

THE EFFECT OF DEVIANCE ON ACADEMIC PERFORMANCE

A Thesis by

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The following faculty members have examined the final copy of this thesis for form and content, and recommended that it be accepted in partial fulfillment of the requirement for the degree of Master of Arts with a major in Sociology.

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David Wright, Committee Chair

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DEDICATION

To my family and my dear friends

## ABSTRACT

This research examined the relationship between deviance and academic performance by combining three components 1) individual factors, 2) school environmental factors, and 3) family factors, and how these three factors affect students test scores. The data used for this study was from The Education Longitudinal Study (ELS) base year of 2002. Mean Comparison Tests, and Ordinary Least Squares Regression analysis were conducted, and the result supported most of hypotheses in this study.

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## **CHAPTER 1**

### **INTRODUCTION**

Educational attainment is very important to future opportunities and many students look for much higher educational goals (Schneider and Stevenson, 1999). However, inequality of chances to achieve educational goals (Hochchild and Scovronicity, 2003) and the school achievement gap associated with race, ethnicity, and income are continuing problems in American society (Teske et al., 2006). Students who have high academic achievement are less likely to engage in delinquent behavior than those who have lower academic achievement (Elliott and Voss, 1974; Henggeler, 1989). Students who have unsuccessful experiences in school are more likely to be involved in delinquent behavior such as dropping out of school (Voelkel, et al., 1999). School grades are the most reliable predictors for student delinquency (Gottfredson, 1988).

Previous research about adolescent delinquent behavior focuses on 1) individual factors such as race, gender, participation in extra-curricular activities, time spent on homework, and class preparation, as well as 2) school environment factors such as school rules and school problems, and on 3) family factors such as family socioeconomic status, the influence of siblings, and family communication. This study examines the relationship between deviance and academic performance by a combining these three components. The data used for this study is from The National Education Longitudinal Study (ELS) 2002.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 Student Role Performance (SRP)**

Any behavior, belief, or condition that violates social norms in the society or group is defined as deviance (Kendall 2005, P205). Control theory and social bonding theory are often used to explain adolescent delinquency. These theories suggest that deviant behavior increases because of weakened or broken social ties in the family and school (Alexander & Lloyd 2003). These include attachment to another, commitment to conformity, involvement in customary activities, and belief in legitimate values and norms (Kendall 2005, P219). Lack of emotional closeness, involvement, support, discipline, and supervision in family environment, and lack of educational commitment (Herrenhohl et al., 2000), aspirations (Elliott & Voss, 1974), time spent doing homework (Cernkovich & Flannery, 1997), and school involvement (Cernkovich & Giordano, 1992) are the strong predictors for adolescent delinquency (Alexander & Lloyd 2003). Deviant behavior in this study is defined by the school. Any behavior that violates school roles such as physical fighting, skipping class, poor performance and poor attendance are deviant behavior.

The Student Role Performance (SRP) is a measure of how successfully students adapt to socially expected behavior (Leone & Richards, 1989) such as mastery of beliefs, a high degree of task, involvement, persistence, generating, effective, and strategies in the face of obstacles (Skaalvik, 1997). The gender of the student affects SRP of the student. Generally, while girls earned better grades in reading and English classes (Downey & Vogt, 2005), boys earned better grades in math and science than

girls (Pallas & Alexander, 1983; Hedges & Nowell, 1995) and the grade difference significantly increased during their high school years (Klein, 1985; Feingold, 1988; Hyde et al., 1990). According to the study by American Association of University Women (1999), in school, boys receive more attention than girls and more encouraged to study math and science. Also, boys spend more time on activities enhancing quantitative skills, such as using the computer and joining the science club outside of school. Whereas Girls are more likely to spend time on reading or attending art class (Lever, 1978; Best, 1983). The study by Downey and Vogt reported that girls' time spent on reading helped to improve their reading skills, which means they receive better reading grades. Boys' time on computer improves their math and science skills, and so they receive better grades on math and science (2005). Gender affects different activities and it causes different educational achievement.

Race and ethnicity are also important factors in SRP. Many studies reported that African American students have lower academic achievement than white (Mullis, Owen & Philips, 1990). The average difference between African Americans' math scores is one half a full standard deviation lower than those of white students' (Hedges & Nowell, 1995). Pino and Smith found that although African American students and their communities have much higher academic aspirations than white students, Blacks still receive lower GPAs than whites (2004). African American students, compared to white students, are attending less difficult classes (Oakes, 1990; Pink, 1982). The attitude toward education and the actual educational achievement contradiction continues among African American adolescents (Mickelson, 1990 p.44). Hallinan (2001) argues that the gap between academic achievement of African American and white students can be explained by the term of racial inequality (p.51). The US

Department of education reported that the population of African American adolescents without a high school diploma, employment, and enrollment in postsecondary education was double of the population of their white counterparts. In addition, the median income of African Americans who dropped out at 8<sup>th</sup> grade of school was about half of the income of white dropouts (1996). Because of remaining racial inequality, success in education and preventing dropout from school are very important particularly, for African American communities (Voelkl et al., 1999). However, historically disadvantaged minorities tend to look down on academic achievement because they think that educational attainment would not raise their standard of living (Ogbu, 1997. 2003). Also, they think that even if they work hard for academic success, the benefits are limited after they complete school (Mickelson, 1990). The race difference and the different attitudes on academic achievement highly influence SRP.

