. For example, among the low risk group in sixth-grade, Caucasian students received an average of 0.70 total referrals and African-American students received an average of 3.43 total referrals. In contrast, among the high risk students in sixth-grade, Caucasian students received an average of 2.97 total referrals while African-American students received an average of 8.23 total referrals.

Taken together, findings indicate that stronger connections to others, motivation, and optimism expressed in fifth-grade are associated with substantially reduced mean levels of referrals and suspensions during the middle school transition period for African-American students and students from lower socioeconomic status backgrounds. While main effects of risk were found across all years of the study for all students, these results indicate that these factors are associated with particularly large reductions in levels of referrals and suspensions during this critical time period (Carnegie Council on Adolescent Development, 1989) for African-American students and those from low socioeconomic backgrounds in particular.

### Ethnicity x SES x Gender x Risk

Higher order multiplicative effects involving three and four-way interactions were confined to the middle school years. Findings indicated that heightened levels of connections to others, motivation, and lower levels of negative expectations in fifth-grade served a particularly protective effect for students who are members of two or more traditionally high risk groups, including boys, African-American students, and students

from lower socioeconomic status backgrounds. These findings involving higher order interactions did not generally conform to a clear pattern. However, findings involving total referrals and classroom referrals in seventh- and eighth-grade did conform to a noteworthy pattern. Multiplicative elevations in mean levels of total referrals and classroom referrals were found among lower socioeconomic status African-American and Caucasian boys in high risk and average risk groups. These findings are exemplified by an *average* of 11.25 total referrals received by lower socioeconomic status, African-American boys in the high risk group in seventh-grade. These findings are consistent with prior work indicating that African-American boys receive the highest levels of disciplinary actions in our nation's schools (Tucker & Herman, 2002). These findings extend prior work through demonstrating that effects are strongest among lower socioeconomic status, African-American boys who reports lower levels of connections, motivation, and optimism during fifth-grade.

While these multiplicative effects are most striking in terms of outcomes, the combination of main effects alone in the present study indicates that high-risk, African-American boys of low socioeconomic status received the highest levels of referrals and suspensions throughout the course of the study. For example, although not associated with a significant four-way interaction, high risk, African-American males of low socioeconomic status averaged approximately two out-of-school suspensions and four in-school suspensions during each year of middle school. These means were clearly the highest among all subgroups in the study. The potential psychological effect of receiving, on the average, eleven discipline referrals, four in-school suspensions, and two out-of-

school suspensions in seventh-grade alone for high risk African-American boys of low socioeconomic status cannot be understated.

These findings speak to the potential of middle school discipline policies to both reflect and encourage movement of average and high risk boys from low socioeconomic status backgrounds, and African-American boys in particular, on a path toward eventual school dropout. These results may support work suggesting that many dropouts are in fact “push outs” (Raffaele-Mendez et al., 2002). The “push out” perspective holds that students experiencing heightened levels of behavioral difficulties are in effect pushed out of the schooling process through disciplinary actions and suspensions that increase the likelihood that a student with behavioral difficulties will drop out of school (Raffaele-Mendez et al., 2002). Students demonstrating problem behavior place higher demands upon teachers, administrators, and other school personnel than do students who do not engage in problem behavior. Consequently, investigators have argued that there are several practical benefits that may tempt administrators to utilize such practices (Raffaele-Mendez et al., 2002).

#### Dropout Chi-Square Analyses

Findings indicated that students from lower socioeconomic status and those of African-American ethnicity were more likely to drop out of school. These results were consistent with prior research indicating that students of low socioeconomic status and African-American ethnicity have higher rates of dropout relative to their higher socioeconomic status and Caucasian counterparts (McLoyd, 1998; Tucker & Herman, 2002). Findings also indicated that boys were more likely to dropout of school relative to girls. These findings contrast with prior research suggesting that gender differences do

not exist in rates of dropout (Davis & Jordan, 1994; Dryfoos, 1990). This discrepancy may be associated with the manner through which dropout was assessed in the present study. Investigators have lamented that dropout statistics provided by school districts often represent underestimates of the true prevalence of dropout (Doll, 1997; Doll & Hess, 2001). The design of the present study incorporated a more accurate assessment of dropout than generally provided by school districts. Consequently, the power to detect valid differences between groups was very likely increased. Given that the effect of gender upon dropout was small, it is possible that the increased power and validity afforded by the design of the current study heightened the ability to detect gender differences.

