STUDENT ATTITUDES AND ACTIVITIES THAT INFLUENCE STUDENT ACHIEVEMENT

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by

Jan Graham Griffin

A Dissertation
Submitted to the Graduate Studies Office
of The University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Education

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ABSTRACT

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This study was designed to determine if specified factors are positively associated with the dependent variable; students' standardized math achievement scores. The independent variables considered were extracurricular activity participation, ethnicity, SES, gender, student attitudes towards math achievement and self-concept. The data was compiled using 15,362 United States high school sophomores who represent a national sample of 10th graders in the ELS: 2002 and 78 sophomore students in a school district in a southeastern state for the fall semester of the 2006-2007 school year. This study disaggregated data and found the independent variables positively associated with participation in extracurricular and interscholastic activities and higher standardized math achievement scores. Other results of the study showed the self-confidence composite proved the strongest indicator of achievement in mathematics, while the ethnic Hispanic classification proved to be the weakest. Being female, African American, a member of the lowest and second SES quartiles, and the math attitudes composite variables were associated with lower standardized math achievement scores while being male, American Indian, Asian, Hispanic, multi-racial, white, and a member of the highest SES quartiles, hours per week spent on extracurricular and interscholastic activities, and the self-confidence composite variable were associated with higher standardized math achievement scores.
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CHAPTER I
INTRODUCTION

Problem Statement

Introduction

The general focus of this study is to determine if specified factors can predict students’ standardized math achievement scores. The data will be compiled using the Educational Longitudinal Study of 2002 (ELS: 2002) and all sophomore students in a school district in a southeastern state for the fall semester of the school year 2006-2007. Extracurricular activity participation, student demographics and specified attitudes on student achievement will be considered and the results reported.

The present study is organized consistent with the University of Southern Mississippi’s protocols for the composition of dissertations. Chapter I introduced the study and its elements. Chapter II is a review of the literature related to the specific elements of the study. Chapter III describes the methodology used and the limitations of the current study. The results and statistical analysis will be reported in Chapter IV. A discussion of the findings, conclusions drawn, and recommendations for further study will be reported in Chapter V.

Statement of the Problem

American children are influenced by a variety of factors including family, peers, schools, the media, interscholastic and extracurricular activities. During the preadolescent years, family and peers provide the predominating influences (Holland & Andre, 1987). As children grow and their field of influence expands, other activities can provide motivation. Extracurricular activities offer students experiences that have an

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effect on their personality development and socialization (Harrison & Narayan, 2003; Holland & Andre, 1987; McNeal, 1999). The role of student activities within the public educational system of this country remains an issue of discussion. Some proponents of educational reform argue that interscholastic as well as extracurricular activities compete with academic learning for the student's time and attention (Camp, 1990). This argument implicitly assumes a relationship between youth activities and academic achievement. Broh (2002) has found in his study using the 1988 National Educational Longitudinal Study (NELS: 88) that participation in interscholastic sports raises students' achievement in the classroom and on standardized math tests. There are numerous studies investigating the relationship of extracurricular activities on the achievement of high school students. However, there is limited research on the influence of extracurricular activities, student demographics, and specified attitudes on student achievement. The present study will examine the achievement of students who participate in extracurricular activities and identify which factors are associated with and can explain or predict achievement.

Background

Extracurricular activities have been shown to play an important role in the lives of students. Much research has been done to determine the benefits of extracurricular activities on student achievement, self-concept, and other social development issues. Research has shown that a sense of belonging to the family and school are critical for healthy adolescent development. Students who form relationships with individuals at school through sports, clubs, or other activities has been found to be even more effective in protecting against a variety of risk behaviors, including truancy, substance abuse, and

Many researchers have studied the participation of high school students in extracurricular activities. Marsh (1992) and Sweet (1986) found a positive correlation (both variables increase) between students’ participation in extracurricular activities and the number of advanced courses students take. Meaning as students participate in these activities they increase the number of advanced courses they take. Furthermore, Marsh (1992) found involvement in extracurricular activities to be related to students being in more advanced academic curriculum tracks. Additionally, Sweet (1986) found a positive correlation between participation in extracurricular activities and student test scores.

Other research studies have found a positive relationship between participation in extracurricular activities and programs for gifted and talented students. Bucknavage & Worrell (2005) found that a majority of academically talented students participate in extracurricular activities, diffusing the idea that gifted and talented students do not participate in athletics or other nonacademic activities. High achievers tended to participate in more extracurricular activities than did their intellectually equal underachieving counterparts (Colangelo, Kerr, Christensen, & Maxey 1993; Ingels, Burns, Charleston, Chen, & Owings, 2005). Gifted students benefit from the competition and emotional support they receive from their peers in extracurricular participation. The support they receive is very important once they move away from their initial supporters, their parents in childhood (Olszewski-Kubilius & Lee, 2004).

According to Koerner (1992) and Cooley & Others (1992), extracurricular activities have a deterrent effect on several negative student behaviors in high school. Students who participate in extracurricular activities are less likely to abuse drugs or
alcohol. Koerner found extracurricular activities to be positively correlated with a low dropout rate. He also found participation in extracurricular activities to produce more marketable job skills. Extracurricular activities have been linked to low absenteeism (Marsh, 1992) and a longer amount of time spent on homework (Marsh, 1992; Sweet, 1986).

Several studies investigated the relationship between involvement in extracurricular activities and social self concept (Hertel, 1992; Holland & Andre, 1987; Leanardson, 1986; and Marsh, 1992). Marsh (1992) found this positive relationship to exist between extracurricular activities and academic self concept while Holland & Andre (1987) also researched this relationship and found a further positive connection to exist between extracurricular activities and moral growth and development. Williams & McCollester (1990) investigated the relationship between involvement in an extracurricular drama club and the self-esteem of at-risk preadolescent elementary students. The results of the participation of these students showed a positive influence on their self-esteem. These same students also had a reduction in at-risk behaviors.

A study by Mahoney, Cairns & Farmer (2003) investigated the role of consistent and continued participation in extracurricular activities and found it to be a contributor to long-term success. The positive correlates included college attendance, interpersonal competence, and further educational aspirations. Students who participate in extracurricular activities may develop cognitive and psychological skills that would help them do well on achievement tests and in the classroom (Dumais, 2006). Other research studies have investigated the possibility of a relationship between college performance and involvement in extracurricular activities. Marsh (1992) found students in
extracurricular activities to have higher senior year aspirations, post secondary aspirations, and also to have high college attendance rates.

Comparatively, very little research exists regarding the relationship between race, interscholastic or extracurricular activities, and higher student achievement. The study by McCarthy (2000) found students of every ethnicity who participated in school-sponsored activities to have higher grade point averages than students who do not participate. Miller et al. (2005) completed a study that linked school sports participation and a higher grade point average (GPA) to gender and ethnicity, finding female athletes to report a higher GPA than female non-athletes where male athletes showed had no significant differences reported in GPA. Conversely, Melnick, Sabo, & Vanfossen (1992) found athletic participation to have very little academic impact on minority students. The students in the study all equaled their academic nonathletic counterparts thus dispelling the ‘dumb jock’ stereotype. The study did find school sports to have a positive impact on keeping students in school. A study by Kao (2000) found that a pre-imposed stereotype of a racial group can predict how well a student will do in a subject or extracurricular activity. Goldsmith (2003) examined the differences in participation rates of whites and blacks in different sports and found that stereotypical association of races can determine the different sports in which each race will participate.

The bulk of the research, however, supports a strong positive correlation between academic achievement and extracurricular activities in general (Camp, 1990; Ingels et al., 2005; Koerner, 1992; Marsh, 1992; Steinberg et al., 1988; and Sweet, 1986). These studies suggest that participation in extracurricular activities enhances academic achievement rather than deterring it. Participation in school sports seems to have real
benefits for students.

The present study will use the Education Longitudinal Study of 2002 (ELS: 2002) to investigate whether there is a statistically significant relationship among student involvement in extracurricular activities, their ethnicity, SES, gender, standardized and math achievement scores. The researcher will also explore such issues as the attitude of the student and self-confidence in mathematics. Other variables which can be controlled by schools, parents, students, and the communities will be studied to determine if a relationship can be established.

Purpose of the Study

The purpose of the current study is to determine if specified factors such as extracurricular activity participation, attitudes towards mathematics achievement, self-confidence in mathematics achievement, gender, ethnicity, and socioeconomic status are positively associated with achievement scores there is a statistically significant difference in the standardized math achievement scores of sophomore students who participate in extracurricular activities. In addition, this study seeks to determine if student reported positive attitudes towards math achievement have an effect on academic achievement as measured by standardized math achievement scores. The study will control for socioeconomic status, ethnicity, and gender.

Research Questions

1. Is there a statistically significant relationship among sophomore year involvement in extracurricular and interscholastic activities, student-reported attitudes toward math, self-confidence, ethnicity, SES, gender, and standardized math achievement scores?
2. Do SES, ethnicity, and gender primarily and sophomore year involvement in extracurricular and interscholastic activities, specified attitudes toward math, and self confidence, secondarily statistically significant predict standardized math achievement scores?

3. Is there a statistically significant difference between the composite math attitude of high school sophomores in a school district in a southeastern state and the composite math attitudes of the average American high school sophomore based on data from the ELS: 2002 database?

4. Is there a statistically significant difference in the composite self-confidence attitudes of high school sophomores in a school district in a southeastern state and the mean of the composite self-confidence attitudes of the average American high school sophomore based on data from the ELS:2002 database?

5. Is there a statistically significant difference in the sophomore year involvement in extracurricular and interscholastic activities of high school sophomores in a school district in a southeastern state and the mean of the sophomore year involvement in extracurricular and interscholastic activities of the average American high school sophomore based on data from the ELS:2002 database?

*Research Hypotheses*

1. There is a statistically significant relationship among sophomore year involvement in extracurricular and interscholastic activities, student reported attitudes toward math, self-confidence, ethnicity, SES, and gender, and standardized math achievement score.

2. SES, ethnicity, and gender primarily and sophomore year involvement in
extracurricular activities, specified attitudes toward math, and self-confidence secondarily, can statistically significantly predict standardized math achievement scores.

3. There is a statistically significant difference between the composite math attitudes of high school sophomores in a school district in a southeastern state and the composite math attitudes of the average American high school student in their attitudes towards math achievement.

4. There is a statically significant difference in the composite self-confidence attitudes of high school sophomores in a school district in a southeastern state the composite self-confidence attitudes of the average American high school student.

5. There will not be a statically significant difference in the sophomore year involvement in extracurricular and interscholastic activities of high school sophomores in a school district in a southeastern state and the average American high school sophomore.

Definitions

1. Academic Achievement – is measured by earned grades, achievement tests, high school graduation rates and post graduation outcomes.

2. Educational Aspirations – a student’s plans to enroll in an institute of higher learning and their intent to attend college.

3. Extracurricular activities – any school-sponsored activity, organization, or team that meets outside of regular school hours and in which students voluntarily participate. For the purposes of this study, the terms extracurricular, interscholastic and cocurricular will be used interchangeably.
4. Grade Point Average – the average grades of all courses currently taken by the student.

5. Motivation – the act of giving a student a reason or incentive to do something either intrinsically or extrinsically.

6. Non-Participants – those students who do not participate in student extracurricular activities.

7. Positive Correlation – indicates that both variables increase.

8. Positive Relationship – indicates that both variables increase.

9. Standardized math tests – math tests that are criterion referenced or nationally normed.

10. Student Participants – those students who participate in student extracurricular activities.

Assumptions

1. It was assumed that all members of the population responded accurately and honestly to the questionnaires.

2. It was assumed that all data collected relevant to math achievement had been recorded accurately and honestly.

Delimitations

1. The participants were sampled from two sources: all sophomore students in a school district in a southeastern state for the fall semester of the school year 2006-2007 and 15,362 U. S. high school sophomores who are a nationally representative sample of 10th-graders in the spring term of the 2001-2002 school year.
2. Responses will be elicited from the participants by means of a questionnaire.

3. The study will be delimited by the number of responses received from the questionnaire.

4. The information obtained from the questionnaire reflected the perceptions of the two groups of students. The study will be delimited by the responses from the students.

5. The study will be delimited to the specific population under investigation. Generalizations by this study are, therefore, restricted to a population with similar characteristics of the students.

**Justifications**

The selection of the topic was driven by the researcher’s involvement with school district personnel, activity programs and personal experience of children participating in extracurricular activities. If participation in school activities does have a positive benefit for those who take part in them, then it is the responsibility of educators to conduct research for the purpose of providing policy makers and school leaders information so they can best determine how to integrate the extracurricular activity program into the overall school program. If the information is available to help schools and students become more successful, then an obligation exists for school personnel to use this knowledge to devise a plan of action to implement such programs.

**Summary**

This study was developed to examine and determine if attitudes towards mathematics achievement, self-confidence in mathematics achievement, gender, ethnicity, and socioeconomic status are positively associated with achievement scores
there is a statistically significant difference in the standardized math achievement scores of sophomore students who participate in extracurricular activities. In addition, this study seeks to determine if student reported positive attitudes towards math achievement have an effect on academic achievement as measured by standardized math achievement scores. The study will control for socioeconomic status, ethnicity, and gender. Research supports the positive contribution of extracurricular activity participation to student performance. The participants for this study will be sampled from 2 sources: all sophomore students in a school district in a southeastern state for the fall semester of the 2006-2007 school year and 15,362 United States high school sophomores who represent a national sample of 10th graders in the ELS: 2002. This chapter concludes with the research questions, hypotheses, assumptions, and delimitations. The justification for this study lies in the fact that individuals still debate the importance of offering extracurricular activities and the positive impact they can have on student achievement. This study will also analyze the interaction of extracurricular activities and the role of SES, gender, ethnicity and attitudes toward mathematics to determine the significance of each factor in determining positive academic achievement in mathematics.
CHAPTER II
REVIEW OF RELATED LITERATURE

Introduction

The review of literature begins with an overview of the theoretical foundations as they relate to the learning process. Motivation is the willingness of an individual to participate in an activity, whether the activity is a lesson presented in class by a teacher or a basic need that must be met such as hunger. Motivation plays a significant role in understanding the influences of today’s youth.

Following the discussion of motivation theory, the review of literature offers a broad discussion of extracurricular activity participation and the possible influences made. These influences include student success, academic achievement, character building traits, and college aspirations. Ethnicity, gender, and socioeconomic status are discussed as factors that play an important part in outcomes of participation in extracurricular activities.

Mathematics achievement and factors that influence higher achievement are discussed in the last area of literature review. Attitude, self-concept, and motivation among other factors are effective in raising mathematics achievement. Gender, ethnicity and socioeconomic status are also discussed in relation to mathematics achievement.

Theoretical Foundations

Motivation is possibly the most overlooked aspect of all instructional strategies. The general concept surrounding motivation pertains to an individual’s desire or willingness to participate in an activity. The best designed training programs will fail if the students do not have the desire to learn (Ames, 1990). There are many types of
motivational theories that have been developed throughout the years and have been successfully applied to help understand that an individual’s performance depends not only on ability but motivation as well (Pajares, 2001).

Student motivation is sometimes divided into two categories: internal factors (Tucker-Ladd, 1996) that cause action and external factors (Brewster & Fagar, 2000) that can act as an incentive for further action. According to Tucker-Ladd, internal or intrinsic motivators are those that come from within. Humans have little control over these motivators, although one can sometimes create conditions that allow these motivators to emerge. For example, when an individual has gone a while without eating, he/she will experience hunger and will be intrinsically motivated to eat. When a person is tired, he/she will be intrinsically motivated to rest. These motivations are not created within an individual; they are part of being human and are a response to the feelings that are automatically and naturally received from participating in the activity. Intrinsic rewards also involve pleasurable internal feelings or thoughts, such as feeling proud or having a sense of accomplishment.

Brewster & Fager (2000) note that extrinsic motivators are external factors that control behaviors. With extrinsic motivators, something outside an individual urges him to behave in a certain way. Money, treats, prizes, grades, and praise are all examples of extrinsic motivators. A student who is intrinsically motivated will complete an assignment because it will give him/her satisfaction and a sense of accomplishment. An extrinsically motivated student will complete an assignment because of the reward or grade he/she gets or to avoid some type of punishment.

Karsenti & Thibert (1995) completed a study involving 1428 12–18 year old
students to try to determine whether intrinsic or extrinsic motivation is most related to achievement. They found extrinsic motivation to be better predictor of school achievement for girls and junior high students. While intrinsic motivation was a better predictor of achievement for boys and senior high students, the study found that motivation is different for boys and girls and for younger and older students. They also found extrinsic motivation to be the most significantly related achievement indicator for both boys and girls across all grade levels of education.