Other studies found that extracurricular programs such as sports have an effect on educational achievement. Many studies in school sports have reported that participation in sports improves academic performance and promotes educational success (Coleman, 1961; Fejgin, 1994; Mirade & Rees, 1994; Hanson & Kraus, 1998, 1999). Total Extracurricular Activity Participation (TEAP) raises grade point average, education aspiration, and attendance. Also, TEAP helps to prevent absenteeism and dropping out of high school. The result was consistent even after race, socioeconomic status, and employment factors were taken into account (McNeal. 1995). Snyder and Spreitzer argued that students gain interest in school, self-concept, attention from others, such as teachers and parents, through sports participation, and maintained good grades in school (2002). However, other studies suggested that the effect of sports participation on academic performance is a very complicated issue when the race and

gender variables are included. For example, high school girls' participation in sports is associated with higher achievement in math and science, but not for boys (Hanson & Kraus, 1999). In addition, the positive effect of sports participation on academic achievement is reported for white students, but not for African American students (Hanks, 1979; Sabo et al., 1993). The research by Eitle and Eitle found that African American students were more involved in sports than white students; also basketball and football have a negative association with academic performance, regardless of the race of the students, and playing other sports increases academic performance for Whites but not for African Americans (2002).

Other factors that affect SRP of students are basic needs for student engagement with homework, practice, and attendance. Finn argued that students who fail to follow basic school regulations are more likely to have low academic performance, dropout of school, and consequently engaged in delinquency (Voelkl et al., 1999). Homework preparation style clearly indicates students' effort because time spent on homework is scheduled by the student, not by school staff (Natriello & McDill, 1986). The amount of time spent on homework is associated with positive academic performance (Paschl et al., 1984; Keith & Page, 1985). Also, doing homework with other persons present enhances students' motivation, promoting higher grades (Leona & Richards, 1989). Attendance is also an important factor. Students who regularly attend school are less likely to engage in delinquent behavior than students who are truant (Hellman & Beaton, 1986; Voelkel et al., 1999).

## **2.2 School**

School climate and school resources influence SRP. School climate is defined as the academic orientation of school, SES, academic ability, racial demographic, and

teachers' expectations. Also physical plant, science equipment, library books, technology and other instructional tools are defined as school resources (Hallinan, 2001). Cleman and Hoffer found that Catholic school students have higher achievement scores than public school students and the rates of dropping out of school are lower because religious affiliation enforces to family values and functional communities (1987). Bryk, Lee and Holland examined the climate of Catholic schools and found a strong academic curriculum, communal organizations, decentralized governance, and an emphasis on philosophy to inspire students to engage with academic achievement (1993). Also, the majority of predominately white schools have more resources than predominately African American schools, and the racial composition of schools effects educational achievement. African Americans attending academically strong schools receive higher SAT scores then African American attending academically weaker schools, and African Americans attending schools with a high white students ratio have higher educational achievement (Hallinan, 2001).

A study showed that students receive higher grades, not for just course work, but also when they show interests in art, music and literature (Bourdieu, 1970; DiMaggio, 1982). Schools with low SES tend to have few resources available to students, and the elimination of school extracurricular program such as clubs, artistic groups, athletics and student government can play an important role in increasing the alienation and subsequent delinquency of adolescents (Polk, 1984). These can constrain students from the opportunity of rewarding academic success (Pink, 1984).

Several theories pointed that delinquent behavior is associated with quality of the school itself (Henggeler 1974 p.54) because school curriculums are established by the school site (Hallinan 1992, Useem 1991). Hellman and Beaton argued that a high

students-teacher ratio is associated with low class attendance, unstable student population, and delinquent behavior (1986). Hallinam proposed that the formation of smaller class size as one way to reform the academic curriculum and enhance social bonds within schools (2001). Students have more opportunities to obtain information that is useful for improving their grades when they have more opportunities to talk with their teachers. Also, the more students communicate with their teachers, the more chances students are encouraged to follow school expectation, norms, and create social bonds, which help students receive higher grades (Broh 2002).