While findings associated with ethnicity, socioeconomic status, and gender replicated and extended prior work, the central focus of the present study involved the effect of risk status upon student dropout. Strong findings were obtained for risk status in which students reporting lower levels of connections to others, motivation, and optimism in fifth-grade were more likely to dropout of school by the completion of eleventh-grade. This finding represents a critical advance in terms of understanding factors associated with student dropout (Doll & Hess, 2001).

Several review articles published in recent years have lamented the lack of progress made by research focused upon understanding the phenomenon of student dropout (Christenson, Sinclair, Lehr, & Godber, 2001; Doll & Hess, 2001; Rosenthal, 1998). These reviews and commentaries note that traditional divisions between education and psychological research have hindered growth in understanding the nature of student dropout. They emphasize that dropout has generally been examined as if it were a

secondary school issue linked primarily to the static demographic characteristics of the student (Doll, 1997; Doll & Hess, 2001). Recommendations have called for longitudinal research examining the precursors to dropout beginning in the elementary grades as well as a shift from examining dropout primarily in terms of demographic characteristics to inclusion of psychological and behavioral precursors to school dropout and completion that could be altered through intervention (Doll, 1997; Doll & Hess, 2001).

The design and results of the present study provides a foundation for future research examining student dropout. Successful identification of a high risk group of students in elementary school, who then engage in the highest rates of dropout, supports the need to examine student dropout from a developmental perspective, with roots in the elementary school years (Doll, 1997; Doll & Hess, 2001). The need to examine early elementary school precursors to student dropout is not a new idea (Barclay, 1966; Barclay & Doll, 2001; Fitzsimmons, Cheever, Leonard, & Macunovich, 1969; Kuhlen & Collister, 1952). However, early prospective studies of high school dropout were not followed up with programmatic lines of inquiry into the nature of the dropout problem grounded in development from elementary school onward (Barclay & Doll, 2001; Doll & Hess, 2001). As such, the present study serves to refocus examination of dropout as a developmental issue.

### Limitations

There are several ways in which future studies can improve upon the design of the present study. Foremost is the importance of grounding future work in more precise measures. The measures used in the present study consistently demonstrated discriminant and predictive validity. This was true whether examined individually, or through their

collective ability to differentiate students at different levels of risk whom subsequently engaged in different levels of future problem behavior. Clearly, though, the measures used can and should be improved upon in future longitudinal studies of problem behavior. Future longitudinal studies should incorporate standardized measures that are either existing or developed to assess constructs central to the development of problem behavior (Dryfoos, 1990).

A second limitation of the present study is that the measures used to identify student risk status were based entirely upon students' self-reports. Reports of connections to others, motivation, and expectations are influenced by the perceptions of the informant. Given generally low agreement found between raters using survey methods (Achenbach, McConaughy, & Howell, 1987), it is almost always optimal to incorporate measures from multiple sources. The influence of method bias was reduced in the present study by using outcomes that were not based upon student reports. However, future work intended to identify students at risk for school-based problem behavior would be enhanced through use of multiple measures derived from multiple informants or sources.

A third limitation of the present study is that special education students were underrepresented. Underrepresentation of special education students shed light on the magnitude of difficulties faced by the entire population of students. The magnitude of problem behavior difficulties experienced by students in the present study reminds us that that the mental health needs of four-fifths of our nation's schoolchildren are not being met (Services, 1999) and that effective universal (Durlak & Wells, 1997) and selective (Durlak & Wells, 1998) prevention practices are necessary to address the difficulties that these students face. Nevertheless, future work must also focus upon the development of

problem behavior among the most seriously disturbed students in our nation's schools who have been placed in special education classes by the fifth-grade.

Future work is necessary to examine the degree to which findings of the present study are generalizable to special education students. By definition, emotionally handicapped and severely emotionally disturbed students engage in higher levels of problem behavior than do regular education students. They are also more likely to dropout of school (Dryfoos, 1990). The degree to which the middle school transition affects special education students relative to regular education students is presently unclear. Also unclear is the degree to which variability within the special education population with regard to students' connections to others, motivation, and expectations is associated with discipline referrals, suspensions, and dropout through time. Obtaining a clearer understanding of these effects among special education students is necessary considering both the magnitude of their behavioral difficulties and the personnel and financial investment necessary to address their education needs.