Guthrie, Wigfield, & VonSecker, (2000) completed a study using 3 elementary schools. A quantitative and qualitative design compared students receiving traditional instruction to students receiving concept-oriented reading instruction (CORI) that consisted of integrated inquiry, hands-on instruction, and real-world experiences. The classrooms had the same curriculum objectives and comparable teachers but different teaching strategies. Children in the classrooms using the CORI instructional strategies scored higher on motivation than did children in the traditional classrooms. It was also found in the study that the teachers perceived lower achieving students to be relatively more motivated by extrinsic factors than by intrinsic factors. This is important for teachers who want to change classroom contexts to influence motivational outcomes and reaching more students (Guthrie, Wigfield, & VonSecker, 2000).

Another factor that shapes a student’s motivational attitude is home life (Lumsden, 1994). This is the first place a child will develop the attitudes he or she has toward school and the learning environment. Lumsden found that children who are reared in a home where they have a sense of self-worth and competence will more readily accept challenges and be intrinsically motivated. When children do not think they are
academically capable of meeting challenges, they tend to feel they cannot succeed and will need extrinsic motivators.

In addition to the home life of a student, Ames (1990) explains how teachers play a key role in providing activities that will increase motivation in the classroom. It is important for teachers to incorporate intrinsic motivators in their daily lessons while realizing that not all students will be appropriately motivated by them. By giving students the necessary skills for a successful school career, teachers are equipping the students with intrinsic motivators they need (Ames, 1990). The extrinsic motivators such as grades and praise will also work, but it must be remembered that they do so only as long as the student is under the control of the teacher. When outside of that control, unless the desired goals and behaviors have been internalized, the learner will not comply with the desired behavior and operate according to his or her internal standards or to other external factors (Lumsden, 1994). It is important to note that successful people are motivated by both internal and external factors, and that educators should build on both types when working to engage students more fully in school.

Coll (1995) believes that motivation is essential in getting students involved in their learning and in getting them to improve their level of academic performance. He asserts that teachers must be knowledgeable of motivation theories and the important roles they play in the teaching-learning process. Coll also found factors that are likely to increase performance relate directly to the school's ability to keep students involved. Such things as participation in extra-curricular activities, participation in honors programs, participation in teacher projects, participation in sports, and involvement in student organization will build students' interest in school, enhance their sense of identity
and give them greater exposure and pride in service and thus motivation to succeed.

According to Semmar, (2006) motivation, self-efficacy, and self-regulated learning play critical roles in academic achievement. Individuals seem to be at a greater advantage accomplishing their tasks when they feel confident in their abilities, self-regulate their learning, and sustain high motivational levels. Students who are prepared and have a supportive environment where these attributes are valued and nurtured will most likely be successful participants in the academic realm. On the other hand, students are unlikely to achieve their academic goals when they are uninterested or unmotivated to take part in the learning process, doubt their competence, and do not know how to cognitively monitor their learning. Therefore, it may be important for educators to assess the self-efficacy beliefs, use of self-regulatory strategies, and motivational levels of learners, not only at the start of the educational program, but also at various intervals throughout the school year. Instructors can then provide students with feedback in order to reach their academic potential.

Pertinent Literature

Background. Students attending public school across the U. S. participate in a wide variety of extracurricular activities: interscholastic and intramural athletic programs; service and school government clubs; music, art, and drama organizations; and academic and vocational clubs. These activities are usually conducted outside the normal school day. The activities are voluntary and students do not receive grades for their participation. During the preadolescent years, family and peers provide the predominating influences. As children grow and their field of influence expands, outside activities can provide motivation for students. Extracurricular activities offer many positive educational
advantages for students and provide them with influences in their personality development and socialization (Darling, Caldwell, & Smith, 2005; Holland & Andre, 1987).

The relationship between extracurricular activities and student success. In January of 2002, President Bush signed into law the “No Child Left Behind” Act (Education Policy Book, 2004). The central theme of the law requires that states adopt a plan of accountability that will lead to higher achievement for all children. School districts are required to ensure all subgroups of the population succeed. As schools look for ways to reach all children, extracurricular activities will become even more important to school districts since the research supports the direct link to raising student achievement.

Gholson (1985) tells us that extracurricular activities for public school students were not generally accepted by educational leaders prior to 1900. Between then and about 1920, such activities became at least passively accepted as a result of a powerful educational reform movement. That reform movement was characterized by a report of the presidential commission to study the reorganization of secondary education (Gholson 1985). The report discusses worthy use of leisure time, citizenship, ethical character, and health. Proponents argue that the development of those attributes are encouraged and facilitated by participation in student activities. Yet, it was not until well into the 20th century that extracurricular and cocurricular student activities began to be encouraged by educational leaders (Gholson, 1985).

Since the 1960’s the opportunities for participation in extracurricular activities have continued to expand; however the debate over the true benefits and costs has
continued as well. Limited funding and calls for more accountability have sharpened the focus on the value of participation. Some proponents of educational reform argue that interscholastic as well as extracurricular activities compete with academic learning for the student's time and attention (Camp, 1990). William Camp studied the effects of participation in activities on overall student success in school, as measured by grades, while controlling for the effects of other variables that could reasonably affect those grades. He found that students' activity levels produced a positive, significant effect on academic achievement. Particularly interesting in his study was the fact that this effect was more than twice as great as that of study habits, which are generally regarded as an important influence on academic achievement. The argument of participation in extracurricular activities implicitly assumes a direct relationship between youth activities and academic achievement (Darling, Caldwell, & Smith, 2005; Howley & Huang, 1991).

School districts across the nation are faced with funding cutbacks and the possibility of having to reduce or eliminate extracurricular activities from school curriculums. According to the National Federation of High Schools (2004), only 1 to 3 percent of an overall school's budget is actually spent on high school activity programs. Perry, Teague, & Frey (2002) consider it a mistake to discontinue funding since extracurricular activity participation contributes significantly to academic achievement. With the growing conviction that out-of-school programs can play an important role in improving student achievement, funding for such programs will help school districts provide academically focused and enriching experiences for students (Valentine, Cooper, Bettencourt, & DuBois, 2002). McNeal (1999) found that schools play an important part in student participation in extracurricular activities. Marsh & Kleitman (2003) believe
extracurricular activities complement rather than compete with traditional curricular goals to enhance academic and nonacademic outcomes. Cost-cutting measure should not force schools to eliminate sports. The development of such programs benefits all students. In a 6 year long study Marsh & Kleitman found athletic participation benefited most students and had positive post secondary outcomes on grades, coursework selection, homework completion, education and parental aspirations, self-esteem, number of university applications submitted, life long aspirations, and highest educational level attained.

Since research supports the association of participation in extracurricular and interscholastic activities with many positive educational, social and developmental results, it is important to note that there are significant determinants to student participation. McNeal (1999) found these to include school size and climate. A climate that is not conducive to participation is one where the students do not feel safe, have problems with theft, vandalism, drugs, or where conflict among students or between students and teachers has been reported. Small, safe schools increase student involvement. Schools with a high socioeconomic status have significantly lower participation rates (McNeal, 1999). A study produced by the Government of Quebec, Canada (2005) gathered information from answers to a survey given to over 3500 secondary students. The data shows that there is a very strong relation between the perception of school atmosphere and the level of participation in extracurricular activities. Students who participated in extracurricular activities had a positive opinion of the atmosphere at their school. The results linked school atmosphere to students’ academic results and these results to further academic ambition. The study indicated that
extracurricular activities contribute to educational success for secondary school students.

*Student achievement.* There exists an immense amount of research that supports the fact that those students who participate in extracurricular activities, interscholastic sports, (Broh, 2002; Camp, 1990; Eccles, Barber, Stone, & Hunt, 2003; Howley & Huang, 1991; & Ingels, Burns, Charleston, Chen, & Owings, 2005) and other types of after school programs (Williams & McCollester, 1990) and the positive effects the activities have raising students’ standardized achievement test scores than students who do not participate. A report prepared by Ingels, Burns, Charleston, & Owings, *A Profile of the American High School Sophomore in 2002,* consisted of a sample of 15,362 high school sophomores. 61% of the students who were on a college academic track reported participating in some type of sports. 62% of the group who were in the highest quartile for reading and math scores were also athletes. Student cognitive factors, and the structure, content, and processes of classroom instruction are certainly major factors influencing student achievement. *The Case for High School Activities* is a study completed by the National Federation of High Schools (NFHS) which reviewed studies in Minnesota, Iowa, Kansas and North Dakota that showed athletes’ grade point averages were significantly higher that non-athletes (NFHS, 1985). Broh (2002) found in his study that school sports seem to have real benefits for students by raising student achievement in the classroom and on standardized math tests. Broh found students who participate in nonacademic activities have improved achievement, a stronger sense of control over their lives and a value system that agrees with the American educational system. Further, participation creates and intensifies students’ social ties, which can be helpful to students’ educational pursuits. Participation in extracurricular activities can also bridge the gap.
between school and parents.

The American Sports Institute (1996) published a four-year study to determine the impact of the program Promoting Achievement in School through Sport (PASS) and further determine if the program was successful. Several California high schools use the PASS program to enhance academic achievement. The program consists of a year long course that uses an interdisciplinary approach that integrates sports and academics to meet the needs of the whole child. To evaluate the program, students were matched with non-PASS students in a control group based on gender, grade, and ethnicity; then their grade point averages were compared. The findings of the study show that by participating in the PASS program, high school students improved their academic performance as measured by their grade point average.

Children who participate in at least one extracurricular activity were 75 percent more likely to be academically on-track compared with 60 percent of children who do not participate in any extracurricular activities. This fact was reported in a report released by the U.S. Department of Commerce, Economics and Statistics using a longitudinal study conducted at 4-month intervals. The report presented findings on the well-being of American children using data from the Survey of Income and Program Participation. Participation in activities and success in school appear to go hand-in-hand (Fields, Smith, Bass, & Lugaila, 2001). Participation in extracurricular activities in high school appears to be one of the few interventions that may benefit disadvantaged students as much or more than their economically advantaged peers (Marsh & Kleitman, 2002).

In 1985, Indiana University, along with the National Association of Secondary School Principals (NASSP) and the National Federation of High Schools (NFHS),
conducted a national survey of 7000 high school students and high school principals to assess the value of extracurricular activities programs. The results showed that over 90% of principals surveyed believed that participation in extracurricular activities, including sports, is a valuable educational tool, promotes citizenship, and develops a positive "school spirit." Almost 75% of principals believed that participation in extracurricular activities do not place an excessive demand on a student's time and that the community at large strongly supports the activities program. A majority of the students surveyed said that activities make school more enjoyable and are a "very important part of their high school education" (NFHS, 2004). Extracurricular activity participation was associated with better adjustment to school, higher grades, more positive attitudes toward schools, and higher academic aspirations. Students were less likely to participate in drinking alcohol or abusing drugs. Academic benefits associated with participation in extracurricular activities can lead to good academic performance, high academic aspirations and high academic aspirations and are consistent with past research (Darling, Caldwell, & Smith, 2005).

Silliker and Quirk (1997) investigated the academic improvement of students who participated in extracurricular activities. In this case, they looked at male and female high school students who participated in interscholastic soccer and who did not engage in another sport or major activity at the conclusion of the soccer season. They discovered that female participants in season maintained a grade point average (GPA) of 87.7. Out of season these statistics dropped to 87.5. The male participants maintained a GPA of 84.7 in season and their GPAs dropped to 83.8 out of season. These data show that participants had higher GPAs in season than out of season. The girls earned higher GPAs
than did the boys, but the boys’ GPAs rose in season versus out of season. The study supports the belief that involvement in athletics for high school students does not endanger, and may enhance, academic performance.

Susan Gerber (1996) also found that extracurricular participation is not detrimental to student performance and that participation in these types of activities promotes greater academic achievement. In addition, she discovered that participation in school-related activities was more strongly associated with achievement than was participation in other activities outside of school.

McCarthy (2000) completed a study using 19,543 students from sixteen high schools from the largest school district in Colorado. She concluded that students who participate in extracurricular activities have higher grade point averages and lower absenteeism than students who do not participate in these types of activities. McCarthy found that these results were true regardless of the ethnicity of the students. Specifically students who participate in sports activities have higher GPAs than non-sport activity participants. Students who participate score higher mean GPAs than non-participants in all socio-economic levels. For all students in all ethnicities, regardless of SES, those who participated missed significantly fewer days of school on average than those who did not participate.

A study by Cooper, Valentine, Nye, and Lindsay (1999) sampled 424 6th through 12th grade students and one of their parents. Questionnaires determined participation in various kinds of after-school activities from homework, television viewing, extracurricular activities, other types of structured after-school groups, and jobs. The researchers controlled for gender, grade level, ethnicity, free-lunch status, and level of
adult supervision after school. The study concluded that more time in extracurricular activities and other structured groups and less time in jobs and television viewing were associated with higher test scores and class grades. More time on homework was associated with better grades. Very important to the study were the findings that when the effects of all 5 after-school activities were considered, the researchers were twice as likely to be able to predict the academic success of students. The researchers concluded that parents and educators should spotlight after-school activities as an important factor that influences student achievement. Further, activities that relate directly to learning or can be related to positive school environment, can improve achievement, where activities that displace learning or replace school connections can be detrimental to achievement.

Other research studies have found a relationship between participation in extracurricular activities and programs for gifted and talented students. Buchnavage & Worrell (2005) found that a majority of academically talented students participate in extracurricular activities, diffusing the idea that gifted and talented students do not participate in athletics or other nonacademic activities. High achievers tended to participate in more extracurricular activities than did their intellectually equal underachieving counterparts (Colangelo, Kerr, Christensen, & Maxey 1993). A study by Wagner, Cadwallader, & Marder, (2003) found that the majority of youth with learning disabilities who participate in extracurricular activities benefit by being able to explore more interests, learn new skills, develop friendships, and participate actively as members of their schools and communities.

Other benefits of extracurricular activity participation. Extracurricular activity programs that are well designed increase the potential benefits to students. Certain
factions of the student body may have many positive experiences with extracurricular activities that would not be possible if it were not for these activities. Participation in extracurricular activities has been shown to play an important role in the lives of students with the actual advantages found to be student achievement (Broh, 2002; Camp, 1990; Eccles, Barber, Stone, & Hunt, 2003; Howley & Huang, 1991; & Ingels, Burns, Charleston, Chen, & Owings, 2005), self-concept (Marsh, 1992), and other social development issues (Eccles et al., 2003; Marsh & Kleitman, 2003). Numerous components contribute to the reasons why extracurricular activity participation is beneficial to students. Rombokas, Heritage & West (1995) found this to be true because students are able to apply character-building lessons to their study habits and to their lives. Activities such as athletics, music, theater, and student organizations teach students how to discipline themselves through drills, practices, or rehearsals. The students have a responsibility to the activity and must perform the tasks assigned to them whether it is running, singing, acting, or organizing an event. By participating and persevering in any of these activities, the students gain a sense of self-respect, self-esteem, and self-confidence (Marsh & Kleitman, 2003; Rombokas, Heritage, & West, 1995). In addition, students learn organizational skills because they must plan their time to allow for practice and studying.

Black (2002) completed a study to determine the attributes of a well rounded student. She acknowledges that extracurricular participation and academic achievement are directly linked. Participation in extracurricular activities promotes commitment from the student to their chosen activity and that commitment carries over into a stronger attachment to their role as a student. McNeal (1995) supported the theory and concluded
that there is a developmental process involved with participating in extracurricular activities that yields a strong connection between a participating student and their school. Membership to specific social groups, due to participation, allows students to adapt to the school environment faster than the students who do not participate and have the access to these social groups. Participation connects the students more deeply to their school, its faculty, peer groups, and school values.

Harrison and Narayan (2003) found that participation in extracurricular activities for adolescents is associated with physical and mental health benefits and psychosocial benefits. Students who participate in extracurricular activities are more likely to exercise and consume nutritious foods, to like school and do their homework, and to express positive attitudes about self, peers, teachers, and parents. Students who were involved in extracurricular activities were less likely to skip school, get into fights, vandalize property, smoke cigarettes or marijuana, binge drink, or have sexual intercourse. They were reported to have higher self-esteem, less likely to report sadness, anxiety, or have suicidal behavior. Duncan (1996) believes it is important to help children narrow down the number of activities that they participate in while actively fostering children’s involvement in extracurricular activities. He believes that extracurricular activities foster the strengths of youth and that these strengths help children to stay away from negative behaviors. Duncan says that youth who are involved in organizations such as 4-H, Girl Scouts and Boy Scouts are more likely to have leadership capabilities, be task oriented, have life skills, and have positive self-esteem.

Research has shown that a sense of belonging to the family and school are critical for healthy adolescent development in protecting against a variety of risk behaviors,
including truancy, substance abuse, and delinquency (Eccles, Barber, Stone, & Hunt, 2003; Harrison & Narayan, 2003). Eccles et al., (2003) also found that participation in extracurricular activities during high school is positively associated with deterring risky behaviors. It is also positively associated with higher GPAs, college attendance, and college graduation. Extracurricular programs are safe places for students to bridge the gap from the class setting to real life situations and to use the tools that they have already obtained, while at the same time learning new skills.