### **2.3 Family**

Family is a primary site for social capital, thus family factors play an important role in students' academic achievement (Coleman, 1999; Parcel & Dufur, 1998). Usually, adolescents from two-parent families have better academic achievement than adolescents from shingle parent families (Cherlin, 1992; McLanahan & Sandefur, 1994; Zill, 1996). Adolescents who grow up in two-parent families also have lesser drop out rates than those with stepparents (Astone & Mc Lanahan 1991, McLanahan & Sandefur 1994). Parental family structure affects the grade point averages on math scores for African American students, however, not for whites (Payne, 2003).

The numbers of siblings also affects academic performance. As the number of sibling increases, individual academic performance decreases (Downey 1995). Hill and Stafford studied that children receive less attention as their sib ship size increases (1974), and less encouragement from parents (Blake 1981). Children who have many siblings cannot receive a many parental resources, and it leads to lower educational attainment (Downey 1995).

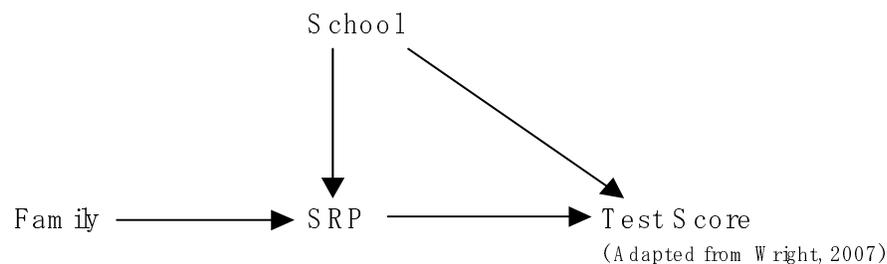
Parental involvement affects the SRP of children (Payne, 2003). Family

interaction is one of the factors enhancing or interfering with the effectiveness homework (McDermott et al., 1984). Studies show that doing homework alone is not rewarding and is associated with poor academic performance. Whereas doing homework with a parent or with family member is associated with gaining attention and better academic performance (Leona & Richards 1989). Students who have well educated parents (Coleman 1988, Downey 1995, Hagan et al., 1996). and parents with high educational expectations (Baumrind 1991, Clark 1983, Fegin 1995, Rumberger et al., 1990) comprise the major determinants of educational attainment (Blau & Duncan 1961, Featherman & Hauser 1978, Sewell & Hauser 1975). Specifically, a father's involvement in school has positive effect on children's academic success (U.S. Department of Education; 1998; Alderman-Swain, 2000). Several studies show that the father's education has a stronger impact than even sibling on educational attainment (Blake 1989 P52-53). Also, adolescents who have fathers involved in school are less likely to be expelled or suspended; even when father's educational level, income, and race variables are controlled (Alderman & Swain 2000). Adolescents raised in families with close, open communication and trusting environments more likely perform better in school (Scott-Jones, 1995), and complete more years of school (Dornbusch, 1989; Rumberger et al., 1990) than adolescent who have the opposite family environment (Lamborn et al., 1991). Also, parental monitoring and supervision increase children's academic outcomes (Astone & McLanahan, 1991; Scott-Jones, 1995). Other studies indicated that parents' involvement in school such as attending school, volunteering at the school, and joining the school governing structure influence children's academic performance (Estein et al., 1997).

Family socioeconomic status (SES) also affects SRP. For both African American

and white adolescents, their family SES is highly associated with the differences in math grades and grade point averages (Payne, 2003). Adolescents from families with lower SES tend to have less schooling years than adolescents from families with high SES (Entwisle et al., 1997; Hofferth et al., 1998). Reversibly, the U.S. Department of Education reported in 1996 that students with lower academic achievement and more likely attend high poverty schools. The difference between test scores develops during the summer break when school is out (Entwisle et al., 1994), because adolescents from high SES families have more access to join activities, gain resources, and increase their intellectual development when school is not in session (Heyns, 1978).

#### 2.4. Conceptual Model



Conceptual Model represents both direct and indirect effects of SRP, family, and school factors on students' test scores. SRP is behavior that measures how students perform socially expected behaviors, such as gender roles, race relations, participation in extracurricular programs, attendance, and time spent on homework. For example, students who spend more time on their homework receive higher test scores than students who do not.

School factors directory affects both SRP and student test scores. School is the institution that gives social discipline for students and defines what socially expected behaviors are. Another school factor, such as teacher-to-student ratio, racial

demographic, school climate, and school SES are part of the factors that affect SRP and test scores. For example, students attending school that have conditions hindered learning receive lower test scores than students attending school such conditions. Also, because schools with high a SES can provide students more recourse to help increase SRP, therefore students attending school with high a SES receive higher test scores.