A fourth way in which future longitudinal work can improve upon the design of the present study is through examination of the precursors of children's fifth-grade reports. Examining the reports of fifth-grade students in the present study was logical for several reasons. Prior research indicates that students face particular challenges associated with the middle school transition (Eccles et al., 1993). Research also indicates that the early adolescent period is marked by a rise in problem behavior (Donovan & Jessor, 1985). Fifth-grade students can also provide reports in a large-scale survey design that can be expected to have a degree of reliability and validity that minimizes the potential of a Type II error due to unreliability of measurement. However, future



longitudinal research beginning early in elementary school is necessary to more fully understand the precursors of students' reports in fifth-grade, which in turn are associated with future development of problem behavior. From an applied standpoint, lessons learned from such investigations can inform future selective prevention efforts (Durlak & Wells, 1998; Lochman, 1995).

Future applied work in this area must consider both the statistical and clinical significance of results obtained. A limitation of the present study was that, due to the large number of participants, there were statistically significant effects that may not be clinically significant. For example, while statistically significant, the mean difference in motivation scale scores between boys (2.87) and girls (2.92) does not provide clinical support in favor of directing more resources intended for school motivation enhancement toward boys. In contrast, the mean difference in total referrals from 5<sup>th</sup>-grade (0.22) to 6<sup>th</sup>-grade (1.91) may have strong clinical implications for students' experiences in the school environment.

A word of caution is necessary to not automatically disregard what may appear to be a small effect. Sometimes a small effect can have large clinical implications when the outcome is severe and the population under investigation is large. For example, the mean difference in out-of-school suspensions in 6<sup>th</sup>-grade between students in the low risk group (0.11) and students in the high risk group (0.49) may not appear large or clinically significant. However, in a population of 8098 fifth-grade students, a mean of 0.11 would equal 890 out-of-school suspensions across the district, whereas a mean of 0.49 would equal 3968 out-of-school suspensions. The difference between having a district with all high risk 6<sup>th</sup>-grade students and a district of all low risk 6<sup>th</sup>-grade students would amount

to more than 3000 out-of-school suspensions. That is clinically significant by any standard.

Finally, as research advances utilizing complementary variable and person-focused perspectives it is necessary to incorporate a broader range of independent variables hypothesized to be associated with the development of problem behavior. In this regard, indices of sociocultural and economic processes must be included in future investigations designed to more fully understand the manner through which SES and ethnicity are independently associated with the development of problem behavior. Further, incorporation of a broader range of outcome variables including measures of depression (Kovacs, 1992; Nolen-Hoeksema & Girgus, 1994), relational aggression (Crick, 1997; Crick & Rose, 2000), and academic achievement is necessary to more fully understand heterotypic manifestations of pathology and resilience from childhood through adolescence.

### Conclusions

Findings presented both supported and extended existing research concerned with understanding the expression of problem behavior. Findings supported existing research indicating that boys, African-American students, and students from lower socioeconomic status backgrounds generally experience higher levels of risk factors found to be associated with the development of problem behavior including connections to parents, peers, teachers, and school, as well as motivation and negative expectations (Dryfoos, 1990). Findings also supported existing research indicating that boys, African-American students, and students from lower socioeconomic status backgrounds engage in higher levels of problem behavior relative to girls, Caucasian students, and students from higher

socioeconomic status backgrounds (Dryfoos, 1990; Giordano & Cernkovich, 1997; McLoyd, 1998; Yung & Hammond, 1997).

Findings presented extended this research in several key ways. Understanding within group differences in the expression of problem behavior served as the central focus of the present study (Magnusson, 2000; Magnusson & Bergmann, 1988). This focus came in response to calls to move beyond a static, demographic based understanding of problem behavior (Doll & Hess, 2001; Garcia-Coll, Akerman, & Cicchetti, 2000; Tucker & Herman, 2002). Results indicated that considerable variability existed within groups in mean levels of problem behavior outcomes. Regardless of demographic status, stronger connections to others, motivation, and optimism expressed in fifth-grade was associated with lower levels of discipline referrals and suspensions from fifth-grade onward. Conversely, poorer connections, lower motivation, and heightened negative expectations were associated with higher mean levels of referrals and suspensions. In several instances the effect of risk status was particularly strong for boys, African-American students, and students from lower socioeconomic status backgrounds. Risk status was also strongly associated with student dropout.