McNeal (1995) examined the impact of students’ emersion into the school environment and the possibility of them dropping out of school. He specifically studied students who are involved in several different areas of school life; athletics, fine arts, academic organizations, and vocational activities. He found that integration into the different areas of school affects dropping out. Extracurricular activities contribute to student’s success at school. Participation in extracurricular activities, especially athletics, leads to higher self-esteem and an enhanced status among peers. The strongest direct effect that participation has is on dropout prevention. Participation strengthens the school connection for all students (Brown, 2000). McNeal believes that students participate in activities because they feel the need to be involved or part of a group and thus stay in school.

Although many factors contribute to a student’s sense of school connection, Brown & Evans (2002) also found student participation in extracurricular activities to be a primary way in which to encourage a greater connection or attachment to school. Their study controlled for ethnicity and found a particularly strong relationship between extracurricular activity participation and school connection and Hispanic American,
African American, and European American students. They believe extracurricular activity participation can be an important tool for educators and schools to use to enhance school connection and attachment. An important aspect of their research indicated that such involvement was very important for students most at risk for school failure because they benefit the most from the connection to school that is associated with extracurricular activity participation.

According to Koerner (1992) and Cooley et al. (1992) participation in extracurricular activities can reduce several negative aspects of student behavior in high school. Cooley surveyed students in grades 5-12 who participated in athletics, government, clubs, and the arts, and students who did not participate in extracurricular activities. He found that students who do not participate in extracurricular activities are more prone to using illegal drugs and drinking alcohol than students who do participate in extracurricular activities. Barber, Eccles, & Stone (2001) identified 900 10th grade students from the Michigan Study of Life Transitions. Patterns that were found in the study are that students who participated in prosocial activities had a lower rate of substance abuse, a higher self-esteem, and college aspirations. Koerner found extracurricular activity participation to be correlated to a low dropout rate. He also found extracurricular activities to produce higher job marketable skills. Marsh (1992) found that extracurricular activities have been linked to low absenteeism and a longer amount of time spent on homework. Ralph McNeal (1995) showed that different kinds of activities have varying effects on their ability to control school dropout rates. He concluded that students who participate in athletics, fine arts activities, and academic organizations were less likely to drop out than those who did not participate.
Several studies have investigated the relationship between extracurricular activities and social self concept (Holland & Andre, 1987; Marsh, 1992). Herbert Marsh compared predicted outcomes for students who did not participate in extracurricular activities with those of students who were moderately active. He found that this difference in participation level is associated with outcome differences in social self-concept and in academic self-concept. He concluded that the effects of participation on social and academic self-concepts are significant. Evidently, participation in extracurricular activities, even those not obviously associated with academic achievement, leads to increased commitment to school and school values, which leads indirectly to increased academic success. Marsh found this relationship to exist between extracurricular activities and academic self concept while Holland & Andre also researched this relationship and found a further connection to exist between extracurricular activities and moral growth and development. Holland & Andre (1987) conclude that schools which eliminated interscholastic athletic programs did not take into consideration the documented evidence of the benefits that interscholastic athletics provide.

Williams & McCollester (1990) investigated the relationship between involvement in an extracurricular drama club and the self-esteem of at-risk preadolescent elementary students. The results of the participation of these students showed a positive influence on their self-esteem. These same students also had a reduction in their at-risk behaviors. Todd & Kent (2003) found the development of positive self-perception in adolescents could be contributed to participation in athletic activities. The athletes' self-perception consisted of five variables; athletic competence, social acceptance, physical...
appearance, scholastic competence, and self-worth. They found that male athletes had a higher mean score than did the female athletes in their positive self-perception.

Involvement in extracurricular activities also helps at-risk students. John Mahoney & Robert Cairns (1997) indicated that engagement in school extracurricular activities is linked to decreasing rates of early school dropouts in both boys and girls. They discovered that such participation provides marginal students an opportunity to create a positive and voluntary connection to their school. Conversely, other strategies typically used to address the needs of at-risk students, such as school dropout prevention programs and remedial education, focus on the deficits of students and serve as a catalyst in the formation of deviant groups. The researchers strongly believe that involvement in extracurricular activities may support the at-risk student by maintaining, enhancing, and strengthening the student-school connection.

An 8-year study by Mahoney, Cairns & Farmer (2003) examined the role of regular and continued participation in extracurricular activities and found it to be a contributor to long-term success. The researchers assessed educational status when the students had reached age 20 and found a positive link to the educational category the young people had attained. They believe that consistent participation in extracurricular activities promotes interpersonal competence and personal initiative that lead to academic success beyond high school. The positive findings included a positive correlation with college attendance, interpersonal competence, and further educational aspirations.

Madden, Brueckman, & Littlejohn (1997) compared academically successful youth with academically unsuccessful youth by studying their participation in various types of activities during the elementary school years. The academically successful group
consisted of college students from general communication classes. The college students listed activities they remembered doing when they were ages 5 through 12 years old and the frequency of engagement in the activities. The activities were grouped in areas of sports, dance, camp, music, work, family activities, and church activities. The findings of the study showed that participation in activities overall increased with age to a greater extent in the successful group than in the comparison group. When required activities were eliminated in the comparison groups, their total number of activities decreased. Further results indicated that television viewing and video games were more prominent in the unsuccessful comparison groups and that the females were more likely than males to participate in a greater variety of activities.

Other research studies have investigated the possibility of a relationship between college performance and extracurricular activities. Everson and Millsap (2005) investigated the effects of participation in a range of extracurricular activities in high school on college-bound high school students' SAT scores while controlling for socioeconomic status background, high school achievement, gender, and ethnicity. The study provides strong evidence from the SAT, a nationally recognized achievement test, that participation in extracurricular activities provides students, including students from disadvantaged backgrounds, minorities, and those with otherwise less than distinguished academic achievements in high school, measurable and meaningful gain in their college admissions test scores. This study suggests that participation in extracurricular activities benefit minority and socioeconomically disadvantaged students as much as, or more than, economically advantaged white students and support the idea of supplementary educational programs benefiting minorities and disadvantaged high school students.
whose needs are often not met by traditional high school curriculum. The achievement levels measured by tests like the SAT, as evidenced by the results of this study, are impacted by participation in activities both in and out of the classroom.

Research supports the supposition that students who participate in extracurricular activities have higher senior year aspirations, taking a more advanced academic curriculum track, showing post secondary aspirations, and also having high college attendance rates (Barber, Eccles, & Stone 2001; Marsh, 1992; Rombokas, Heritage, & West, 1995). Rombokas, Heritage, & West examined how student participation in extracurricular activities during high school affects college academic performance. According to their research, participation in extracurricular activities enhances both the academic performance and the social development of students. The sample showed that female participants had greater involvement than the male participants. Participation in sports, clubs, and the arts in high school had a positive influence on participants’ desire to go to college and appears to have contributed to the many positive factors that can influence students’ social development, academic success, and college ambitions.

*Ethnicity, gender, socioeconomic status.* Comparatively, much less research exists to determine if race, socioeconomic status, and gender correlate with participation in interscholastic or extracurricular activities and have a positive effect on student achievement. Schreiber & Chambers (2002) used the NELS:1988 data set to determine if students’ participation in activities could be associated with ethnicity. They found that in-school organized academic activities and out-of-school academic organized activities were positively associated with all academic areas for all ethnic groups. Students benefited to a greater extent when activities were related to academics. The only negative
association was to television watching. Another study by McCarthy (2000) found students of every ethnicity who participated in school-sponsored activities to have higher grade point averages than students who do not participate. The authors have identified minority students who have achieved high SAT scores and examined aspects of their family background, high school course history, and leadership in extracurricular activities. They found these students participate in school clubs, sports teams, and academic teams. They related leadership to more than just membership, but to be a true commitment to the team. These students hold a leadership position or earning an honor in the club showing a greater degree of involvement. Their study found that 85% of high scorers were involved in a leadership capacity of at least one extracurricular activity. 71% of high scorers were involved in a leadership role in two or more activities. Although high SAT scores would not seem to be a prerequisite for such involvement, there was considerably less involvement at the lower score levels. This may reflect an overall lower level of engagement with anything related to school among these low-scoring students. Also found in the study was that at the higher scoring levels, racial/ethnic differences in participation was basically absent, but at the middle and low levels, African American and White students appeared to be somewhat more involved than Asian American and Hispanic students.

Everson and Millsap (2004) used data gathered from a subset of 1.14 million college-bound seniors who took the SAT during their junior or senior year of high school to determine positive influences of participation in extracurricular activities. The study concluded from the SAT results that participating in extracurricular activities provides all students, including students from disadvantaged backgrounds, minorities, and
underachieving high school students with a measurable gain in their college admission test scores.

In an article written for the Institute for Urban and Minority Education, Bridglall and Gordon (2002) believe that high achieving urban minority students are actively engaged in school events and extracurricular activities. These students identify with having high achievement values, good study skills, and other positive school behaviors. They note that they also demonstrate independence, interpersonal skills, and maintain positive affiliations with adults.

Guest and Schneider (2003) completed a study based on survey data from the Alfred P. Sloan Study of Youth and Social Development taken from 2925 student in 13 schools. They concluded that the level of impact that extracurricular activity participation has on student achievement is subject to context. The analysis of the data showed that in schools that are lower and middle class and where less than half the students go on to college, extracurricular activities and athletic participation have the greatest impact on students achieving higher grades and aspiring to higher educational levels. In upper-class schools and in schools where almost all the students go on to college, extracurricular activities and athletic participation may actually be detrimental to a student’s transcript. The perception may be that athletic participation is a sign of a lack of seriousness in academics.

In a report on the well-being of American children for the Survey of Income and Program Participation (SIPP), the researchers found that children in higher income families are more likely to participate in all types of extracurricular activities. Participation is higher among children living in families with monthly incomes at or
above 200 percent of the poverty line than families with monthly incomes below the poverty line. These families may live in neighborhoods where activities are more readily available. They may be able to afford more activities for their children (Fields, Smith, Bass, & Lugaila, 2001). In a second report based on data collected from SIPP, Lugaila (2003) found 37% of White non-Hispanic children participated in sports activities, higher than the percent recorded for other races which averaged between 20 and 22%. Lugaila concluded that sports activities may involve expenses that may influence the participation level of children. Only 16% of children living in poverty participated in sports activities, compared to 34% of children living at or above the poverty line. Information was also gathered comparing children living with single parents to children living with both parents. Children living with both parents were more likely to participate in extracurricular activities and to progress more steadily in school by keeping on-track academically. Children of parents who had higher levels of educational attainment participated in extracurricular activities more frequently.

Kao (2000) used focus groups and interviews of high school students to examine how groups are linked to their race stereotypes. She found a strong link between race and the stereotypical behavior linked to race and how it helps maintain racially segregated peer groups, both in classrooms and in extracurricular activities, which leads students to evaluate their achievement relative to same-race peer groups. Brown and Evans (2002) found a significant relationship between ethnicity and students who participate in extracurricular activities either in school or out of school. These students were less likely to drop out of school.

Miller et al. (2005) completed a study that linked school sports participation and a
higher grade point average (GPA) to gender and ethnicity finding female athletes to report a higher GPA than female non-athletes. Everson and Millsap (2005) examined the effects of participation in a variety of extracurricular activities in high school on students' SAT® scores. In this study, the researchers controlled for socioeconomic background, achievement, gender, and ethnicity. The study found persuasive evidence that all students, regardless of low socioeconomic status, benefit from extracurricular activities.

Videon (2002) completed a study using a nationally representative sample to determine if academic outcomes are positively affected by participation in interscholastic athletics. She examined participation rates of males to females and participation rates of black male and female students. She found that girls participate less than boys and that black females even less than black males. The study revealed that a small but significant positive association between participation and all of the academic outcomes in the study including fewer unexcused absences, taking more core courses, having higher GPAs, and having higher expectations to go to college. Videon believes that participation in sports leads students to have better academic outcomes and that excelling in academics encourages continued sports participation. Parkerson (2001) interviewed female young adults and college freshman in a study to determine the effects of participation in extracurricular activities. She found that women remained actively involved in extracurricular activities to help meet emotional and personal needs. They believe it helped their self-esteem and self-confidence. They credited extracurricular activity participation with motivation to go to school.

Using the National Education Longitudinal Study: 1988, Chambers & Schreiber (2004) collected data from 4382 eighth and tenth grade girls. Socioeconomic status,
achievement test scores, and extracurricular involvement were included. This study categorized extracurricular programs into in- or out-of-school, academic or non-academic, and organized or non-organized. The results indicated a significant and positive relationship between the participation in extracurricular activities of eighth and tenth grade girls and participation in academic activities, homework completion and higher levels of achievement. Findings relative to ethnicity included significant and positive results related to mathematics achievement for Asian/Pacific Islanders, Caucasians, and Latino tenth grade girls, indicating the more the girls participate in activities, the higher their achievement scores. The only activity found to have a negative impact on the girls’ achievement was television viewing.

O’Brien and Rollefson (1995) examined the relationship between extracurricular participation and student engagement in school using data from the 1992 public high school seniors in the NELS: 88. This study concluded that extracurricular participation was positively associated with indicators of success such as consistent attendance, academic achievement, and aspirations for continuing education beyond high school among public high school seniors in 1992. The study also discovered that students from low socioeconomic backgrounds participated less than did their high socioeconomic status classmates even though extracurricular activities were equally available at all schools regardless of location or status of the schools.

Darling (2005) used data from 6 California high schools to get a better understanding of whether participation in extracurricular activities is associated with lower substance use and depression, higher grades and academic aspirations, and more positive attitudes toward school. The study showed that participation is associated with
more positive adolescent outcomes for all variables except alcohol use and depression, controlling for gender, ethnicity, and grade. There were greater differences in ethnicity than age or in gender. Hispanic youths showed lower participation rates than other groups. Students who participated in school-based extracurricular activities were less likely to use tobacco, marijuana, or other drugs. They were also more likely to make better grades, stay in school longer, and have more positive attitudes toward school.

Participation in extracurricular activities provides additional positive benefits, including an opportunity for students from different racial and ethnic groups to engage in activities where they will spend quality time with students of other cultures. Students who participate in extracurricular activities have more cross-racial friends and hold more positive racial attitudes compared to students who did not participate on athletic teams. Participation in extracurricular activities is also a strong predictor of interracial friendship (Khmeliov & Hallinan, 1999).

Achievement, attitudes and mathematics. A multitude of factors and experiences influence student achievement. Parents, educators, and policymakers frequently refer to factors outside of school that influence learning such as extracurricular and interscholastic activities. Many other elements constitute the world of a student’s life and may influence their academic achievement. Tavani & Losh (2003) examined the relationships among 4012 students’ academic performances, expectations, motivations, and self-confidence to help provide insight into some of the most significant predictors of academic successes among high school students. Actions and beliefs by students do impact their performances. Students’ expectations, parental education levels, motivations and self-confidence all emerge as significant predictors of students’ academic
performances. Expectations were the strongest predictor of performance; if students believe they can accomplish a skill, they are more likely to succeed. Motivation levels are also strong predictors of student success. Students who were highly motivated are more likely to have higher academic performance. Students' self-confidence also predicted academic success. This study showed that the higher a student's self-confidence, the higher the level of academic achievement. Parents' education levels and involvement positively impact student achievement. Gender differences in self-confidence were also studied. It was found that males have more intellectual and social self-confidence than females.

Schreiber & Chambers (2003) completed a 2-part study to determine student differences that impact mathematics achievement and then see if differences among schools contributed to the achievement levels of the students. The study consisted of 4140 American high school students and found that student achievement was positively influenced by parental education level, attitude, hard work, class participation, and being an expert at mathematics. It was found that after school employment, lower parental education, after-school television viewing, and low socioeconomic status have a negative impact on math achievement.

A sample of over 3500 13-year-old students from the United States and Thailand were collected as part of the Second International Mathematics Study. The data were analyzed to determine attitude differences towards mathematics by gender. The results showed small, but significant gender differences occurred in attitudes toward mathematics in two areas for both countries. Females were significantly lower on perceived usefulness of mathematics to society and were more concerned about their
mathematics grades. There are large differences noted on the sex stereotyping of mathematics as a male domain. This study also supports the belief that parental behaviors are related to student attitudes toward mathematics (Tocci & Engelhard, Jr., 1991).

Reynolds & Walberg (1992) used data gathered from 2500 high school sophomore mathematics students; it was determined that 9 factors exert both indirect and direct effects on achievement and attitude toward mathematics performance. Motivation, mathematics attitude, peer environment, amount and quality of mathematic courses, and classroom environment also had significant effects on achievement. The study confirmed previous findings in which home environment and previous mathematics achievement had the largest effects on achievement.