Family is a primary site that provides children mental support and social resources. Family factors also have indirect effects on test scores. Such things as family structure, parental involvement in school activities, and parental monitoring influence SRP. For example, students from families with open and trusting relationships have higher academic achievement than students from families with the opposite. Also, high SES families can provide their children with more resources, which increase SRP, and then indirectly increase students' test scores.

## CHAPTER 3

### DATA AND METHODOLOGY

#### 3.1. Research Hypotheses

This study examines the relationships between deviance and the test scores of tenth-grade students.

##### *Student role performance factors: Hypothesis*

- 1) Deviant students achieve lower test scores than non-deviant students net of other factors.
- 2) Minority students are more likely to achieve lower test scores net of other factors.
- 3) Students who attend extra-curricular activities achieve higher test scores net of other factors.
- 4) Students who spend more time on homework are more likely achieve higher test scores net of other factors.
- 5) Students who come to class prepared will achieve higher test scores net of other factors.

##### *School factors: Hypothesis*

- 6) As school disruptions increase, test scores decreases net of other factors.
- 7) As school problems increase, test scores decrease net of other factors.

##### *Family factors: Hypothesis*

- 8) As SES increases, test scores increase net of other factors.
- 9) Students who have fewer numbers of siblings are more likely to receive higher test scores net of other factors.

10) Students who communicate with their parents more often are more likely to achieve higher test scores net of other factors.

### **3.2. Data**

The data for this study came from The Educational Longitudinal Study (ELS) base year of 2002, sponsored by The United States Department of Education's National Center for Educational Statistics (NCES). A national probability sample of 752 public and private schools selected randomly participated in the study. 21,759 tenth-grade students across the United States participated in the base year of 2002. The sample restrictions were for only valid responses in student survey, parent survey, school administrators' survey, and also for only selected mathematics and reading test scores. The samples size was reduced to 17,591 students.

ELS provides weights to compensate for oversampling and allow generalizability to the population. Use of weights in the statistical package creates population parameter biases, and the biases increase the probability of type I errors. Relative weights minimize the biases by dividing the weights by the mean weight. Relative weights maintain sample size, but create a distribution of a weighted sample.

### **3.3. Dependent Variable**

The dependent variable in this study is the composite score of mathematics and reading scores of tenth-grade students. The range of the interval variable is from minimum 20.19 to maximum 81.04 and, ranked into a centile scale.

### **3.4. Independent Variables: Student Role Performance Level**

Student role performance is associated with how well students perform in school. The variables included in "Student Role Performance" factors are the student's sex, race, ever held back grade status, homework preparation, class preparation, and

deviance status. The relationships between each of these variables and test scores are examined in this study.

The female variable is (0, 1) binary, in which 0 is male and 1 is female. The minority variable is (0, 1) binary, in which 0 is minority, and 1 is non-minority. The class preparation variable measuring how often students came to class with pencil, paper, books and homework is binary, in which 0 is prepared and 1 is not prepared. The time spent on homework per week variable is measured by interval scale of how many hours per week students spent on homework in school and out of school. The students' role performance variables measure how well students perform in mathematics classes, reviewing, listening to lecture, note taking, use of calculators and computer, and participating in class discussions create an index. The student deviance variable is measured by six variables composed of how many times students skip class, are absent, get in trouble, are put on probation, and also transferred for disciplinary reasons. This variable creates a (0, 1) binary, in which 0 is non-deviant, and 1 is deviant. The extra-curricula activity variable measuring students participation in sports such as baseball, softball, basketball, football, soccer, intramural sport, individual intramural sport, and drill team creates a (0,1) binary, in which 0 is "not participated" and 1 is "participate".

### **3.5. Independent Variables: School Level**

School factors also have an affect on student role performance and their test scores. The variables include: the availability of school resources, school environmental settings, and school demographics, degree of school problems, and school rules and regulations. The relationships between each of these variables and test scores are examined in this study.

The school resources are measured by the percentage of schools that provide free lunch to students. This variable is an interval scale. The 11 variables related to measure school environmental settings were selected to create school environmental setting variables. The scale variables include learning hindered by poor condition of building, poor heating, air conditioning, and lighting systems, poor science, arts, library facilities, as well as lack of space, texts and supplies, computers, multi-media, and inadequate security. The score has a Cronbach's alpha of .993.

The school problem variable creates a scale (the Cronbach's alpha.997) variable composed of tardiness, physical conflicts, theft, vandalism, alcohol/drug use, weapons, physical/verbal abuse of teachers, racial tension, disorder, disrespect for teachers, and gang activities. The school rules and regulation variable is a scale (the Cronbach's alpha.994) composed of controlling access to buildings, grounds, requirement of metal detector, random metal check, drug check, uniforms, ID badges, and security systems.