These effects of cumulative and multiplicative risk found in the present study serve to advance our understanding of problem behavior outcomes through consideration of both between and within group differences in levels of risk and outcomes (Doll & Hess, 2001; Garcia-Coll et al., 2000; Tucker & Herman, 2002). By grounding research in terms of factors amenable to change through preventive intervention, the present study provides a template for future research examining gender, ethnic, and socioeconomic factors associated with problem behavior (Doll & Hess, 2001; Tucker & Herman, 2002),

as well as prevention trials intended to diminish the incidence and prevalence of problem behavior (Lochman, 1995).

Findings of the present study also served to extend prior work examining changes in student adjustment across the middle school transition (Carnegie Council on Adolescent Development, 1989; Eccles et al., 1993). Results supported prior work indicating that early adolescence is a time in which levels of problem behavior increase (Donovan & Jessor, 1985). Importantly, this research is extended through presentation of drastic increases across the middle school transition in levels of referrals and suspensions received, as well as the particularly strong effect of the middle school transition upon referrals and suspensions received by boys, high risk students, African-American students, and students from lower socioeconomic status backgrounds. Evidence of a potential “disconnect” in students’ experience of school-based responses to problem behavior provided critical information potentially supporting the hypothesis that students may feel “pushed out” through the course of middle school (Raffaele-Mendez et al., 2002).

These findings provide strong support for the stage-environment fit perspective of Eccles et al. (1993). Consistent with this model, findings suggest that the middle school environment may not provide structure or challenges consistent with middle school students’ developmental level of maturity (Eccles et al., 1993; Hunt, 1975). Compared to elementary school, junior high school classrooms are characterized by a greater emphasis on teacher control and discipline, by fewer opportunities for student decision making, by less positive teacher-student relationships, by more competitive grading practices, and by a reduced sense of teaching efficacy among junior high school teachers (Eccles et al.,

1993; Hunt, 1975). Declines in connections to others, motivation, and expectations across the transition to middle school are likely associated with this stage-environment mismatch.

These findings provide support for the necessity of ecological approaches to prevention work in schools (Cowen, 1997; Cowen & Work, 1988; Weissberg & Greenberg, 1997)). Consistent with a transactional-ecological model of preventive intervention, Felner and his colleagues (Felner et al., 1997) have achieved success through their School Transitional Environment Program (STEP). Through restructuring the middle school environment in accord with the recommendations of the Carnegie Task Force on Adolescent Development (1989), STEP has been associated with approximately 50% reductions in drop-out rates and significant positive effects on school performance and attendance patterns. Increased implementation of ecological prevention approaches such as those incorporated into STEP are likely necessary to address the significant declines in functioning across the middle school transition by students in the present study.

Taken as a whole, these conclusions support movement toward a more holistic understanding of gender, ethnic, socioeconomic, ecological, and developmental factors associated with school-based problem behavior. Findings support the importance of connections, expectations, and motivation in students' lives. Findings also support the necessity of advancing our understanding of connections between schooling and mental health (Roeser et al., 1998). Through doing so, the potential exists to considerably increase the likelihood that all of our nation's children are provided with equal opportunity to achieve their fullest potential.

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## Appendices

## Appendix A: Connection to Parents Scale

1. When I do things I shouldn't do, an adult usually corrects me.
2. My parents give me help and encouragement when I need it
3. My parents/guardians know the parents/guardians of my close friends
4. My parents are proud of me
5. When I grow up and have a family, I hope it will be similar to my own
6. I am an important member of my family

## Appendix B: Correlations

### Student Adjustment Survey subscales and Parent Scale in 5<sup>th</sup>- and 6<sup>th</sup>-grade

		5TH-GRADE					6TH-GRADE					
		TEA	SCH	PER	MOT	NEG	PAR	TEA	SCH	PER	MOT	NEG
5TH-GRADE	SCH	.64**										
	PER	.33**	.31**									
	MOT	.43**	.44**	.18**								
	NEG	-.46**	-.43**	-.37**	-.35**							
	PAR	.42**	.42**	.34**	.36**	-.33**						
6TH-GRADE	TEA	.15**	.13**	.11**	.09**	-.12**	.13**					
	SCH	.11**	.14**	.10**	.10**	-.12**	.14**	.58**				
	PER	.10**	.10**	.27**	.05**	-.09**	.13**	-.06**	-.03			
	MOT	.00	-.03	.04*	-.01	.00	.01	.37**	.45**	-.04*		
	NEG	-.09**	-.10**	-.06**	-.06**	.09**	-.07**	.43**	.41**	-.17**	.47**	
	PAR	-.01	-.04**	.02	-.02	-.01	.00	.35**	.35**	-.03*	.38**	.35**