A study of the 1992 NAEP by Simich-Dudgeon (1996) compared the mathematics achievement of Asian and Hispanic students to white students and found Asian students outperform Hispanic and white students in mathematic achievement. The study reported that an individual's expectation concerning his/her ability to successfully perform a given mathematics task is a reliable predictor of whether the individual will even attempt the task. It is also a reliable predictor of whether or not the student will persevere or encounter unforeseen difficulties. It was also reported that mathematics performance and expectations of success are significantly and positively correlated with attitudes toward mathematics, and that expectation of self is a stronger predictor of the student choosing a math-related major than mathematics achievements scores. This study also considered 8 attitude variables and confirmed that attitude toward math achievement is a predictor of mathematic achievement of both Hispanic and Asian male and female students.

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Using an instrument called Attitudes toward Mathematics Instrument (ATMI), Tapia & Marsh (2000) surveyed 545 students in Mexico City and found that male students scored higher than female students on self-confidence and the level at which they valued mathematics. The study found a relationship between grades and confidence in mathematics. "A" students had more confidence than "B" through "F" students with failing students scoring lowest on factors such as self-confidence and motivation.

Ethnicity and gender were also studied. Mexican students scored higher than American students on self-confidence, and valuing and enjoying mathematics. Students with one American parent and one Mexican parent scored higher than students with both American parents on the value of mathematics. Boys scored higher than girls on self-confidence and motivation. The following year, Tapia & Marsh (2001) surveyed 803 7th through 12th grade students using the ATMI and found a significant interaction between value of mathematics, motivation to complete mathematics assignments, and enjoyment of mathematics at all grade levels of the study. Higher performing students scored higher than all other students on all three factors. Failing students scored lower on enjoyment of mathematics.

Signer (1996) completed a study involving in-depth interviews with high school students. The study found a significant relationship between math achievement and ethnicity. White high achieving students were 13.71 times more likely to have educational aspirations to attend college. It was also noted that low achieving African-Americans were 3 times more likely to expect to attend college than low achieving white students. The study compared math achievement with socioeconomic status (SES) and whether or not students wanted to take more advanced math courses. It was concluded
that there was an interaction with ethnicity and SES. Low SES, low math achieving
African-American students were reported to have the greatest desire to take more
advanced courses. Male students regardless of high or low math achievement were
statistically more likely to want to take more advanced math courses. Males were also
more likely to believe that their ability and effort in math class was a determining factor
for their math grades while females believed their math grades were attributed to external
factors. Females were least likely to enroll in high level math courses. It was noted that
poor achieving math students attributed their math grades to ability and lack of effort,
believing their ability level is fixed and possibly the cause of their failures.

Mason (2003) completed a study involving Italian high school students. The study
found that student’s beliefs about math and its usefulness in everyday life is a strong
predictor of academic achievement. Also the strongest predictor of math achievement
was whether the student believed they could solve very difficult problems. The study
concluded that girls, more than boys, believed in the importance of understanding why a
math procedure works and got better grades than boys. This study emphasizes the
importance of knowing how much the students believe in themselves and their potential
success in mathematics and the need to measure students’ motivation, since it is critical
to the learning process.

The study by Simpkins, Davis-Kean, & Eccles (2006) concluded that there exists
a link between beliefs and choices in math. They were able to trace back to youths’ after-
school activities in 5th grade. One way to increase later choices in math and science
coursework is to increase early involvement in math and science activities. The study
included both formal and informal activities, so youths may gain similar motivational

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benefits if they participate in math and science activities through organized after-school programs or through informal activities at home. Also, the study found stability of beliefs over time and suggested that math and science beliefs and choices need to be continually promoted through the students' developmental years. A one-time intervention is not likely to have lasting effects on most youth. These findings support the conclusion that building youths' self-concepts in these domains is key to promoting course choices for both boys and girls. Although youths' grades had an influence on their choices, the influence of self-concepts was even stronger. This study suggests that parents and educators devote time and effort to not just building children's knowledge and skills in these areas but also to developing children's self-concept.

A study of Dutch secondary high students found that leisure activities instead of motivational or attitudinal variables contributed most to the selection of mathematics in their curriculum track (Taal, 1994). Gender differences that were found consisted of male, mathematics related, leisure activities relating to achievements in mathematics but not to attitudes towards mathematics. In the study, Taal reports that Gender related leisure activities contribute to mathematics achievement instead of positive attitudes towards mathematics.

Mathematics performance is influenced by attitudes, performance, and expectations in-school (Schreiber & Chambers, 2003; Tavani & Losh, 2003) and out-of school factors (Simpkins, Davis-Kean, & Eccles, 2006). It is important for educators to assess the self-efficacy beliefs and motivational strategies of students in order to reach all levels of learners. The use of external motivators through extracurricular and interscholastic activities (Karsenti & Thibert, 1995) can be instrumental in helping
students succeed.

**Summary**

Educators and policy makers recognize that after-school time represents an important opportunity to improve academics and engage students in pro-social activities. In addition, given the level of public support for after-school programs and the related concerns about school accountability and the economic competitiveness of the workforce, scholars and policy makers are interested in any factor that has more than a trivial relation to achievement.

Participation rates by ethnic groups showed Whites and Blacks more likely than Asians or Hispanics to participate in sports. Gender differences were found to be consistent with other research in that females participate at a higher rate than males in all categories of extracurricular activities except sports. While the majority of the research supports a strong and consistently positive correlation between academic achievement and social development and extracurricular activities in general, more research needs to be completed to determine if there is an interrelationship between all three factors; race, gender and socioeconomic status and participation in extracurricular activities and the effects on student achievement. Using mathematics as an achievement indicator, this researcher will further investigate student involvement in interscholastic sports and other extracurricular activities, student reported attitudes and self-confidence and include their ethnicity, socioeconomic status, and gender in determining if a positive relationship can be found in predicting positive student achievement on standardized math tests.
CHAPTER III
METHODOLOGY

Introduction

This chapter describes the research design in section one and the participants in section two. The study instruments and the procedures for determining statistical significance are described in sections three and four. The final section matches the research questions with the data analyses used to answer them.

Research Design

The independent variables used in this study are participation in extracurricular activities, student-reported attitudes toward math, self-confidence, ethnicity, SES, and gender. The dependent variable is the ELS: 2002 sophomore standardized math achievement test scores. The data are collected from 2 sources: 78 sophomore students in a school district in a southeastern state enrolled in the fall semester of the 2006-2007 academic year and 15,362 U. S. high school sophomores who represent a national sample of 10th graders in the ELS: 2002 in the spring term of the 2001-2002 academic year. The students in the regional sample completed specific questions from the student questionnaire used in the ELS: 2002 study, which have been renumbered and are listed in Table 1 below. A hierarchical multiple linear regression, a multiple correlation analysis, and one sample t-tests were utilized to address the research questions and the results reported.
<table>
<thead>
<tr>
<th>ELS: 2002</th>
<th>Variable Description</th>
<th>Value Labels</th>
<th>Regional #</th>
</tr>
</thead>
<tbody>
<tr>
<td>42</td>
<td>How much time do you spend on school sponsored extracurricular activities?</td>
<td># of hours</td>
<td>1</td>
</tr>
<tr>
<td>87a</td>
<td>When I do mathematics, I sometimes get totally absorbed.</td>
<td>1= Strongly agree</td>
<td>2a</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2=Agree</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3=Disagree</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4=Strongly disagree</td>
<td></td>
</tr>
<tr>
<td>87c</td>
<td>Because doing mathematics is fun, I wouldn’t want to give it up.</td>
<td>Same as 87a</td>
<td>2b</td>
</tr>
<tr>
<td>87f</td>
<td>Mathematics is important to me personally.</td>
<td>Same as 87a</td>
<td>2c</td>
</tr>
<tr>
<td>88a</td>
<td>Most people can learn to be good at math.</td>
<td>Same as 87a</td>
<td>3a</td>
</tr>
<tr>
<td>88b</td>
<td>You have to be born with the ability to be good at math.</td>
<td>Same as 87a</td>
<td>3b</td>
</tr>
<tr>
<td>61</td>
<td>Do you hope to receive an athletic scholarship to pay for all or part of your college expenses?</td>
<td>1=Yes</td>
<td>4</td>
</tr>
<tr>
<td>89a</td>
<td>I’m confident that I can do an excellent job on my math tests.</td>
<td>1=Almost never</td>
<td>5a</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2=Sometimes</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3=Often</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4=Almost always</td>
<td></td>
</tr>
<tr>
<td>89b</td>
<td>I’m certain I can understand the most Difficult material presented in math texts.</td>
<td>Same as 89a</td>
<td>5b</td>
</tr>
<tr>
<td>ELS: 2002</td>
<td>Variable Description</td>
<td>Value Labels</td>
<td>Regional #</td>
</tr>
<tr>
<td>-----------</td>
<td>----------------------</td>
<td>--------------</td>
<td>------------</td>
</tr>
<tr>
<td>89l</td>
<td>I'm confident I can understand the most complex material presented by my math teacher.</td>
<td>Same as 89a 5c</td>
<td></td>
</tr>
<tr>
<td>89r</td>
<td>I'm confident I can do an excellent job on my math assignments.</td>
<td>Same as 89a 5d</td>
<td></td>
</tr>
<tr>
<td>89u</td>
<td>I'm certain I can master the skills being taught in my math class.</td>
<td>Same as 89a 5e</td>
<td></td>
</tr>
</tbody>
</table>

**Missing data**

Missing data from ELS: 2002 were imputed statistically from the national data analysis. Imputation of data involves substituting values for missing or inconsistent data in the data set. Logical imputation was used to complete missing information that could be gleaned from other information obtained on other completed variables.

Logical imputation is a process that tries to determine whether the missing answer can be either deduced or guessed from answers to other questions. A distribution of student names by sex was used to impute student sex. Additionally, student race was logically imputed using student name and school-level information. (Ingels, Pratt, Rogers, Siegel, Stutts, and Owings, 2004, p. 80).

The ELS: 2002 data files contain school-level and student-level data collected from school administer and teacher, parent, and student interviews, as well as from student assessments. These data were coded and edited to reflect skip-pattern relationships and different types of
missing data. After the editing process was completed, the remaining missing values for 14 key analysis variables were imputed statistically. These variables were chosen because they are the row variables in the ELS: 2002 A Profile of the American High School Sophomore in 2002. Most of the analysis variables were imputed using a weighted sequential hot deck procedure (Cox, 1980). In addition, two further analysis variables, ability estimates (theta) in mathematics and reading, were imputed using multiple imputation. The imputations were performed primarily to reduce the bias of survey estimates caused by missing data. (p. 81)

To evaluate the effects of imputation, the distribution of variables was tested for significant differences. Statistical tests (t tests) were used to test each level of the variables for differences at the 0.05/(c-1) significance level, where c is the number of categories within the variable. Chi-squared tests were performed to test for significant differences in the distributions of each variable. Many of the test imputation variables showed significant differences at each level of the variable; however, the differences were usually small. Following data imputations, variables were reviewed and revised (if necessary) to adjust for inconsistencies with other known data. (p. 82)

For the present study, the researcher analyzed the regional data and the ELS: 2002 data using the Statistical Package for Social Sciences (SPSS) 14.0 computer software. SPSS used a default setting that excluded either user-
missing or system-missing values from the data analysis.

Participants

The participants were sampled from two sources: all sophomore students in a school district in a southeastern state for the fall semester of the school year 2006-2007 and 15,362 U.S. high school sophomores who represented a national sample of 10th graders in the ELS:2002 in the spring term of the 2001-2002 school year. The purpose for delimiting the study to sophomores or a specific age group of students in the ELS: 2002 was to provide measures of student achievement that can be related to “student background variables and educational processes, for individuals and for population subgroups at a given point in time” and to determine “factors that contribute to individual and subgroup differences in achievement” (Ingels et al., 2004). The base-year sample design was described by Ingels, Burns, Charleston, & Owings (2005). The 10th grade regional sample provided data for the purpose of comparing ELS: 2002 data and a southeastern school district.

ELS: 2002 Sample.

The ELS: 2002 base-year sample design began with a nationally representative, two-stage stratified probability sample. The first stage of selection was schools; schools were selected with probability proportional to size (PPS). The public school sample was stratified by the nine U.S. Census divisions and by urbanicity (metropolitan status of urban, suburban, or rural). Private schools (Catholic and other private) were stratified by four levels of geography (Census region) and urbanicity; private schools were oversampled. The target sample size
was 800 schools. Cooperation was sought from 1,221 eligible selections. The realized sample comprised 752 participating 10th grade schools. The second stage of selection was students. Of 17,591 sampled students in the schools, 15,362 students participated. Some groups (e.g., Asians) were oversampled. (Ingels et al., 2005, p. A-8)

All participants selected for this base year analysis reported the relevant information on all of the test variables completely (Ingels, Pratt, Rogers, Siegel, Stutts, & Owings, 2004). A composite variable was used to construct socioeconomic status of the students' families. The variable consisted of 5 elements: fathers and mother's occupation, family income, and father's and mother's education level (Ingels et al., 2005).

Regional Sample. All sophomore students for the fall semester of the school year 2006-2007 in a southeastern school district were given the opportunity to participate in the study. Of the possible 415 students, 78 students completed the survey. The students completed all items on the survey. Due to student confidentially, demographic information was not obtained on the sample from the southeastern school district.

Instrumentation

ELS: 2002 Survey Instrument. Students, one parent, teachers, school administrators and librarians were all surveyed with separate questionnaires. Only the student questionnaires are used in the present study. The student questionnaire of the ELS: 2002 base-year design contained 98 items taken from 7 study components that included mathematics assessments of students, information about the student's background, school experiences, plans for the future, out-of-school experiences, language background, and learning style (Ingels et al., 2004). Students who were unable to
participate when the survey was administered during school were given a shortened version of the questionnaire outside of school in a computer-assisted telephone interview. Prior to conducting the interviews, parental consent was obtained (Ingels et al., 2004).

The assessments were given in a 2 stage process. All students received a multiple-choice routing test composed of two separate parts: a 15-question section, followed by 14 questions. The tests contain a broad range difficulty levels. Selecting the set of second-stage test items whose difficulty level best matches the ability level demonstrated on the routing test enhances the reliability of measurement for each student. Once the answer sheets were scored by survey administrators, each subject was assigned to a low, middle, or high difficulty second stage form, depending on the student’s number of correct answers in the routing test. The two-stage procedures were designed to maximize the accuracy of achievement data while limiting the amount of testing time needed as well as minimizing the floor and ceiling effects (Ingels et al., 2004 & Owings, 2004).

The ELS: 2002 included assessments in reading and mathematics achievement tests (only the mathematics assessment will be used in the present study). These assessments were designed to measure the achievement status of 10th graders at both the individual and the group level. The scores obtained from the students’ performance on the cognitive assessment are broad-based standardized scores that report performance as a whole measure and shows how a student compares to his or her peers. The scores for the individual tests were based on scores using standardized scores.

Standardized scores (t-scores) provide norm-referenced measurements of achievement; that is, estimates of achievement level relative to the population as a whole. A high mean T-score for a particular subgroup
indicates that the group’s performance is high in comparison to other
groups. It does not represent mastery of a particular set of skills, only
that the subgroup’s mastery level is greater than a comparison group. In
other words, T-scores provide information on status compared to
students’ peers (Ingels et al., 2004).

Criterion-referenced proficiency scores were also used so that achievement could
be understood in terms of specific levels of skill mastery.

Criterion-referenced proficiency scores are based on clusters of items
that mark different levels of achievement on the math scores that
illustrate the skills that students have mastered. The math levels are: (1)
Simple arithmetical operations with whole numbers; (2) Simple
operations with decimals, fractions, powers, and roots; (3) Simple
problem solving, requiring the understanding of low-level
mathematical concepts; (4) Understanding of intermediate-level
mathematical concepts and/or multistep solutions to word problems;
and (5) Complex multistep word problems and/or advanced
mathematics material (Owings, 2004, p. 5).

Most of the items used in the ELS: 2002 base-year questionnaires were taken
from prior studies, particularly High School and Beyond and the National Educational
Longitudinal Study: 1988. Since the previous questionnaires were used with large,
nationally representative samples, their measurement characteristics were well
established. Content validity was established by submitting the questionnaire to an
independent group of experts for review. The survey instrument was field-tested with
revisions being made in accordance with the reviews and the results of the field-test. The reliability of the instrument was assessed using Cronbach's alpha measure and the internal consistency was high at .90 (Ingels et al., 2005). A copy of the actual instrument is attached in Appendix A.

Regional Survey Instrument. The survey instrument used with southeastern school district sample was comprised of questions taken directly from the ELS: 2002 student survey questionnaire. Reliability of the instrument was assessed after data was collected and is reported in Chapter 4 of this document. A copy of the actual instrument is attached in Appendix B.