### **3.6. Independent Variables: Family Level**

Family factors have an effect on student role performance and their test scores as well as individual and school factors. The variables included in family factors are socioeconomic status, family composition, availability of family resource, and family communication level. The relationships between each of these variables and test score are examined in this study.

The family socioeconomic status variable is an interval quartile variable. The family resources variable is an index composed of availability of newspaper, magazines, computers, DVD players, dishwashers, dryers, more than 50 books, own room, and fax machine. The family composition variable is binary, in which 0 is dual-parent and 1 is single parent. The siblings variable is an interval measure, 0 siblings to

6 or more siblings. The family communication variable is created into a scale (the Cronbach's alpha .993) composed of how often students discuss school courses, activities, class material, grades, transferring, preparation for ACT/SAT, going to college, current events, and troubling things with their parents. The parents help with homework is a binary variable; in which 0 is parents help with homework, 1 is parent never help with homework.

## CHAPTER 4

### RESULTS

#### 4.1. Means Comparison Tests (Univariate and Bivariate Analysis)

Table 1A shows that the percentage of students who are labeled as deviant is 52.3%, and 47.7% of the population is non-deviant. Also, there is a statistically significant difference in test score between non-deviant students and deviant students. The mean test scores show that deviant students achieve lower test scores than non-deviant students (49.2 vs. 52.7).

Under Students Role Performance factors, deviant students are less likely to be female (52.5% vs. 49.2%), more likely to be minority students (31.0% vs. 40.5%), more likely to have been held back a grade (0.1 times vs. 0.16 times), more likely to take remedial classes (0.09 classes vs. 0.12 classes), more likely to show at least one disability (9.7% vs. 14.5%), less likely to be unprepared for class (23.1% vs. 43.5%), less likely to spend time in homework per week (11.47 hours vs. 9.75 hours), less likely to be prepared in Math class (90.6% vs. 84.9%), more likely to have parents contacted of the school (0.23 times vs. 0.52 times), less likely to participate in extracurricular activities at school (72.8% vs. 56.5%), less likely to participate in college preparation (22.2% vs. 20.4%), and more likely to work (60.2% vs. 67.2%). These differences are all statistically significant.

Table 1B shows family factors and school factors. Deviant students are less likely to live in two parents household (19.4% vs. 28.5%), to have lower levels of family communication (2.06 level vs. 1.95 level), to have more siblings (2.21 vs. 2.39),

have lower SES (53.23 centile vs.47.66 centile), to receive lower levels of family participation in school (3.14 level v. 3.05 level), less likely to receive help on homework (3.57 times vs. 3.55 times), to have less family roles (2.72 vs. 2.64), and more likely to have siblings who dropped out of school (10% vs. 17%). All results are statistically significant.

In school factors, deviant students are less likely to prepare for college (62.4% vs. 59.6%), more likely to be enrolled in schools that provide free lunch (22.7% vs. 25.8%), more likely to attend schools with less than adequate school conditions (1.69% vs. 1.73%), more likely to attend schools that disrupt learning (1.27 vs. 1.38), less likely to attend schools that the administrations view of students problems (3.62% vs. 3.57%), and more likely to attend schools with more security ( 0.38 vs. 0.39). All of these differences are shown statistically significant.

#### **4.2. Ordinary Least Squares (OLS) Regression (Multivariate Analysis)**

The Table 2 shows effects of each of independent variables on the dependent variables, and test score differences for deviant students and non-deviant students separately in students role performance, family, and school factors. Also it explains that those three factors do not have the same effect on test scores.

In the full sample, the adjusted R-square is shown to be 0.518, with a constant value of 64.267, this is significant at 0.001 levels. This also shows that there are significant differences between the test scores of deviant (Adjusted R-sq 0.490\*\*\*) and non-deviant students (Adjusted R-sq 0.514\*\*\*). Net of other factors, deviant students achieve lower test scores (-0.56) than non-deviant students.

The other results show that, net of other factors, being female, being minority, being held back a grade, attending at least one remedial class, having at least one

disability, coming to class unprepared, having parents contacted, working, living in two parent household, having more siblings, region of school, less family participation, less help on homework, fewer family rules, having sibling dropped out of school, attending school with free lunch, attending schools having a condition that hinders learning, attending schools with learning disruptions, students whose administration have a view of students problems, and attending school with security have negative effects on test scores. On the other hand, living in English speaking households, hours spent in homework, preparation for math class, participating in extracurricular programs in school, SES composition, family communication level, and attending school with college preparation programs have a positive effect on test scores.