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

### Discipline Referrals and Suspensions- Within Years

#### Discipline Referrals and Suspensions- 5<sup>th</sup>-Grade

		5TH GRADE			
		TOT	VIO	CLA	ISS
5TH GRADE	VIO	.54**			
	CLA	.78**	.28**		
	ISS	.56**	.34**	.38**	
	OSS	.47**	.54**	.38**	.18**

\*\* Correlation is significant at the 0.01 level (2-tailed).

Appendix B: Correlations (Continued)

Discipline Referrals and Suspensions- 6<sup>th</sup>-Grade

		6TH GRADE			
		TOT	VIO	CLA	ISS
6TH GRADE	VIO	.58**			
	CLA	.95**	.46**		
	ISS	.87**	.51**	.82**	
	OSS	.76**	.54**	.74**	.59**

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Discipline Referrals and Suspensions- 7<sup>th</sup>-Grade

		7TH GRADE			
		TOT	VIO	CLA	ISS
7TH GRADE	VIO	.55**			
	CLA	.95**	.45**		
	ISS	.85**	.46**	.80**	
	OSS	.75**	.55**	.73**	.57**

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Discipline Referrals and Suspensions- 8<sup>th</sup>-Grade

		8TH GRADE			
		TOT	VIO	CLA	ISS
8TH GRADE	VIO	.43**			
	CLA	.93**	.35**		
	ISS	.85**	.35**	.80**	
	OSS	.75**	.52**	.71**	.56**

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Appendix B: Correlations (Continued)

Discipline Referrals and Suspensions- 9<sup>th</sup>-Grade

		9TH GRADE			
		TOT	VIO	CLA	ISS
9TH GRADE	VIO	.31**			
	CLA	.85**	.26**		
	ISS	.82**	.26**	.75**	
	OSS	.75**	.42**	.66**	.56**

\*\* Correlation is significant at the 0.01 level (2-tailed).

Discipline Referrals and Suspensions- 10<sup>th</sup>-Grade

		10TH GRADE			
		TOT	VIO	CLA	ISS
10TH GRADE	VIO	.23**			
	CLA	.81**	.20**		
	ISS	.76**	.18**	.77**	
	OSS	.72**	.33**	.62**	.55**

\*\* Correlation is significant at the 0.01 level (2-tailed).

Discipline Referrals and Suspensions- 11<sup>th</sup>-Grade

		11TH GRADE			
		TOT	VIO	CLA	ISS
11TH GRADE	VIO	.20**			
	CLA	.79**	.16**		
	ISS	.71**	.14**	.72**	
	OSS	.68**	.33**	.57**	.49**

\*\* Correlation is significant at the 0.01 level (2-tailed).

Appendix B: Correlations (Continued)

Discipline Referrals and Suspensions- Across Years

Total Referrals from 5<sup>th</sup>- through 11<sup>th</sup>-Grade

	TOTAL REFERRALS					
	5TH GRADE	6TH GRADE	7TH GRADE	8TH GRADE	9TH GRADE	10TH GRADE
6TH GRADE	.38**					
7TH GRADE	.34**	.68**				
8TH GRADE	.31**	.54**	.68**			
9TH GRADE	.22**	.41**	.47**	.61**		
10TH GRADE	.18**	.36**	.43**	.53**	.68**	
11TH GRADE	.15**	.30**	.32**	.42**	.46**	.61**

\*\*Correlation is significant at the 0.01 level (2-tailed).

Violence Referrals from 5<sup>th</sup>- through 11<sup>th</sup>-Grade

	VIOLENCE REFERRALS					
	5TH GRADE	6TH GRADE	7TH GRADE	8TH GRADE	9TH GRADE	10TH GRADE
6TH GRADE	.26**					
7TH GRADE	.15**	.47**				
8TH GRADE	.13**	.32**	.38**			
9TH GRADE	.17**	.18**	.20**	.21**		
10TH GRADE	.07**	.17**	.20**	.17**	.19**	
11TH GRADE	.05**	.08**	.16**	.08**	.10**	.14**

\*\*Correlation is significant at the 0.01 level (2-tailed).