Procedures

ELS: 2002 Data Collection. The initial recruitment stage for school data gathering included gaining permission from the Chief State School Officers of all 50 states and the District of Columbia. The schools were then notified and permission granted for districts/dioceses to proceed. At the time permission was obtained at the state level, a person at that level was identified to serve as a point of contact to address any questions from the districts about the state's participation. Once state approval was obtained, an information package was sent to each district/diocese's superintendent with participating schools. Permission to proceed to the school level was received from 693 of the 829 districts/dioceses having eligible sampled schools (Ingels et al., 2004).

As at the state level, participating districts/dioceses were asked to identify a contact person and were sent a letter of endorsement and an informational package. If the school agreed to participate, a school coordinator was identified. This person served as a point of contact at the school district level and was responsible for handling any logistical
arrangements such as arranging the survey date and 2 make-up dates. The school coordinator was provided a study notebook that detailed the tasks for which he/she was responsible and included instructions on preparing and sending a 10th-grade enrollment list which contained information on all 10th grade students at the participating school. A Survey Administrator (SA) was selected for each school district and a Survey Assistant Administrator (SAA) if the district was large or spread over a large geographic location. Each administrator and assistant at each school was trained on specific data collection procedures (Ingels et al., 2004).

Before questionnaire and test administration began, consent letters were sent to parents notifying them of the study. Schools were encouraged to allow passive (implied) consent unless the school expressed the need for active consent. For active and passive parental consent, information packets containing a letter about the study, a consent form, a brochure about the study, and an envelope in which to return the consent form or refusal form were sent to parents. For students who did not have a mailing address, parent packets were sent to the school and the school coordinator was responsible for distributing them to the students. Only students whose parents had given permission were allowed to participate in the survey (Ingels et al., 2004).

The questionnaires were taken by the student with no adult assistance and administered in group settings while the students were at school and took approximately 45 minutes to complete (Ingels et al., 2004).

First, students were given a timed routing test in math and reading. After completing the routing tests, the students completed the student questionnaire. While the students completed the questionnaire, the SA
and SAA graded the routing tests. This was done by using an answer key that overlaid the test form. The SA used the scores from the routing test to determine the second-stage tests in math and reading (low, medium, high ability) to assign to each student based on ability level. After the questionnaires were collected, the SA gave the students a short break and served a light snack. After the break, the SA handed out second-stage cognitive tests. While the students completed the second-stage tests, the SA and SAA edited the student questionnaires for completeness (Ingels et al., 2004, p. 116).

In checking the student answer sheets, if a student did not answer a questionnaire item, the SA/SAA asked the student to complete it after the end of the second-stage test.

Data collection was conducted over a 5 month period beginning in mid-January and ending at the beginning of June so that schools could be flexible in scheduling the survey administration. The base-year data collection is the first wave of the ELS: 2002 conducted and made public and available on CD-ROM in 2006 by the National Center for Education Statistics (NCES) in Washington, DC. (Ingels et al., 2005).

Regional Data Collection. The school district in a southeastern state administered the regional survey in the same manner as the ELS: 2002 questionnaire. Before the student survey was administered, permission was obtained from the school district superintendent. The teachers who administered the survey were given specific directions for getting parental consent and giving the survey to the students. Active consent was obtained from each student's parent completing the survey instrument (copies of the superintendent and parental permission letters are attached in Appendix C). The
student's 2nd period teacher administered the survey after the parent permission letter was returned. The students only completed a small portion of the original ELS: 2002 survey so the survey took less than 15 minutes for the students to complete. The researcher collected the surveys and permission letters from each teacher. The surveys and permission letters are kept in a locked cabinet to ensure privacy and confidentiality.

Research Questions and Data Analysis

Research Question 1: Is there a statistically significant relationship among sophomore year involvement in extracurricular and interscholastic activities, student-reported attitudes toward math, self-confidence, ethnicity, SES, gender, and standardized math achievement scores?

Data Analysis 1: Multiple Correlation Analysis will be used and the Multiple Correlation Coefficient (R) will be reported, tested for significance and interpreted.

Research Question 2: Do SES, ethnicity, and gender primarily and sophomore year involvement in extracurricular and interscholastic activities, specified attitudes toward math, and self-confidence, secondarily statistically significant predict standardized math achievement scores?

Data Analysis 2: A Hierarchical Multiple Linear Regression will be conducted and the Multiple Coefficient of Determination (R^2) will be reported, tested for significance, and interpreted. Predictors that are categorical will be effect-coded. Diagnostic tests will be used to determine if linearity, normality, homoscedasticity, and multicollinearity assumptions are met within acceptable limits.

Research Question 3: Is there a statistically significant difference between the composite math attitude of high school sophomores in a school district in a southeastern state and
the composite math attitudes of the average American high school sophomore based on data from the ELS: 2002 database?

Data Analysis 3: A one-sample t-test will use the mean of the composite math attitudes variable in the regional sample and the mean of the composite math attitudes variable in ELS: 2002 will be used at the “test value”.

Research Question 4: Is there a statistically significant difference in the composite self-confidence attitudes of high school sophomores in a school district in a southeastern state and the mean of the composite self-confidence attitudes of the average American high school sophomore based on data from the ELS:2002 database?

Data Analysis 4: A one-sample t-test will use the mean of the composite self-confidence attitudes variable in the regional sample and the mean of the composite self-confidence attitudes variable in ELS: 2002 will be used as the “test value”.

Research Question 5: Is there a statistically significant difference in the sophomore year involvement in extracurricular and interscholastic activities of high school sophomores in a school district in a southeastern state and the mean of the sophomore year involvement in extracurricular and interscholastic activities of the average American high school sophomore based on data from the ELS: 2002 database?

Data Analysis 5: A one-sample t-test will use the mean of the composite sophomore year involvement in extracurricular and interscholastic activities variable in the regional sample and the mean of the sophomore year involvement in extracurricular and interscholastic activities variable in ELS: 2002 will be used as the “test value”.

Limitations

1. The results of this study should be generalized to similar subject groups and...
demographic situations.

2. This study cannot show a direct causal effect between extracurricular participation and academic success, however, it attempts to determine if there is a relationship present which could explain or predict academic success, based on extracurricular participation.

Summary

Using hierarchical multiple linear regression, the researcher will attempt to predict the effects of participating in extracurricular activities, student-reported attitudes toward math, self-confidence, hope for future athletic scholarships, ethnicity, SES, and gender in predicting academic achievement as measured by standardized math achievement scores. Multiple correlation analysis will be used to determine if there is a statistically significant relationship among sophomore year involvement in extracurricular and interscholastic activities, student-reported attitudes toward math, self-confidence, ethnicity, SES, gender, and standardized math achievement scores. One-sample $t$ tests will be used to compute comparisons using ELS: 2002 data and sample information from a school district in southeastern United States to determine if there are statistically significant relationships and differences in the 2 groups. The regional participants are 78 sophomores from the fall 2006-2007 academic year in a school district in a southeastern state and the national participants are 15,362 students from the ELS: 2002 who were sophomores in the spring of 2001-2002 school year.
CHAPTER IV
ANALYSIS OF DATA

Results

Introduction

This chapter describes the processes and procedures used in the ELS: 2002 data preparation and subsequent analysis by researchers. The chapter describes the ELS: 2002 data used in the present research analysis and the research questions and the statistical results generated to answer the questions (Owings, 2004). It also contains the description and data analysis used in the regional survey. The chapter summary follows with the concluding analysis results of both ELS: 2002 and the regional study with comparisons of the data analysis where applicable.

Data Preparation

ELS: 2002 Sample. The automated systems used to control the survey processes were designed during the field test to determine the processes needed for the main study. The tests were completed in a smaller environment to reveal points in which improvements should be made before being implemented on a larger scale (Ingels et al., 2004).

A full development process, including design, programming, testing, and implementation was used in the creation of these systems. Specifications were developed in word processing documents and flowchart applications and progress was tracked using Microsoft Project and Microsoft Excel. Specifications for questionnaires were designed in word processing documents and
were updated to reflect what changed between the field test questionnaires and the full-scale questionnaires (Ingels et al., 2004, pp123-124).

Upon completion of schools' surveys and questionnaires, data were sent to a preparation facility where a system was established to receive and record all required forms including identifying questionnaires that were not complete or accurate. All questionnaires were assigned a batch number for identification purposes.

Questionnaires were designed for TELEform scanning, and after questionnaires were received and batched they were ready for TELEform scanning. A TELEform questionnaire contained text fields that could be recognized by scanning machines and interpreted forms text to data through optical character recognition. Verifiers reviewed data that was not interpreted accurately by the scanning machines or was not consistent with expected ranges. Once verification was complete, the data were converted to an American Standard Code for Information Interchange (ASCII) file and the questionnaire image was written to the server. This process provided immediate access to raw questionnaire data and a repository of images accessible by ELS:2002 staff (pp 125-126).

After the questionnaire data had been concatenated, the following cleaning and editing steps were implemented:

- anomalous data cleaning based on review of data with original questionnaire image (e.g., scanning errors);
• rule-based cleaning (changes that were made based on patterns in data, rather than review of images);
• hard-coded edits based on changes recommended by a reviewer if respondents misunderstood the questionnaire (e.g., respondent was instructed to enter a percentage; however, there was strong evidence that the respondent entered a count rather than the percentage); and
• edits based on logical patterns in questionnaire (e.g., skip pattern relationships between gate and dependent questions) (p. 128).

The final data set was verified with the Survey Control System that was developed during the field test to find inconsistencies and serve as a safeguard for ensuring data integrity (Ingels et al., 2004).

**Regional Sample.** After the questionnaires were completed by the students, the teachers placed them in sealed envelopes. The researcher gathered the envelopes from the teachers and entered the data in the computer software program Statistical Package for the Social Sciences (SPSS) 14.0. The researcher assessed the reliability of the regional sample and found the Cronbach Alpha to be .817.

**Description of Samples**

**ELS: 2002 Sample.** Of 17,591 eligible selected sophomores, 15,362 completed a base-year questionnaire in the first 5 months of 2002. Their racial breakdown was: 35.5% ethnic minority groups (American Indian or Alaska Native was 1%, Asian or Pacific Islander was 4.2%, Black or African American was 1.4%, and Hispanic of Latino was 15.9%), 4.3% Multiracial, and 60.3% were White. Approximately half of the sophomore group was male (50 percent) and half was female (50 percent). Most of the students in the
sample were born in 1985 and 1986 and were 15 or 16 years old at the time that they completed the survey. ELS: 2002 used a composite variable to determine the Socioeconomic Status (SES) of students' families. The variable was constructed from the following 5 elements: father's occupation, mother's occupation, family income, father's education level, and mother's education level. SES was categorized as high, middle, or low, based on weighted quartiles (highest quartile, middle 2 quartiles, and lowest quartile). Asian or Pacific Islanders had 28.0% in the Low SES group, 40.5% in the Middle SES group, and 31.5% in the High SES group. The Black or African American sample consisted of 35.2% Low SES, 51.9% Middle SES, and 12.9% High SES. The Hispanic or Latino sample had 50.1% in the Low SES group, 40.2% in the Middle SES group, and 9.7% in the High SES group. The White sample consisted of 15.7% in the Low SES group, 52.4% in the Middle SES group, and 32.0% in the High SES group (Ingels et al., 2005). Descriptive statistics are presented in Table 2 below. Casewise diagnostics indicated outliers but they were retained in the analysis since the large data set was in the normal range.

Table 2

ELS: 2002 Sample Descriptives

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math test standardized score</td>
<td>50.72</td>
<td>9.90</td>
<td>19.38</td>
<td>86.68</td>
</tr>
<tr>
<td>Hours/week spent on extracurricular activities</td>
<td>4.77</td>
<td>5.70</td>
<td>0</td>
<td>21</td>
</tr>
<tr>
<td>Math attitudes composite</td>
<td>12.24</td>
<td>2.97</td>
<td>1.00</td>
<td>20.00</td>
</tr>
<tr>
<td>Self confidence composite</td>
<td>12.03</td>
<td>4.58</td>
<td>1.00</td>
<td>20.00</td>
</tr>
</tbody>
</table>
Regional Sample. Of the 415 possible sophomore students in a southeastern school district, 78 students had parental consent and completed the survey instrument during the fall semester of the 2006 – 2007 school year. No items were skipped or omitted. Demographic information was not collected on the regional sample nor was the mathematics scores obtained due to confidentiality of students. Descriptive statistics are presented in Table 3 below.

Table 3

Regional Sample Descriptives

<table>
<thead>
<tr>
<th></th>
<th>Std.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
</tr>
<tr>
<td>Hours/week spent on extracurricular activities</td>
<td>3.85</td>
</tr>
<tr>
<td>Math attitudes composite</td>
<td>12.73</td>
</tr>
<tr>
<td>Self confidence composite</td>
<td>13.90</td>
</tr>
</tbody>
</table>

Research Question Analysis

The present study investigated 5 research questions. The first question was answered through multiple correlational analysis of the ELS: 2002 data. The second question required a hierarchical multiple regression analysis of the data and the third, fourth and fifth questions all required one-sample t-tests comparing the ELS: 2002 cohort with the Regional counterpart. The information in questions 1 and 2 was effect-coded because the variables are categorical. The research questions addressed analytic output from SPSS with the statistical results reported and discussed.

Research Question 1. Is there a statistically significant relationship among sophomore
year involvement in extracurricular and interscholastic activities, student-reported attitudes toward math, self-confidence, ethnicity, SES, gender, and standardized math achievement scores?

Data analysis for research question 1. Multiple Correlation Analysis was used and the Multiple Correlation Coefficient (R) was reported, tested for significance and interpreted. Results for research question 1. A Multiple Correlation coefficient was computed among the variables in the ELS: 2002 study to determine if there is statistically significant relationship among extracurricular and interscholastic activities, student reported attitudes toward math, and self-confidence, ethnicity, SES, gender and the ability to statistically predict standardized math achievement scores. The coefficient was statistically significant, \( R = 0.56, p < 0.001 \). There was a statistically significant relationship among the study variables. The effect size was moderately high.

Research Question 2. Do SES, ethnicity, and gender primarily and sophomore year involvement in extracurricular and interscholastic activities, specified attitudes toward math, and self confidence, secondarily significantly statistically predict standardized math achievement scores?

Data analysis for research question 2. A Hierarchical Multiple Linear Regression was conducted and the Multiple Coefficient of Determination (\( R^2 \)) was reported, tested for significance, and interpreted. Diagnostic tests were used to determine if linearity, normality, homoscedasticity, and multicollinearity assumptions were met within acceptable limits.

Results for research question 2. A Hierarchical Multiple Regression analysis was conducted to determine if SES, ethnicity, gender primarily and involvement in
extracurricular and interscholastic activities, specified attitudes toward math, self-confidence secondarily could predict standardized math achievement scores. Data inspection of casewise diagnostics located outliers which were retained in the analysis since the very large data set was considered normal. Ethnicity, SES, and gender were effect-coded since they are categorical variables. Evaluations of linearity, normality, homoscedasticity, and multicollinearity showed that the assumptions were met within acceptable limits. The regression results in the overall second model indicated that hours/week spent on extracurricular and interscholastic activities, math attitudes, and self-concept combined measures accounted for a significant portion of the variance in standardized achievement math scores after controlling for the effects of ethnicity, SES, and gender, $R^2 = .31$, $F (13, 11173) = 388.26, p < .001$. This model accounted for 31% of the variance, which is strong. The standardized regression coefficients show that Self-Confidence Composite proved the strongest, while the ethnic Hispanic and American Indian classification proved to be the weakest. Females, African Americans, Lowest and Second SES Quartiles, and the Math Attitudes Composite were negatively associated with standardized math achievement scores while American Indians, Asians, Hispanics, Multi-Racial, Whites, and Highest SES Quartiles, Hours per week spent on extracurricular and interscholastic activities, and the Self-Confidence Composite were positively associated with standardized math achievement scores. Table 4 below presents a summary of the regression coefficients in the Model.
Table 4

*Model Coefficients*

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE_B</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>-.26</td>
<td>.08</td>
<td>-.03</td>
</tr>
<tr>
<td>American Indian</td>
<td>.07</td>
<td>.48</td>
<td>.00</td>
</tr>
<tr>
<td>Asian</td>
<td>3.19</td>
<td>.20</td>
<td>.19</td>
</tr>
<tr>
<td>African American</td>
<td>-1.04</td>
<td>.20</td>
<td>-.07</td>
</tr>
<tr>
<td>Hispanic</td>
<td>.00</td>
<td>.22</td>
<td>.00</td>
</tr>
<tr>
<td>Multi Racial</td>
<td>1.35</td>
<td>.24</td>
<td>.06</td>
</tr>
<tr>
<td>White</td>
<td>2.10</td>
<td>.17</td>
<td>.21</td>
</tr>
<tr>
<td>Lowest Quartile</td>
<td>-2.01</td>
<td>.12</td>
<td>-.17</td>
</tr>
<tr>
<td>Second Quartile</td>
<td>-1.01</td>
<td>.11</td>
<td>-.09</td>
</tr>
<tr>
<td>Highest Quartile</td>
<td>1.57</td>
<td>.10</td>
<td>.15</td>
</tr>
<tr>
<td>Hrs/wk spent on extracurricular activities</td>
<td>-.18</td>
<td>.01</td>
<td>.11</td>
</tr>
<tr>
<td>Math attitudes composite</td>
<td>-.05</td>
<td>.03</td>
<td>-.01</td>
</tr>
<tr>
<td>Self-confidence-composite</td>
<td>.60</td>
<td>.02</td>
<td>.28</td>
</tr>
</tbody>
</table>

Research Question 3. Is there a statistically significant difference between the composite math attitudes of high school sophomores in a school district in a southeastern state and
the composite math attitudes of the average American high school sophomore based on data from the ELS: 2002 database?