The table 2 also shows the test score differences between deviant and non-deviant students separately. In student role performance factors, being a female will decrease test scores (-1.407), this relationship holds true for both deviant and non-deviant students. Being a minority will decrease test score (-3.275), this relationship holds true for both deviant and non-deviant students. Being held back a grade also decreases test score (-4.352), this relationship holds true for both deviant and non-deviant students, however, non-deviant students are imported more deviant students (-4.870 vs. -4.015). Students living in English speaking households have higher test scores (2.079), the relationship holds true for both non-deviant and deviant students. Students not attending remedial classes where necessary will decrease test scores (-2.656), this relationship holds true for both deviant and non-deviant students. Coming to class unprepared decreases test scores (-1.203), this relationship holds true for both deviant and non-deviant students, but non-deviant students are affected more than deviant students (-1.777 vs. -0.713). More hour spent on homework will impose

test scores (0.082), the relationship holds true for both non-deviant and deviant students. Math preparation increases test scores (1.114), the relationship holds true for both non-deviant and deviant students. When schools contact parents, this will decrease test scores (-2.262), the relationship holds true for both non-deviant and deviant students, however, non-deviant students are affected more than deviant students (-2.643 vs. -2.006). Student participating on extracurricular programs increases test scores (0.716), the relationship holds true for both non-deviant and deviant students. Taking college preparation courses will increase test scores (0.511), the relationship holds true for both non-deviant and deviant students, however, non-deviant students have an enhanced effect than deviant students.

In family factors, students living in single parent households will show lower test scores (-0.487), the relationship holds true for both non-deviant and deviant students. Having more communication in the family will increase test scores (0.936), the relationship holds true for both non-deviant and deviant students. Larger numbers of siblings lowers test scores (-0.313). The relationship holds true for both non-deviant and deviant students. Attending school in southwest region decreases test scores (-0.279). The relationship only holds true for non-deviant students. Higher SES increases test scores (3.800). Having siblings drop out of school lowers test scores (-0.459), but the relationship only holds true for non-deviant students.

In school factors, school conditions that hinder learning decreases test scores (-0.030), the relationship holds true only for non-deviant students. Disruption of learning decreases test scores (-1.174), the relationship holds true both for non-deviant and deviant students. Administrations view of students as problems lower test scores (-0.418), the relationship holds true only for non-deviant students. Poor school security

decreases test scores (-1.843), the relationship holds true only for non-deviant students.

Figure 2 shows the percent of unique variance on test score explained by each of the three factors, 1) student role performance, 2) family, and 3) school. Fifty-seven and one-half percent of the variance in test scores is explained by the SRP variables, with deviant students having slightly more of the variance explained. Family factors account for 35 percent of the variance in test scores and again, slightly more is explained for the deviant group. School factors explain 7.5 percent of variance in test scores, and a more is explained for the non-deviant group in this variable set. Figure 2 shows that SRP has the great impact on test scores for both deviant and non-deviant groups, family has a moderate impact on test scores, and school variables have, by far, the least impact.

## **CHAPTER 5**

### **DISCUSSION**

#### **5.1. Conclusion**

The purpose of this study is to examine how individual, family, and school factors affect student test scores. Test scores were predicted to be higher in non-deviant students than in deviant students. Also, in individual factors, test scores were predicted to be higher among non-minorities than minorities, among students who participate in extracurricular programs as opposed to students who don't, among students who spent more time on homework as opposed to students who spent less time, among student who come to class prepared than among students who come to class unprepared. In school factors, test scores were predicted to be higher among students who attended schools with more resources than among students who attended schools with less resource, as well as, students who attended schools that had more rules and who attended schools with more school problems. In family factors, test scores were predicted to be higher among students whose families have more resources available than among students whose families have less resources. Students who have more family communication than in students who had less experience the same trends.

The results of this study show that there is a statistically significant difference between deviant and non-deviant students in test scores, and most of all, the independent variables of student role performance, school, and family factors are shown to also have significant affects on test scores. The mean test scores show that deviant students achieve lower test scores than non-deviant students (49.2 vs. 52.7), so

hypothesis #1 that deviant students achieve lower test scores than non-deviant students, net of other factors is supported.

Multivariate analysis shows that minority students achieve lower test scores than non-minority students (-3.275), students who participate in extracurricular programs in school achieve higher test scores (0.716), students who spend more hours on homework achieve higher test scores (0.082), and students coming to class unprepared achieve lower test scores (-1.203). These results indicate that hypothesis #2, #3, #4, and #5 are supported. In school factors, students who attend a school with problems, such as disruptions of learning (-1.174) and inadequate condition that hinder learning (-0.194), test scores decrease. These findings also support the hypothesis #6 and #7. In family factors, as family SES increases, test scores increase (3.800), with students having more siblings achieving lower test scores (-0.313). With more family communication, test scores increase (0.936). These findings also support the hypothesis #8, #9 and #10.