Classroom Referrals from 5<sup>th</sup> - through 11<sup>th</sup>-Grade

	CLASSROOM REFERRALS					
	5TH GRADE	6TH GRADE	7TH GRADE	8TH GRADE	9TH GRADE	10TH GRADE
6TH GRADE	.29**					
7TH GRADE	.24**	.64**				
8TH GRADE	.24**	.53**	.65**			
9TH GRADE	.18**	.41**	.46**	.58**		
10TH GRADE	.12**	.35**	.37**	.51**	.60**	
11TH GRADE	.12**	.30**	.30**	.43**	.50**	.62**

\*\*Correlation is significant at the 0.01 level (2-tailed).



Appendix B: Correlations (Continued)

In School Suspensions from 5<sup>th</sup>- through 11<sup>th</sup>-Grade

		IN SCHOOL SUSPENSIONS					
	5TH GRADE	6TH GRADE	7TH GRADE	8TH GRADE	9TH GRADE	10TH GRADE	
6TH GRADE	.23**						
7TH GRADE	.16**	.53**					
8TH GRADE	.15**	.41**	.56**				
9TH GRADE	.11**	.32**	.41**	.49**			
10TH GRADE	.08**	.23**	.36**	.43**	.55**		
11TH GRADE	.11**	.18**	.26**	.30**	.40**	.51**	

\*\*Correlation is significant at the 0.01 level (2-tailed).

Out of School Suspensions from 5<sup>th</sup>- through 11<sup>th</sup>-Grade

		OUT OF SCHOOL SUSPENSIONS					
	5TH GRADE	6TH GRADE	7TH GRADE	8TH GRADE	9TH GRADE	10TH GRADE	
6TH GRADE	.36**						
7TH GRADE	.30**	.59**					
8TH GRADE	.26**	.47**	.59**				
9TH GRADE	.14**	.32**	.38**	.51**			
10TH GRADE	.04**	.26**	.34**	.42**	.54**		
11TH GRADE	.12**	.20**	.28**	.29**	.33**	.45**	

\*\*Correlation is significant at the 0.01 level (2-tailed).

Appendix B: Correlations (Continued)

5<sup>th</sup>-Grade SAS and Parent Scales with Referrals and Suspensions

		5TH GRADE SAS and PARENT SCALES					
		TEA	SCH	PER	MOT	NEG	PAR
5TH GRADE	TOT	-.10**	-.11**	-.05**	-.13**	.13**	-.08**
	VIO	-.07**	-.09**	-.04**	-.09**	.08**	-.05**
	CLA	-.06**	-.05**	-.02	-.10**	.08**	-.04**
	ISS	-.11**	-.09**	-.04**	-.09**	.06**	-.05**
	OSS	-.06**	-.08**	-.03	-.11**	.07**	-.06**
6TH GRADE	TOT	-.16**	-.16**	-.09**	-.20**	.18**	-.15**
	VIO	-.12**	-.10**	-.07**	-.15**	.15**	-.11**
	CLA	-.14**	-.14**	-.08**	-.17**	.15**	-.14**
	ISS	-.15**	-.14**	-.08**	-.18**	.16**	-.14**
	OSS	-.10**	-.09**	-.07**	-.14**	.13**	-.11**
7TH GRADE	TOT	-.16**	-.14**	-.06**	-.19**	.18**	-.15**
	VIO	-.13**	-.11**	-.07**	-.17**	.16**	-.13**
	CLA	-.14**	-.14**	-.06**	-.17**	.15**	-.14**
	ISS	-.16**	-.14**	-.05**	-.19**	.17**	-.14**
	OSS	-.11**	-.11**	-.05**	-.16**	.13**	-.13**
8TH GRADE	TOT	-.15**	-.15**	-.06**	-.17**	.17**	-.16**
	VIO	-.10**	-.10**	-.05**	-.11**	.11**	-.10**
	CLA	-.13**	-.13**	-.06**	-.16**	.15**	-.14**
	ISS	-.14**	-.13**	-.04**	-.14**	.15**	-.12**
	OSS	-.11**	-.11**	-.06**	-.14**	.13**	-.13**
9TH GRADE	TOT	-.14**	-.14**	-.04**	-.14**	.16**	-.13**
	VIO	-.06**	-.05**	-.02	-.07**	.06**	-.05**
	CLA	-.13**	-.14**	-.05**	-.15**	.16**	-.12**
	ISS	-.14**	-.15**	-.05**	-.14**	.16**	-.12**
	OSS	-.11**	-.10**	-.04*	-.12**	.11**	-.11**
10TH GRADE	TOT	-.14**	-.12**	-.03	-.13**	.17**	-.10**
	VIO	-.06**	-.05**	-.02	-.06**	.08**	-.05**
	CLA	-.12**	-.12**	-.04**	-.14**	.15**	-.13**
	ISS	-.12**	-.12**	-.03	-.13**	.14**	-.12**
	OSS	-.13**	-.10**	-.04*	-.14**	.13**	-.10**
11TH GRADE	TOT	-.14**	-.14**	-.05**	-.08**	.14**	-.08**
	VIO	-.06**	-.02	-.02	-.05**	.05**	-.04*
	CLA	-.13**	-.15**	-.05**	-.09**	.15**	-.10**
	ISS	-.11**	-.12**	-.04*	-.07**	.12**	-.08**
	OSS	-.13**	-.14**	-.05**	-.08**	.11**	-.08**