Data analysis for research question 3. A one-sample t-test compared the Mean of the composite math attitudes variable in the regional sample to the Mean of the composite math attitudes variable in ELS: 2002.

Results for research question 3. A one-sample t test was conducted on the composite math attitudes of high school sophomores in a southeastern school district to evaluate whether their Mean was significantly different from the composite math attitudes of the average American high school sophomore based on data from the ELS: 2002 database. The sample Mean of 12.73 (SD = 2.31) was not significantly different from the sophomore population (M=12.51, SD=2.31), t(77)=.85, p=.40. The 95% confidence interval for the composite math attitude ranged from -.30 to .74. The results indicated that the southeastern school district’s sophomore students’ math attitudes do not statistically significantly differ from those of the average American high school sophomore.

Research Question 4. Is there a statistically significant difference in the composite self-confidence attitudes of high school sophomores in a school district in a southeastern state and the Mean of the composite self-confidence attitudes of the average American high school sophomore based on data from the ELS:2002 database?

Data analysis of research question 4. A one-sample t-test compared the Mean of the composite self-confidence attitudes variable in the regional sample to the Mean of the composite self-confidence attitudes variable in ELS: 2002.

Results for research question 4. A one-sample t test was used to determine if the composite self-confidence attitudes of high school sophomores in a school district in a
southeastern differed significantly from the average American high school sophomore based on data drawn from ELS: 2002 database. The sample Mean of 13.90 (SD = 4.17) was significantly different from the sophomore population (M=12.20, SD=4.17), $t(77)=3.57, p=.001$. The 95% confidence interval for the composite self-confidence attitudes ranged from .75 to 2.63. The results indicated that the southeastern school district’s sophomore students’ composite self-confidence attitudes are statistically significantly higher than those of the average American high school sophomore.

Research Question 5. Is there a statistically significant difference in the sophomore year involvement in extracurricular and interscholastic activities of high school sophomores in a school district in a southeastern state and the Mean of the sophomore year involvement in extracurricular and interscholastic activities of the average American high school sophomore based on data from the ELS:2002 database?

Data analysis of research Question 5. A one-sample t-test compared the Mean of the composite sophomore year involvement in extracurricular and interscholastic activities variable in the regional sample t the Mean of the sophomore year involvement in extracurricular and interscholastic activities variable in ELS: 2002.

Results for research question 5. A one-sample t test was conducted to determine whether high school sophomores who are involved in extracurricular and interscholastic activities in a school district in a southeastern state and the Mean of the average American high school sophomore differ significantly. The southeastern school district Mean of 3.85 (SD = 4.99) was not statistically significantly different from the sophomore population (M=4.91, SD=4.99), $t(77)=-1.881, p=.06$. The 95% confidence interval for extracurricular and interscholastic involvement ranged from -2.19 to .06. The results indicated that the
southeastern school district's sophomore students' involvement in extracurricular and interscholastic activities does not statistically significantly differ from those of the average American high school sophomore.

Summary

This chapter described the processes and procedures used in the ELS: 2002 data preparation and subsequent analysis and comparisons to regional data gathered from a school district in the southeastern region of the United States. In research question 1, the researcher computed a Multiple Correlation coefficient among the variables in the ELS: 2002 study and found a statistically significant relationship among extracurricular and interscholastic activities, student reported attitudes toward math, and self-confidence, ethnicity, SES, gender and the ability to statistically predict standardized math achievement scores. In research question 2, a Hierarchical Multiple Regression analysis was conducted to determine if SES, ethnicity, gender primarily and involvement in extracurricular and interscholastic activities, specified attitudes toward math, self-confidence secondarily could statistically significantly predict standardized math achievement scores. The results of the regression coefficients showed that the self-confidence composite proved the strongest, while the ethnic Hispanic and American Indian classification proved to be the weakest. Females, African Americans, lowest and second SES quartiles, and the math attitudes composite were negatively associated with standardized math achievement scores while males, American Indians, Asians, Hispanics, multi-racial, whites, and highest SES quartiles, hours per week spent on extracurricular and interscholastic activities, and the self-confidence composite were positively associated with standardized math achievement scores. Research questions 3, 4, and 5
uses one-sample \( t \) tests. Question 3 compared the composite math attitudes of high school sophomores in a southeastern school district to the composite math attitudes of the average American high school sophomore based on data from the ELS: 2002 database. The results indicated that the southeastern school district’s sophomore students’ math attitudes do not differ significantly from those of the average American high school sophomore. Question 4 compared the students’ self-confidence attitude with the results indicating that the southeastern school district’s sophomore students’ self-confidence attitudes are significantly higher than those of the average American high school sophomore. The results of research question 5 indicated that the southeastern school district’s sophomore students’ involvement in extracurricular and interscholastic activities does not differ significantly from those of the average American high school sophomore.
CHAPTER V
SUMMARY

Introduction

This chapter presents the results and conclusions of the statistical analyses. The study was developed to examine and determine if specified factors are positively associated with students' standardized math achievement scores. The specific variables considered were extracurricular activity participation, ethnicity, SES, gender, student attitudes towards math achievement and self-reported self-concept. The data were compiled using participants sampled from 2 sources: all sophomore students in a school district in a southeastern state for the fall semester of the 2006-2007 school year and 15,362 United States high school sophomores who represent a national sample of 10th graders in the ELS: 2002. The results of the study are presented and compared to current research. Implications of the present study are discussed and suggestions for further research are given with the final conclusions reported.

Conclusions and Discussion

Extracurricular and interscholastic activity participation. The results of this study were consistent with previous research and support a significant positive correlation between academic achievement and participation in extracurricular and interscholastic activities (Broh, 2002; Camp, 1990; Ingels et al., 2005; Koerner, 1992; Marsh, 1992; Steinberg et al., 1988; and Sweet, 1986). The research supports the supposition that extracurricular and interscholastic activities offer many positive benefits toward academic achievement rather than deterring from the achievement. Students who participate in extracurricular activities have lower absenteeism than students who do not
participate in these types of activities (Marsh, 1992; & McCarthy, 2000). Their self-concept leads to increased commitment to school and school values, which leads indirectly to increased academic success. (Holland & Andre, 1987; & Marsh, 1992). According to Semmar (2006), motivation, self-efficacy, and self-regulated learning, play critical roles in academic achievement. Individuals seem to be at a greater advantage accomplishing their tasks when they feel self-confident in their abilities. Karsenti & Thibert (1995) found extrinsic motivators like extracurricular and interscholastic activities to be predictors of school achievement. Rombokas, Heritage & West (1995) found students are able to apply character-building lessons learned in these activities to other areas of their lives. Black (2002) completed a study to determine the attributes of a well rounded student. Marsh & Kleitman (2003) believe extracurricular activities complement rather than compete with traditional curricular goals to enhance academic achievement. The present study agrees with the findings and the current research base and supports providing extracurricular and interscholastic activities in schools.

*Ethnicity.* Lugaila (2003) found white non-Hispanic children to be the largest ethnic group to participate in sports activities and Signer (1996) found whites to be the highest achieving students. The present study has taken the findings a step further and disaggregated the data into specific ethnic subgroups. The results found that Asians, Multi-Racials, and Whites were associated with higher standardized math achievement scores while African Americans were associated with lower standardized math achievement scores. McCarthy (2000) found that students of every ethnicity who participated in school-sponsored activities had higher grade point averages than students who did not participate in these activities. Using the NELS: 1988 data set, Schreiber &
Chambers (2002) were able to determine that students’ participation in extracurricular activities could be associated with ethnicity. They found that in-school organized academic activities and out-of-school academic organized activities were associated with higher academic achievement in all areas for all ethnic groups. The present study results are aligned with the findings of McCarthy and Schreiber & Chambers with the exception of African Americans who had lower scores.

**Socioeconomic status.** Schreiber & Chambers (2003) found low socioeconomic status to have a negative impact on math achievement. The research analysis of the current study presents similar findings. Students from high socioeconomic quartiles are associated with extracurricular and interscholastic participation and also have higher standardized math achievement scores. A study by Guest and Schneider (2003) presented contrasting information. They found that the overall socioeconomic level of the school has an effect on the achievement level of the student. Students who attend lower and middle class schools and where less than half the students go on to college receive the greatest benefit from participating in extracurricular activities and athletics by attending post secondary schools. Schools with a higher socioeconomic level do not show this relationship. In another study by Fields, Smith, Bass, & Lugaila, (2001) it was found that children in higher income families are more likely to participate in all types of extracurricular and interscholastic activities.

**Gender.** The research found supporting gender differences in standardized math achievement scores is consistent with the current study which found females were negatively associated with standardized math achievement scores while males were positively correlated with standardized math achievement scores. Chambers & Schreiber
(2004) found significant positive results related to mathematics achievement for tenth grade girls, indicating the more the girls participate in activities, the higher their achievement scores. Signer (1996) found that male students are more likely to take more advanced math courses.

*Math attitudes composite.* In the present study the Math Attitudes Composite were negatively associated with standardized math achievement scores. These findings were not supported by other research. The research by Tavani & Losh (2003) found that the actions and beliefs of students do impact their performances. Students’ expectations, among other indicators, are a significant predictor of students’ academic performances. Reynolds & Walberg (1992) found that mathematics attitude has both indirect and direct effects on mathematics performance. The study by Tapia and Marsh (2000) found a relationship between grades and confidence in mathematics. Simich-Dudgeon and Carmen (1996) also found that students’ expectations of being successful in math are a reliable predictor of whether the students will even attempt the task. They also found that the student’s attitude toward math achievement is a predictor of mathematic achievement of both Hispanic and Asian students.

*Self-Concept composite.* The present study found that the Self-Confidence Composite is positively associated with standardized math achievement scores. These findings are supported by other research. Tavani & Losh (2003) completed a study finding that the higher a student’s self-confidence, the higher the level of academic achievement. Harrison & Narayan (2003) found that participation in extracurricular activities is associated with students who are in better physical health, who consume nutritious foods, exercise and do their homework. They are in better mental health
expressing positive attitudes about self, peers, teachers, and parents. Karsenti & Thibert (1995) found in their study that intrinsic motivation was a better predictor of achievement for boys than girls. Lumsden (1994) found that children who are reared in a home where they have a sense of self-worth and competence will more readily accept challenges. All these research results are in agreement with the findings of the current study that supports a positive correlation of high math achievement with a positive self-concept composite.

Comparisons with ELS: 2002 and regional sample. In comparing the National sample with the students from a southeastern school district, the southeastern school district’s students did not differ significantly in their composite math attitude from the attitude of the average American high school sophomore represented in the ELS: 2002 sample. This is consistent with the studies by Reynolds & Walberg (1992) and Tavani & Losh (2003) who found the relationships among academic performances, expectations, motivations, and self-confidence to be significant predictors of academic successes among high school students. There was a significant difference in the self-confidence attitudes between the southeastern school district sample and the ELS: 2002 sample. Students in the regional sample had significantly higher self-confidence than those in the national sample. The regional differences were not accounted for in the research and pertinent literature. In the final analyses, the southeastern school district’s students did not differ significantly in their participation in extracurricular and interscholastic activities. This is consistent with research findings by Ingels et al., (2005) that 55% of American high school sophomores participate in extracurricular and interscholastic activities.

Limitations
1. The results of this study should only be generalized to similar subject groups and demographic situations.

2. This study is limited in its ability to show a direct causal effect between extracurricular participation and academic success; however, it attempts to determine if there is a relationship present.

3. The information obtained from the questionnaire reflects the perceptions of the two groups of students. The study was limited by questions constructed by NCES and the student responses.

4. Demographic information from the regional sample could not be revealed because of privacy concerns.

Recommendations for Policy or Practice

Policy makers have little control over many of the factors that influence students. The results of the current study indicate that participation in extracurricular activities by specific ethnic and SES subgroups (American Indians, Asians, Hispanics, multi-racial, whites, highest SES quartiles) may result in higher math achievement scores. The present study also found that being female may have a negative influence on math achievement scores. Race/ethnicity, gender and SES status are not under the policy makers’ control but a school focus and influence on math and self concept attitudes and extracurricular/interscholastic activities are. Since extracurricular and interscholastic activities may result in higher achievement, municipalities should ensure extracurricular and interscholastic activities are available for all students. A requirement that students must maintain a specific grade point average to participate in extracurricular high school activities is not an unreasonable demand. With this being a requirement, students must
push themselves to do well academically. A final consideration for policy makers would be to include activities that promote positive math and self-concept attitudes. The present study found a correlation between the perceptions of students who feel they can succeed in mathematics and the perceptions of those who actually do. Educators should provide activities to support and enhance positive attitudes of students.

*Ethnicity.* School districts must first consider the factors that possibly have a negative effect on students of different ethnic backgrounds. Many of these students also face poverty or come from a low socioeconomic family level. These students then face financial barriers in future college attendance. The parents may not be well educated and may not place a high value on education allowing students to drop out of school. There may be a general lack of parent involvement in the child’s education. The students may also face language difficulties or have low English proficiency that hinders them in their academic performance. Students from minorities may also be underrepresented in early childhood programs. Negative peer pressure could be a deterrent to student achievement. Other factors include limited access to role models and positive images and low societal expectations.

Possible solutions to the needs of students of various ethnicities could include increasing parental involvement in the students’ education. Parents can set a positive example by getting involved in their children’s schools. They can celebrate different ethnic holidays, Black History month, and other cultural events that emphasize personal and community excellence. Parents can build their children’s self-esteem and racial pride by teaching them the wide scope of achievement in mathematics that other ethnicities have achieved. Parents can arrange to have their children associate and play with children
from other families who place a high value on education and achievement. Away from school, parents should find playmates for their children from families who value education. Then children can begin to develop social support that helps them withstand the anti-achievement pressure they may face.

As student populations become more ethnically diverse, curriculum planners should develop innovative strategies to make physical activities closely suited to student interests and cultural backgrounds. An example of this is providing sports and physical activities such as dance and music which may be more likely to be of cultural interest for students from African, Latin or Caribbean origins. Schools could expand history courses, create clubs, and hold more assemblies to honor an increasing number and wider variety of academic achievements among different ethnic groups. Differentiated curriculum and instruction and assessment based upon state curriculum standards must exist to meet the needs of these learners. These practices must be supported with a range of advanced materials with an emphasis on depth, complexity, challenge, and creativity. It is possible that requirements for advanced placement and honors courses be altered to allow more diversity among students.

**Socioeconomic status.** Parents need to be a part of the learning process for all students and especially students from lower socioeconomic status. To be effective and communicate a sense of belonging to their children, they need to be integrated in meaningful ways in the school process. Teachers and schools should not perceive parents living in poverty as "part of the problem" of educating students rather they should be considered an important part of the solution. Educators may knowingly or unknowingly discourage parental involvement. On the other hand, teachers and schools that facilitate
parental involvement in meaningful ways may actually enhance the ability of the parents to support their children's academic work. If parents feel excluded from the school or their children's educational process, they may feel alienated from the school. It is possible that these attitudes are transmitted to their children.

It is important to consider that some low income families live in neighborhoods where activities are not readily available or activities are unaffordable for their children. Poor families cannot afford to invest in health club memberships, exercise machines and equipment for their children. Families who are poor often cannot pay user fees or transportation costs to bring their children to extracurricular activities. Fitness and sports are often seen as unattainable luxuries rather than potential resources. Dual-worker parents or single parents sometimes depend on older children to cook or care for smaller children after school, thus curbing their involvement with extracurricular activities. Poor students often work part-time jobs to help families make ends meet, thereby reducing the amount of time and energy available for exercise or sports.