## **5.2. Limitations**

The limitations of this study include the definition of deviance. In this study, deviance is defined as frequency of times students are late for class, skip classes, and absent from school, get in trouble, are put on in-school suspension, are transferred for disciplinary reasons. All are defined by the schools. It does not indicate a level of social deviance. Lower test scores represent failure in school, thus representing deviance. However, for further study, other explanations on lower test scores should be considered. Also, the data used for the study was cross-sectional data. Students' history of deviance and their academic history are not known. Many of SRP factors used in this study might have also measure school influences, for example, students who attend

school that have no extracurricular programs are not able to participate the programs even though the students want to do so.

### **5.3. Policy Implementation**

The results in this study indicate that student role performance factors are more critical for both non-deviant and deviant students than family and school factors to affect students' test scores. Family and school factors should not be ignored, but regarded as important factors that affect test scores. In order to achieve higher test scores for both deviant and non-deviant students, policies including all three factors need to be developed. Giving more support to programs for disable students, encouraging students to participate extracurricular activities in school, and increasing family communication with students, such as helping homework or participating school activities, would be policies that might achieve higher test scores. Also, schools should provide safe environments without any learning disruptions.

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## APPENDIX

TABLE 1A

Values for Full Sample and by Deviance

Variables:	Full Sample	Non-Deviance <sup>1</sup>	Deviance <sup>2</sup>
Standardize Test Score (mean)	51.0	52.7 <sup>***</sup> ^	49.2
Standardize Test Score (median)	51.38	53.51	49.08
(stddev)	(9.48)	(9.42)	(9.18)
<b>Student Role Performance:</b>			
%Female (0,1)	50.9% (0.50)	52.5% <sup>***</sup> (0.50)	49.2% (0.50)
%Minority (0,1)	35.5% (0.48)	31.0% <sup>***</sup> (0.46)	40.5% (0.49)
% Times students held back a grade (0,1)	12.6% (0.33)	9.6% <sup>***</sup> (0.29)	15.8% (0.37)
Number of Remedial Classes (0.1)	0.11 (0.31)	0.09 <sup>***</sup> (0.29)	0.12 (0.33)
% At Least one disability (0,1)	12.0% (0.33)	9.7% <sup>***</sup> (0.30)	14.5% (0.35)
% Student come Unprepared (0,1)	32.8% (0.47)	23.1% <sup>***</sup> (0.42)	43.5% (0.50)
Hours Student Spends on Home Work per week	10.65 (8.81)	11.47 <sup>***</sup> ^ (9.02)	9.75 (8.49)
% of students prepared in Math Class (0,1)	87.9% (0.33)	90.6% <sup>*</sup> ^ (0.29)	84.9% (0.36)
% school contact parent (0,1)	37.2% (0.48)	23.5% <sup>***</sup> (0.42)	52.1% (0.50)
% Extracurricular participation at school (0,1)	65.0% (0.48)	72.8% <sup>***</sup> ^ (0.44)	56.5% (0.50)
%Participated in college prep(0,1)	21.3% (0.41)	22.2% <sup>*</sup> (0.42)	20.4% (0.40)
%Students who work (0,1)	63.6% (0.48)	60.2% <sup>***</sup> (0.49)	67.2% (0.47)
<hr/>			
Sample n (weighted):	10,328	5,112	5,216
	100%	52.3%	47.7%

1=\*\*\*p<0.001; \*\*p<0.01; \*p<0.05

2=^ effect size greater=>.20

TABLE 1B

Values for Full Sample and by Deviance

Variables:	Full Sample	Non-Deviance	<sup>1</sup>	<sup>2</sup>	Deviance
<b>Family Factors:</b>					
% in single parent household (0,1)	23.7%	19.4%	***		28.5%
	(0.43)	(0.40)			(0.45)
scale of family communications(1-3)	2.01	2.06	***	^	1.95
	(0.50)	(0.50)			(0.49)
Number of siblings	2.3	2.21	***		2.39
	(1.55)	(1.52)			(1.57)
region of school, south or west (0,1)	56.9%	53.9%	***		60.2%
	(0.50)	(0.50)			(0.49)
SES centile	50.57	53.23	***	^	47.66
(median)	50.00	55.00			46.00
	(28.90)	(29.10)			(28.30)
Level of family participation (1-4)	3.10	3.14	***	^	3.05
	(0.52)	(0.51)			(0.53)
how often helps with homework (1-4)	3.56	3.57	*		3.55
	(0.46)	(0.47)			(0.46)
Family rules (1-4)	2.69	2.72	***		2.64
	(0.68)	(0.67)			(0.68)
% siblings dropped out of school (0,1)	14.0%	10.0%	***		17.0%
	(0.34)	(0.31)			(0.38)
<b>School Factors:</b>					
% who offer college preparation (0,1)	61.2%	62.5%			59.6%
	(30.55)	(30.43)			(30.62)
% stds in free lunch program	24.2%	22.7%	***		25.8%
	(22.29)	(21.37)			(23.14)
Scale for learning hindered by school conditions	1.71	1.69	***		1.73
	(0.62)	(0.63)			(0.62)
Index of learning disruptions	1.32	1.27	***		1.38
	(0.85)	(0.86)			(0.83)
Scale of administrations view of student problems	3.59	3.62	***		3.57
	(0.36)	(0.36)			(0.36)
Scale of security at school	0.39	0.38	***		0.39
	(0.14)	(0.14)			(0.14)
<hr/>					
Sample n (weighted):	10,328	5,112			5,216
	100%	52.3%			47.7%