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

Appendix B: Correlations (Continued)

6<sup>th</sup>-Grade SAS and Parent Scales with Referrals and Suspensions

		6TH GRADE SAS and PARENT SCALES					
		TEA	SCH	PER	MOT	NEG	PAR
5TH GRADE	TOT	-.04**	-.06**	-.01	-.02	.02	-.05**
	VIO	-.05**	-.07**	.00	-.05**	.02	-.04**
	CLA	-.02	-.03	-.02	.01	.01	-.01
	ISS	-.02	-.03	.00	.00	.01	.00
	OSS	-.03*	-.03*	-.02	.00	.02	-.04*
6TH GRADE	TOT	-.11**	-.13**	-.03	-.04**	.04*	-.05**
	VIO	-.07**	-.10**	-.01	-.04**	.02	-.05**
	CLA	-.10**	-.12**	-.02	-.04**	.03*	-.05**
	ISS	-.09**	-.12**	-.01	-.04**	.03*	-.05**
	OSS	-.07**	-.08**	-.03	-.02	.03*	-.03*
7TH GRADE	TOT	-.10**	-.12**	-.01	-.04**	.04**	-.03
	VIO	-.06**	-.07**	-.04**	-.05**	.02	-.03*
	CLA	-.10**	-.11**	.00	-.05**	.02	-.03*
	ISS	-.09**	-.11**	-.01	-.03*	.04**	-.04*
	OSS	-.08**	-.10**	-.01	-.05**	.01	-.04**
8TH GRADE	TOT	-.09**	-.10**	.01	-.04**	.05**	-.02
	VIO	-.06**	-.08**	-.02	-.05**	.04**	-.06**
	CLA	-.09**	-.10**	.01	-.04*	.05**	-.02
	ISS	-.09**	-.09**	.00	-.04**	.03	-.03*
	OSS	-.07**	-.08**	-.01	-.05**	.03	-.03
9TH GRADE	TOT	-.07**	-.08**	-.02	-.02	.06**	.01
	VIO	-.02	-.04**	.01	-.01	.04*	.00
	CLA	-.08**	-.09**	-.04**	-.03	.06**	-.01
	ISS	-.07**	-.08**	-.03	-.03	.06**	.01
	OSS	-.03	-.05**	-.03	-.01	.06**	.01
10TH GRADE	TOT	-.07**	-.09**	.01	.00	.05**	.00
	VIO	-.04*	-.04*	-.02	-.02	.00	-.02
	CLA	-.08**	-.08**	-.01	-.02	.05**	-.01
	ISS	-.07**	-.09**	-.01	-.02	.04**	-.02
	OSS	-.05**	-.07**	.00	-.02	.04*	-.03
11TH GRADE	TOT	-.06**	-.07**	.00	.02	.07**	-.01
	VIO	-.03	-.02	.01	.00	.02	.00
	CLA	-.06**	-.08**	.00	.00	.05**	-.01
	ISS	-.07**	-.07**	-.01	.02	.03	-.02
	OSS	-.06**	-.08**	.00	.01	.03	-.01