Federal and state lawmakers should explore ways to provide school districts and municipalities with relief from high liability insurance costs that may limit their ability to provide fitness and athletic opportunities for children and adolescents. Such relief would also allow for greater use of existing facilities by the wider public. Enforcement of Title IX should be vigorously pursued by government and administrative officials at the federal, state and local levels. Development of after-school and community-based programs that provide safe environments for students to engage in a variety of exercise and athletic activities must be pursued. Organizations with public mandates to foster a better quality of life through sport and athletic involvement should focus not only on elite

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athletes, but on grassroots/community-based programs as well.

Gender. Even though females and males share common experiences, girls also exhibit unique physiological, emotional and social outcomes that merit special investigation. Girls need safe, healthy and supportive environments to grow and excel. Policies need to tap the power and potential of physical activity and sports to advance girls’ health, physical and emotional development, social well-being and educational aspirations and achievements. Efforts must be directed toward increasing girls’ participation in physical activities. It is particularly important that some of these programs be designed to appeal to girls. Given what we know about the powerful effects of role modeling, we should also promote the inclusion of females in leadership positions at all levels of organizational structure, thus sending the message that women are leaders too. Girls are taught that succeeding in math and science is not feminine. Many extracurricular and interscholastic activities utilize mathematics and girls could benefit from this. Girls need role models; they need to see women using computers competently and confidently. Teachers should invite female speakers to classes or clubs and share information about women who are leaders in the field.

Health education efforts in schools and the community must be expanded to educate youth and the general public concerning the impact of physical activity and sports in the lives of girls. Physical educators and community health care providers should develop multidisciplinary programs that include a combination of exercise, diet and nutritional information to help lower risks for obesity, high cholesterol and osteoporosis. Identify programs that effectively use physical activity and sports as vehicles for lowering girls’ risk for unwanted sexual behavior and pregnancy. Encourage
print and broadcast journalists to project appropriate role models for girls. For example, mass media should avoid using images that create unrealistic expectations related to body image such as an excessively thin body composition. Health care providers should explore innovative ways to promote physical activity among girls through counseling, anticipatory guidance and education. Steps should be taken to initiate and increase partnerships between sport science researchers and practitioners.

Educational programs should include coaching certification programs with information about the real and potential benefits of physical activity and sport for girls' health and development, as well as prevention of eating disorders, injury and sexual harassment. Programs must continue to revise the content and curriculum of physical education classes in order to more closely meet girls’ preferences and concerns. Schools have to involve girls in the selection of these activities. Foundations and government agencies should fund research that examines how athletic participation can be more fully used as a tool to enhance girls’ academic performance and lower their risk for school dropout.

Recommendations for Future Research

Future studies should determine why African Americans, females and students from families with low socioeconomic status have lower standardized math achievement scores than their counterparts. Specifically, longitudinal, retrospective and case research studies should determine the extent to which promotion of daily physical activity and the integration of this activity and mathematics increases standardized math achievement scores. Particular attention should be given to those research efforts utilizing comparative samples across different groups such as socio-economic status, gender and ethnicity.
Because of the importance of sport and physical activity in the lives of students, the scientific knowledge base regarding the physiological, psychological, sociological and mental health consequences of participation in these activities must be expanded. Future research should be conducted to develop and implementation of motivational strategies encouraging physical activity from early childhood into adulthood. Research should establish guidelines for appropriate training levels. When establishing these guidelines, scholars should consider areas that are particularly critical for children, such as the prevalence of overuse injuries and issues related to body composition. For example, specific guidelines for appropriate activity levels can prevent injuries due to excessive training and/or early specialization in one sport. Knowledge regarding appropriate levels of training can also minimize an undue focus on body image that can lead to exercise addiction. Research studies need to be designed that better distinguish between sport-specific or sport-general dropouts—versus sport transfers—to ascertain if students are leaving organized sports entirely or simply sampling a variety of sporting activities. These investigations should collect and analyze participation statistics and conduct exit interviews with children who drop out in order to identify negative reasons and address them in future programs.

Research agenda should become more inclusive. For example, future research must expand beyond an analysis of highly competitive sport to include a broader range of activities like personal fitness and physical education classrooms. Additionally, studies should include participants from racially, ethnically, economically diverse backgrounds because all these factors interact with each other in diverse and in complex ways. Research studies must utilize an interdisciplinary perspective. For example, we need to
adopt an approach that takes into account physical, psychological and social context variables simultaneously as well as predictors to foster better reading and science skills. We also need to develop teams of educators and coaches to enhance partnerships between scholars and practitioners.

Future research should be guided by the principle that strategies for improving participation rates must also address the quality of the sport and physical activity experience. Scientific studies should identify which factors influence exercise as treatment interventions. When using exercise as a treatment intervention to restore mental health for adolescents, we need to examine the impact of peer influences and individual versus group approaches.

And finally, research must address harsh economic conditions, prejudice and institutional barriers and the limiting effect they have on participation of many students living in poverty, females, and minority students. Ironically, where the real and potential health outcomes of physical activity and sport are probably most needed, participation rates and access to resources are most restricted. These specific groups face economic barriers that limit opportunities to develop physically active lifestyles and research studies would be well served to determine what these factors are and how to overcome them.

Conclusion

This dissertation was designed to determine if specified factors are positively associated with the dependent variable; students’ standardized math achievement scores. The independent variables considered were extracurricular activity participation, ethnicity, SES, gender, student attitudes towards math achievement and self-concept. The
data was compiled using 15,362 United States high school sophomores who represent a national sample of 10th graders in the ELS: 2002 and 78 sophomore students in a school district in a southeastern state for the fall semester of the 2006-2007 school year. This study disaggregated the data to determine if the independent variables could be positively associated with participation in extracurricular and interscholastic activities and higher standardized math achievement scores. In previous studies, ethnicities, gender, and levels of socioeconomic status have not been specifically compared to participation in extracurricular and interscholastic activities.

Other research studies have compared extracurricular activity participation to achievement and other positive areas of student life such as high attendance rates, low drop-out rates, and positive self-concept. Research also links participation in extracurricular activities to less involvement in risky behaviors. The present dissertation supports a statistically significant positive correlation between academic achievement in mathematics and participation in extracurricular and interscholastic activities. Other results of the study showed the self-confidence composite proved the strongest indicator of achievement in mathematics, while the ethnic Hispanic classification proved to be the weakest. Being female, African American, a member of the lowest and second SES quartiles, and the math attitudes composite variables were associated with lower standardized math achievement scores while being male, American Indian, Asian, Hispanic, multi-racial, white, and a member of the highest SES quartiles, hours per week spent on extracurricular and interscholastic activities, and the self-confidence composite variable were associated with higher standardized math achievement scores.

Finally, the results of the data analyses of the present study were compared to
other research studies. Limitations of the current research analyses were presented and recommendations for policy and future research projects were suggested.
APPENDIX A

EDUCATION LONGITUDINAL STUDY OF 2002

STUDENT QUESTIONNAIRE
Base Year
10th Grade

Sponsored by:
U.S. Department of Education
National Center for Education Statistics

Conducted by:
RTI

USES OF THE DATA

The data from this survey will be used by educators and by federal and state policy makers to address important issues facing the nation's schools: educational standards, high school course-taking patterns, dropping out of school, the education of the disadvantaged, the needs of language minority students, and the features of effective schools.

ASSURANCE OF CONFIDENTIALITY

The collection of information in this survey is authorized by Public Law 100-297 and continued under the auspices of Section 404(a) of the National Education Statistics Act of 1994, Title IV of the Improving America's Schools Act of 1994, Public Law 103-382. Participation is voluntary. You may skip questions you do not wish to answer; however, we hope that you will answer as many questions as you can. The information you provide will be kept confidential, and will be protected to the fullest extent allowable under law. Information will be protected from disclosure by federal statute (20 USC 9003a-9007, as amended). Data will be combined to produce statistical reports. No individual data that links your name, address, telephone number, or identification number with your responses will be reported.
According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless such collection displays a valid OMB control number. The valid OMB control number for this information collection is 1850-0652. The time required to complete this information collection is estimated to average 45 minutes per response, including the time to review instructions, search existing data resources, gather the data needed, and complete and review the information collection. If you have any comments concerning the accuracy of the time estimate(s) or suggestions for improving this form, please write to: U.S. Department of Education, Washington, D.C. 20202-4651. If you have comments or concerns regarding the status of your individual submission of this form, write directly to: National Center for Education Statistics, ESLSD, 1990 K Street, N.W., Washington, D.C. 20006.

Educational Organizations That Have Endorsed ELS:2002

American Association of School Administrators
American Association of School Librarians
American Federation of Teachers
Council of Chief State School Officers
Council of the Great City Schools
National Association of Independent Schools
National Association of Secondary School Principals
National Catholic Educational Association Department of Secondary Schools
National Education Association
National Parent Teacher Association
National Resource Center for Safe Schools
National School Boards Association
National School Safety Center
MARKING DIRECTIONS

PLEASE READ CAREFULLY AND USE A SOFT LEAD (#2) PENCIL TO COMPLETE THIS QUESTIONNAIRE.

FILLING IN CIRCLES:

It is important that you completely fill in the circles next to your answers and print clearly.

Shown below is the correct way to mark your answers, along with examples of incorrect ways.

Correct Mark:
Dark and thick, circle completely filled

Incorrect Marks:
Light and thin

PRINTING NUMBERS IN BOXES:

Print one number per box. The numbers should be printed with solid connected lines and should not touch or cross any of the box lines. Do not cross zeroes or sevens.

Write digits like this:

Do not write digits like this:

KEY FOR MONTHS:

01 = January
02 = February
03 = March
04 = April
05 = May
06 = June
07 = July
08 = August
09 = September
10 = October
11 = November
12 = December
GENERAL INSTRUCTIONS

PLEASE READ EACH QUESTION CAREFULLY. It is important that you follow the directions for responding to each kind of question. Here are examples of the five types of items:

I. MARK ONE RESPONSE

1. What is the color of your eyes?
   
   (MARK ONE RESPONSE)
   
   - Brown
   - Blue
   - Green
   - Another color

II. MARK ALL THAT APPLY

2. Last week, did you do any of the following?
   
   (MARK ALL THAT APPLY)
   
   - Saw a play
   - Went to a movie
   - Attended a sporting event
   - None of the above

III. MARK ONE RESPONSE ON EACH LINE

3. Do you plan to do any of the following next week?
   
   (MARK ONE RESPONSE ON EACH LINE)
   
   a. Study at a friend's house
   b. Go to a museum
   c. Visit a relative

   Yes No Don't know
   
   -
   -
   -
   -
   -
   -

   If you plan to study at a friend's house, do not plan to go to a museum, and do not plan to visit a relative, you would mark one circle on each line as shown.
IV. MARK ONE RESPONSE IN EACH COLUMN

4. What is your favorite color and your best friend’s favorite color?

(MARK ONE RESPONSE IN EACH COLUMN)

<table>
<thead>
<tr>
<th>Your favorite color</th>
<th>Your best friend’s favorite color</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue</td>
<td>⬗</td>
</tr>
<tr>
<td>Green</td>
<td>⬗</td>
</tr>
<tr>
<td>Yellow</td>
<td>⬗</td>
</tr>
<tr>
<td>Purple</td>
<td>⬗</td>
</tr>
<tr>
<td>None of the above</td>
<td>⬗</td>
</tr>
</tbody>
</table>

If you like blue best and your best friend likes yellow best, you would mark one circle in each column as shown.

V. QUESTION WITH A SKIP

5. Do you eat sweet foods?

(MARK ONE RESPONSE)

☐ Yes → (GO TO QUESTION 6)
☒ No → (SKIP TO QUESTION 7)

6. Do you brush your teeth after eating sweet foods?

(MARK ONE RESPONSE)

☐ Yes
☒ No

7. Last week, did you do any of the following?

(MARK ALL THAT APPLY)

☐ Attend a sporting event
☐ Go to a movie
☒ None of the above

If you did not attend a sporting event or go to a movie last week, you would mark none of the above.

THIS IS THE END OF THE EXAMPLES.
THIS QUESTIONNAIRE IS NOT A TEST.

WE HOPE YOU WILL ANSWER EVERY QUESTION (OTHER THAN THE ONES YOU ARE DIRECTED TO SKIP OVER), BUT YOU MAY SKIP ANY QUESTION YOU DO NOT WISH TO ANSWER.

PLEASE GO TO THE NEXT PAGE TO BEGIN THE QUESTIONNAIRE.
PART I: INFORMATION FOR FUTURE FOLLOW-UP

_ 1. Please print your name, address, home telephone number, and e-mail address.

Name:

Last Name                   First Name                   MI

Address (include number, street, apartment number, P.O. Box, etc):

Address Line 1

Address Line 2

City                     State                     Zip code

Telephone:

(_________}  O I do not have a telephone

Area code   Telephone number

E-mail address:

O I do not have an e-mail address

WHEN WE SAY PARENT(S), MOTHER, OR FATHER, ANSWER FOR THE PARENT, GUARDIAN, OR STEPPARENT WITH WHOM YOU LIVE MOST OF THE TIME.

_ 2. Please fill in your mother's name in the space below. If you have both a mother and a female guardian, write in the name of the one you live with most of the time.

Name:

Last Name                   First Name                   MI
3. Is her address and telephone number the same as yours?

(MARK ONE RESPONSE)

- No → (GO TO QUESTION 4)
- Yes → (SKIP TO QUESTION 5)
- She is no longer living → (SKIP TO QUESTION 6)

4. Please fill in her address and telephone number in the space below. If you don't know the complete address, fill in as much as you know.

Address (include number, street, apartment number, P.O. Box, etc):

<table>
<thead>
<tr>
<th>Address Line 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address Line 2</td>
</tr>
<tr>
<td>City</td>
</tr>
</tbody>
</table>

- I don't know any of her address

Home Telephone:

(______)  (______)  (______)  (______)

Area code  Telephone number  

- She does not have a telephone
- I don't know her phone number

5. What is her work phone number?

Work Telephone:

(______)  (______)  (______)  (______)

Area code  Telephone number  Extension

- She does not work
- I don't know the number
6. Please fill in your father's name in the space below. If you have both a father and a male guardian, write in the name of the one you live with most of the time.

Name:

Last Name  First Name  MI

7. Is his address and telephone number the same as yours?

(MARK ONE RESPONSE)

☐ No  →  (GO TO QUESTION 8)
☐ Yes  →  (SKIP TO QUESTION 9)
☐ He is no longer living  →  (SKIP TO QUESTION 10 ON PAGE 4)

8. Please fill in his address and telephone number in the space below. If you don't know the complete address, fill in as much as you know.

Address (include number, street, apartment number, P.O. Box, etc):

Address Line 1

Address Line 2

City  State  Zip code

☐ I don't know any of his address

Home Telephone:

(  )

Area code  Telephone number

☐ He does not have a telephone

☐ I don't know his phone number

9. What is his work phone number?

Work Telephone:

(  )

Area code  Telephone number  Extension

☐ He does not work

☐ I don't know the number
10. Please write in the name, address, and telephone number of a relative or close friend who does not live with you and who will always know how to contact you.

Name:

<table>
<thead>
<tr>
<th>Last Name</th>
<th>First Name</th>
<th>MI</th>
</tr>
</thead>
</table>

Address (include number, street, apartment number, P.O. Box, etc). If you don't know the complete address, fill in as much as you know.

Address Line 1

Address Line 2

City State Zip code

☐ I don't know any of his/her address

Telephone:

☐ This person does not have a telephone

☐ I don't know his/her phone number

Area code Telephone number

11. What is this person's relationship to you?
(MARK ONE RESPONSE)

☐ A parent

☐ A grandparent

☐ An aunt or uncle

☐ A brother or sister

☐ A friend

☐ Other

12. Do you have a nickname?

☐ Yes → (WRITE IN NICKNAME) 

☐ No
13. When were you born?

<table>
<thead>
<tr>
<th>Month</th>
<th>Day</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>19</td>
</tr>
</tbody>
</table>

14. What is your sex?

- Male
- Female

15. Are you Hispanic or Latino/Latina?

- Yes → (GO TO QUESTION 16)
- No → (SKIP TO QUESTION 17)

16. If you are Hispanic or Latino/Latina, which one of the following are you?

(MARK ONE RESPONSE)

- Mexican, Mexican-American, Chicano
- Cuban
- Dominican
- Puerto Rican
- Central American (Guatemalan, Salvadoran, Nicaraguan, Costa Rican, Panamanian, Honduran)
- South American (Colombian, Argentinian, Peruvian, etc.)

17. Please select one or more of the following choices to best describe your race.

(MARK ALL THAT APPLY)

- White
- Black/African American
- Asian
- Native Hawaiian or Other Pacific Islander
- American Indian or Alaska Native

→ IF YOU DID NOT MARK ASIAN, SKIP TO THE INSTRUCTION BOX BEFORE QUESTION 19 ON PAGE 6.

→ IF YOU MARKED ASIAN, GO TO QUESTION 18 ON PAGE 6.
18. If you marked Asian in question 17, which one of the following are you?