Table 2

OLS Regression Analysis  
(Dependent variables=Test score)

Variables:	Full Sample			Non-Deviance			Deviance			
	unstd.	1	std.	unstd.	1	std.	2	unstd.	1	std.
<b>Individual-level factors:</b>										
Deviant (0,1)	-0.557	***	-0.029							
Female (0,1)	-1.407	***	-0.074	-1.473	***	-0.078		-1.302	***	-0.071
Minority (0,1)	-3.275	***	-0.165	-3.350	***	-0.164		-3.136	***	-0.168
English Speaking household (0,1)	2.079	***	0.074	2.266	***	0.079		1.897	***	0.071
held back a grade(0,1)	-4.352	***	-0.152	-4.870	***	-0.152	◊	-4.015	***	-0.160
At Least one Remedial Classes (0,1)	-2.656	***	-0.087	-2.686	***	-0.083		-2.534	***	-0.090
At Least one disability (0,1)	-6.210	***	-0.213	-6.452	***	-0.203		-5.953	***	-0.228
Student come Unprepared (0,1)	-1.203	***	-0.060	-1.777	***	-0.080	◊	-0.713	***	-0.038
Hours Student Spends on Home Work	0.082	***	0.076	0.087	***	0.083		0.075	***	0.070
% of Student Prepared in Math Class	1.114	***	0.038	0.926		0.029		1.274	***	0.050
School Contacted Parent (0,1)	-2.262	***	-0.115	-2.643	***	-0.119	◊	-2.006	***	-0.109
Extracurricular Participation at School (0,1)	0.716	***	0.036	0.830	***	0.039		0.642	***	0.035
college preparation course (0,1)	0.511	***	0.022	0.690	***	0.030	◊	0.273	**	0.012
Students who work (0,1)	-0.270	*	-0.014	-0.439		-0.023		-0.094		-0.005
<b>Family Factors:</b>										
single parent household (0,1)	-0.487	***	-0.022	-0.831	***	-0.035		-0.231	***	-0.011
scale of family communications(1-3)	0.936	***	0.049	0.844	***	0.045		1.026		0.055
Number of siblings	-0.313	***	-0.051	-0.257	***	-0.041		-0.371	***	-0.063
region of school south west	-0.279	*	-0.015	-0.345	*	-0.018		-0.137		-0.007
parent's SES	3.800	***	0.292	3.651	***	0.288		3.927	***	0.302
Level of family participation (1-4)	-1.134	***	-0.062	-1.385	***	-0.075		-0.899	***	-0.052
how often helps with homework(1-4)	-0.989	***	-0.048	-0.868	***	-0.043		-1.093	***	-0.055
Family rules (1-4)	-0.539	***	-0.039	-0.696	***	-0.050		-0.340	*	-0.025
siblings dropped out of school (0,1)	-0.459	*	-0.017	-0.713	***	-0.023		-0.184		-0.007
<b>School Factors:</b>										
%stds in free lunch program	-0.030	***	-0.071	-0.033	***	-0.075		-0.028	***	-0.071
Scale for learning hindered by school conditions	-0.194		-0.013	-0.230	*	-0.015		-0.154		-0.010
Index of learning disruptions	-1.174	***	-0.105	-1.255	***	-0.115		-1.077	***	-0.097
Scale of administrations view of student problems	-0.418	*	-0.016	-0.598	**	-0.023		-0.250		-0.010
Scale of security at school	-1.843	***	-0.028	-2.717	***	-0.041		-1.007		-0.016
(Constant):	64.267	***		66.755	***			60.910	***	
Adjusted R-sq.	0.518	***		0.514	***			0.490	***	
N=	10,328			5,112				5,216		

1=\*\*\*p<0.001; \*\*p<0.01; \*p<0.05

2. Significant difference between not deviance and deviance at the .05 level or higher

Figure 2

Shares of Unique Variance in Test Scores