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

## Appendix C: Factor Analysis with all loadings (significant loadings highlighted)

ITEMS	Component				
	TEACHER	SCHOOL	PEER	MOTIVAITON	NEG EXP
10. Most teachers like my friends and me.	<b>.65</b>	.22	.14	.19	-.10
7. I think my teachers care about me.	<b>.65</b>	.21	.06	.13	-.23
9. My teachers often get to know me well.	<b>.64</b>	.03	.15	.16	-.10
11. I care about what most of my teachers think abt me.	<b>.53</b>	.25	-.01	.29	-.11
12. Some teachers would choose me as one of their favorite students.	<b>.53</b>	.20	.17	.12	.00
25. I feel that I can go to my teachers for advice or help with schoolwork.	<b>.51</b>	.30	.02	.17	-.27
26. I feel that I can go to my teachers for advice ar help with non-school work.	<b>.48</b>	.30	-.01	.00	-.15
13. I like school.	.16	<b>.67</b>	.05	.18	-.11
17. I feel a sense of school spirit.	.25	<b>.66</b>	.13	.01	-.04
22. School is important to me.	.11	<b>.59</b>	.01	.42	-.17
21. I feel like I am learning a lot in school.	.22	<b>.57</b>	.06	.24	-.22
23. I believe I am learning important things in school.	.16	<b>.54</b>	.03	.32	-.21
20. Discipline is fair at this school.	.27	<b>.51</b>	.11	.02	-.07
15. I get a lot of encouragement at my school.	.41	.42	.29	.06	-.07
1. Students usually get along well with each other in this school.	.15	.36	.35	.02	-.01
5. Most students include me in their activities.	.18	.08	<b>.72</b>	.11	.05
16. Other kids in my class have more friends than I do.	-.03	.07	<b>-.64</b>	.04	.11
2. Making friends is difficult at this school.	.02	-.09	<b>-.63</b>	-.06	.23
6. I always seem to be left out of important activitie	-.09	-.06	<b>-.56</b>	-.12	.32
4. A student can be him/herself and still be a part of this school.	.19	.32	<b>.46</b>	.08	.04
3. I am in the wrong group to feel a part of this school.	-.04	-.08	-.44	-.12	.38
32. Education is important for success in life.	.11	.12	.05	<b>.69</b>	-.14
34. I think I will go to college.	.09	.05	.17	<b>.63</b>	-.10
29. I try as hard as I can to do my best in school.	.18	.23	-.01	<b>.54</b>	-.16
31. It bothers me when I don't do something well.	.25	.04	-.12	<b>.45</b>	.21
33. I feel prepared for middle school.	.10	.14	.31	.36	.03
19. I have friends who are of different racial and ethnic backgrounds at this school.	.08	.13	.18	.32	.06
27. Most of my teachers don't really expect good wc from me.	-.13	.03	-.06	-.31	<b>.56</b>
28. I don't care how well I do in school.	.00	-.11	-.02	-.44	<b>.54</b>
14. My teachers don't pay much attention to me.	-.39	-.10	-.17	-.04	<b>.51</b>
18. I don't feel safe at school.	-.03	-.21	-.26	-.07	<b>.51</b>
24. I liked school more last year than I do this year.	-.14	-.12	-.02	.07	.44
8. Teachers are not usually available before class tc talk with students.	-.21	-.10	-.13	.14	.39

## About the Author

Ray Santa Lucia received a Bachelor's Degree in Psychology from Vassar College in 1995. While at Vassar, he gained clinical experience working with children at Bellevue Hospital in New York City. During the summer following his junior year he collaborated on a published research study through the Yale Child Study Center. Upon graduation, Vassar College awarded him with the Margaret Floy Washburn Fellowship for excellence in the field of psychology.

While in the Ph.D. program in clinical psychology at the University of South Florida, Mr. Santa Lucia's clinical, research, and teaching activities focused upon enhancing mental health outcomes for high-risk children and families. He completed his clinical internship at Visalia Youth Services in Visalia, California. He has taught Child Development at USF. He has engaged in longitudinal research focused upon understanding factors associated with risk and resilience among children throughout his graduate training.