(MARK ONE RESPONSE)

- Chinese
- Filipino
- Japanese
- Korean
- Southeast Asian (Vietnamese, Lao, Cambodian/Kampucheans, Thai, Burmese)
- South Asian (Asian Indian, Bangladeshi, Sri Lankan)

QUESTION 19, LIKE ALL ITEMS IN THIS QUESTIONNAIRE, IS VOLUNTARY. WE HOPE YOU WILL ANSWER EVERY QUESTION, BUT YOU MAY SKIP ANY QUESTION YOU DO NOT WISH TO ANSWER.

19. What is your social security number?

[ ] [ ] [ ] - [ ] [ ] [ ] [ ]

- I don't know my social security number
20. How much do you agree or disagree with each of the following statements about your current school and teachers? (MARK ONE RESPONSE ON EACH LINE)

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Students get along well with teachers</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>b. There is real school spirit</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>c. Students make friends with students of other racial and ethnic groups</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>d. Other students often disrupt class</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>e. The teaching is good</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>f. Teachers are interested in students</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>g. When I work hard on schoolwork, my teachers praise my effort</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>h. In class I often feel &quot;put down&quot; by my teachers</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>i. In class I often feel &quot;put down&quot; by other students</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>j. I don't feel safe at this school</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>k. Disruptions by other students get in the way of my learning</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>l. Misbehaving students often get away with it</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>m. There are gangs in school</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>n. Fights often occur between different racial/ethnic groups</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

21. Thinking about your school over the last year, how much do you agree or disagree with the following statements? (MARK ONE RESPONSE ON EACH LINE)

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Everyone knows what the school rules are</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>b. The school rules are fair</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>c. The punishment for breaking school rules is the same no matter who you are</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>d. The school rules are strictly enforced</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>e. If a school rule is broken, students know what kind of punishment will follow</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
22. In the first semester or term of this school year, how many times did any of the following happen?

(MARK ONE RESPONSE ON EACH LINE)

<table>
<thead>
<tr>
<th>Event</th>
<th>Never</th>
<th>Once or twice</th>
<th>More than twice</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. I had something stolen from me at school</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Someone offered to sell me drugs at school</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Someone threatened to hurt me at school</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. I got into a physical fight at school</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Someone hit me</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Someone used strong-arm or forceful methods to get money or things from me</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. Someone purposely damaged or destroyed my belongings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. Someone bullied me or picked on me</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

23. Since starting ninth grade, did you win any of the following awards or were you recognized at school for doing well or participating in certain activities?

(MARK ONE RESPONSE ON EACH LINE)

<table>
<thead>
<tr>
<th>Award</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Won an academic honor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Received special recognition for good attendance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Received special recognition for good grades or honor roll</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Received a community service award</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Participated in a science, math or technology fair</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Vocational/technical skills competition (e.g., DECA, VICA, FFA, FHA)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

24. How many times did the following things happen to you in the first semester or term of this school year?

(MARK ONE RESPONSE ON EACH LINE)

<table>
<thead>
<tr>
<th>Event</th>
<th>Never</th>
<th>1-2 times</th>
<th>3-6 times</th>
<th>7-9 times</th>
<th>10 or more times</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. I was late for school</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. I cut or skipped classes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. I was absent from school</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. I got in trouble for not following school rules</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. I was put on in-school suspension</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. I was suspended or put on probation for disciplinary reasons</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. I was transferred to another school for disciplinary reasons</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
25. Please write down the names of your best friends at your present school. Please fill in up to three names. If you have fewer close friends, provide less than three names. Then for each friend you named, answer questions 25a through 25g.

<table>
<thead>
<tr>
<th>Friend 1</th>
<th>Friend 2</th>
<th>Friend 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Name</td>
<td>First Name</td>
<td>First Name</td>
</tr>
<tr>
<td>Last Initial</td>
<td>Last Initial</td>
<td>Last Initial</td>
</tr>
</tbody>
</table>

a. Is this friend...?
- Male
- Female

b. Is this friend Hispanic or Latino/Latina?
- Yes
- No

c. What is this friend's race? (MARK ALL THAT APPLY FOR EACH FRIEND)
- White
- Black/African American
- Asian
- Native Hawaiian or other Pacific Islander
- American Indian or Alaska Native
- Native Hawaiian or other Pacific Islander
- American Indian or Alaska Native

D. What grade is this friend in at your school? (MARK ONE RESPONSE FOR EACH FRIEND)
- 8th
- 9th
- 10th
- 11th
- 12th
- Other

E. How important is getting good grades to this friend? (MARK ONE RESPONSE FOR EACH FRIEND)
- Not at all important
- Somewhat important
- Very important

F. Do you know either or both of this friend's parents?
- Yes
- No

G. Does your mother or father know either or both of this friend's parents?
- Yes
- No
26. If you had to limit yourself to one of the following three choices, which comes nearest to describing your high school program?

(MARK ONE RESPONSE)

○ General
○ College Preparatory (academic)
○ Vocational (including technical or business)

27. How much do you agree or disagree with the following statements about why you go to school?

(MARK ONE RESPONSE ON EACH LINE)

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. I go to school because I think the subjects I'm taking are interesting and challenging</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>b. I go to school because I get a feeling of satisfaction from doing what I'm supposed to do in class</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>c. I go to school because I have nothing better to do</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>d. I go to school because education is important for getting a job later on</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>e. I go to school because it's a place to meet my friends</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>f. I go to school because I play on a team or belong to a club</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>g. I go to school because I'm learning skills that I will need for a job</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>h. I go to school because my teachers expect me to succeed</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>i. I go to school because my parents expect me to succeed</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

28. How much do you like school?

(MARK ONE RESPONSE)

○ Not at all
○ Somewhat
○ A great deal
29. In your current or most recent mathematics class, how often do/did you...

(MARK ONE RESPONSE ON EACH LINE)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Never</th>
<th>Rarely</th>
<th>Less than once a week</th>
<th>Once or twice a week</th>
<th>Every day or almost every day</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Review the work from the previous day</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>b. Listen to the teacher lecture</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>c. Copy the teacher's notes from the board</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>d. Use books other than textbooks</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>e. Do word problems or problem solving activities</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>f. Use calculators</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>g. Use graphing calculators</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>h. Use computers</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>i. Explain your work to the class orally</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>j. Participate in student-led discussions</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

30. Do/did you use computers in your current or most recent math class?

- Yes → (GO TO QUESTION 31)
- No → (SKIP TO QUESTION 32 ON PAGE 12)

31. In your current or most recent mathematics class, how often do/did you use computers in the following ways?

(MARK ONE RESPONSE ON EACH LINE)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Never</th>
<th>Rarely</th>
<th>Less than once a week</th>
<th>Once or twice a week</th>
<th>Every day or almost every day</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Review work from the previous day</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>b. Do word problems or problem solving activities</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>c. For graphing</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>d. To practice math drills</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>e. To analyze data</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>f. To apply what was learned in class to new situations or problems</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>g. The teacher uses/used the computer to instruct us individually</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>h. The teacher uses/used the computer to demonstrate new topics in mathematics</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>
32. Please indicate if you used or are using a computer in class for the following subjects in 9th and 10th grade.

<table>
<thead>
<tr>
<th>Used computer in 9th grade?</th>
<th>Used computer in 10th grade?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>a. 1st semester/term English</td>
<td></td>
</tr>
<tr>
<td>b. 2nd semester/term English</td>
<td></td>
</tr>
<tr>
<td>c. 1st semester/term science</td>
<td></td>
</tr>
<tr>
<td>d. 2nd semester/term science</td>
<td></td>
</tr>
<tr>
<td>e. 1st semester/term math</td>
<td></td>
</tr>
<tr>
<td>f. 2nd semester/term math</td>
<td></td>
</tr>
<tr>
<td>g. 1st semester/term social studies</td>
<td></td>
</tr>
<tr>
<td>h. 2nd semester/term social studies</td>
<td></td>
</tr>
</tbody>
</table>

33. Have you ever been in any of the following kinds of courses or programs in high school?

(MARK ONE RESPONSE ON EACH LINE)

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Advanced Placement (AP)</td>
<td></td>
</tr>
<tr>
<td>b. International Baccalaureate (IB)</td>
<td></td>
</tr>
<tr>
<td>c. Courses or a program which you take at a separate area or regional vocational school part-time</td>
<td></td>
</tr>
<tr>
<td>d. Remedial English</td>
<td></td>
</tr>
<tr>
<td>e. Remedial math</td>
<td></td>
</tr>
<tr>
<td>f. Bilingual or bicultural education</td>
<td></td>
</tr>
<tr>
<td>g. English as a Second Language (ESL)</td>
<td></td>
</tr>
<tr>
<td>h. Dropout prevention, Alternative or Stay-in-School Program</td>
<td></td>
</tr>
<tr>
<td>i. Special Education Program</td>
<td></td>
</tr>
<tr>
<td>j. Course via distance learning</td>
<td></td>
</tr>
<tr>
<td>k. Career academy</td>
<td></td>
</tr>
<tr>
<td>l. Special program to help students plan or prepare for college</td>
<td></td>
</tr>
</tbody>
</table>

34. Overall, about how much time do you spend on homework each week, both in and out of school?

<table>
<thead>
<tr>
<th>Total time spent on homework: All subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>In school</td>
</tr>
<tr>
<td>hours</td>
</tr>
</tbody>
</table>
35. In your current math course, about how much time do you spend on homework each week, both in and out of school?

Out of school

O I am not taking a math class

36. In your current English course, about how much time do you spend on homework each week, both in and out of school?

O I am not taking an English class

37. How important are good grades to you?

(MARK ONE RESPONSE)

O Not important
O Somewhat important
O Important
O Very important

38. How often do you come to class without these things?

(MARK ONE RESPONSE ON EACH LINE)

a. Pencil/pen or paper
b. Books
c. Homework done

Never Seldom Often Usually
39. For the following items, intramural means competition between teams or students within the same school. For each sport listed below, indicate whether you participated on an intramural team in this sport during this school year.

(MARK ONE RESPONSE ON EACH LINE)

<table>
<thead>
<tr>
<th>School does not have intramural team</th>
<th>Did not participate</th>
<th>Participated in intramural sports</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Baseball</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Softball</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Basketball</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Football</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Soccer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Other team sport</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. An individual sport (e.g., wrestling, golf, tennis)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. Cheerleading, Pompon, (Pompon), or Drill Team</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

40. For the following items, interscholastic means competition between teams from different schools. For each sport listed below, indicate whether you have participated on an interscholastic team during this school year.

(MARK ALL THAT APPLY)

<table>
<thead>
<tr>
<th>School does not have interscholastic team</th>
<th>Did not participate</th>
<th>Participated on a junior varsity team</th>
<th>Participated on a varsity team</th>
<th>Participated as a varsity team captain/co-captain</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Baseball</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Softball</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Basketball</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Football</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Soccer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Other team sport</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. An individual sport (e.g., wrestling, golf, tennis)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. Cheerleading, Pompon, (Pompon), or Drill Team</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
41. Have you participated in the following school-sponsored activities this school year?

(MARK ONE RESPONSE ON EACH LINE)

   |   |   |
---|---|---|
Yes | No |
---|---|
   |   |
a. Band, orchestra, chorus, choir | o | o |
b. School play or musical | o | o |
c. Student government | o | o |
d. National Honor Society (NHS) or other academic | o | o |
   |   |
honor society |
---|---|
e. School yearbook, newspaper, literary magazine | o | o |
f. Service club | o | o |
g. Academic club | o | o |
h. Hobby club | o | o |
i. Vocational education club, vocational student | o | o |
   |   |
organization (e.g., DECA, VICA, FFA, FHA) |
---|---|

42. In a typical week, how much time do you spend on school-sponsored extracurricular activities (for example, sports, school clubs)?

        hours

43. How much additional reading do you do each week on your own outside of school - not in connection with schoolwork? (Do not count any school-assigned reading.)

        hours

44. How often do you spend time on the following activities outside of school?

(MARK ONE RESPONSE ON EACH LINE)

         | Rarely or | Less than | Once or | Every day
  |   | never     | once a week | twice a week | or almost every day
---|---|---|---|---|
   |   |   |   |   |
a. Visiting with friends at a hangout | o | o | o | o |
b. Working on hobbies, arts, crafts | o | o | o | o |
c. Volunteering or performing community service | o | o | o | o |
d. Driving or riding around | o | o | o | o |
e. Talking with friends on the telephone | o | o | o | o |
f. Taking classes: music, art, language, dance | o | o | o | o |
g. Taking sports lessons | o | o | o | o |
h. Playing non-school sports | o | o | o | o |
45. Whether at home, school, or some place else, how often do you use a computer ...  

(MARK ONE RESPONSE ON EACH LINE)

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Rarely</th>
<th>Less than once a week</th>
<th>Once or twice a week</th>
<th>Every day or almost every day</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. for fun, such as talking to friends or relatives through E-mail, playing games, surfing the Internet, or listening to music?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>b. for school work or assignments?</td>
<td>○</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>○</td>
</tr>
<tr>
<td>c. as a resource to learn things of interest to you on your own?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>□</td>
<td>○</td>
</tr>
</tbody>
</table>

46. How many hours a day do you usually use a computer...

a. for school work?  

[ ] hours  

b. other than for school work?  

[ ] hours

47. How often do you use a computer...

(MARK ONE RESPONSE ON EACH LINE)

<table>
<thead>
<tr>
<th></th>
<th>No computer</th>
<th>Never</th>
<th>Less than once a week</th>
<th>Once or twice a week</th>
<th>Every day or almost every day</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. at home?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>b. at school?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>c. at the public library (for activities other than catalog searches)?</td>
<td>○</td>
<td>○</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>d. at a friend's house?</td>
<td>○</td>
<td>□</td>
<td>○</td>
<td>□</td>
<td>○</td>
</tr>
<tr>
<td>e. at another place?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>

48. During the school year, how many hours a day do you usually watch TV or videotapes/DVDs?

Watch TV or videotapes/DVD

<table>
<thead>
<tr>
<th></th>
<th>Weekdays</th>
<th>Weekends</th>
</tr>
</thead>
<tbody>
<tr>
<td>hours</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

O I don't watch TV or videotapes/DVD

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49. During the school year, how many hours a day do you usually play video or computer games such as Nintendo or Play Station?

<table>
<thead>
<tr>
<th>Play video or computer games</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekdays</td>
</tr>
<tr>
<td>□ hours</td>
</tr>
<tr>
<td>Weekends</td>
</tr>
<tr>
<td>□ hours</td>
</tr>
<tr>
<td>I don't play video or computer games</td>
</tr>
</tbody>
</table>

50. Does your school have a library or library media or resource center?

- Yes → (GO TO QUESTION 51)
- No → (SKIP TO QUESTION 54 ON PAGE 18)

51. How often do you use your school library media center for any of the following activities?

(MARK ONE RESPONSE ON EACH LINE)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Course assignments</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. In-school projects</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Homework (assignments to be completed outside of class time)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Research papers</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Leisure reading</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Read magazines or newspapers</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. Read books for fun</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. Learn about things that are not course-related, such as sports, hobbies, people or music</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. Use the Internet</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

52. How useful are the reference materials (books, magazines, newspapers, Internet resources, and databases) available from the school library media center in helping you do your class assignments and research?

(MARK ONE RESPONSE)

- Very useful
- Useful
- Not useful
- Don't use the school library
53. How helpful is the school library staff with the following?

(MARK ONE RESPONSE ON EACH LINE)

<table>
<thead>
<tr>
<th></th>
<th>Very helpful</th>
<th>Helpful</th>
<th>Not helpful</th>
<th>Don't use the school library</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Helping you find books, magazines and newspaper articles on a research topic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Helping you use online databases or CD-ROMs for research</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Helping you use the Internet for research</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PART III: PLANS FOR THE FUTURE

54. How important is each of the following to you in your life?

(MARK ONE RESPONSE ON EACH LINE)

<table>
<thead>
<tr>
<th></th>
<th>Not important</th>
<th>Somewhat important</th>
<th>Very important</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Being successful in my line of work</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Finding the right person to marry and having a happy family life</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Having lots of money</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Having strong friendships</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Being able to find steady work</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Helping other people in my community</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. Being able to give my children better opportunities than I've had</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. Living close to parents and relatives</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. Getting away from this area of the country</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>j. Working to correct social and economic inequalities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>k. Having children</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>l. Having leisure time to enjoy my own interests</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>m. Item deleted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n. Becoming an expert in my field of work</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o. Getting a good education</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
55. Have you taken or are you planning to take any of the following tests in the next two years?

(MARK ONE RESPONSE ON EACH LINE)

<table>
<thead>
<tr>
<th>I haven't thought about it</th>
<th>No</th>
<th>Yes, this year</th>
<th>Yes, next year</th>
<th>Yes, in 12th grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Pre-SAT test (PSAT) or Preliminary American College Testing Test (PACT)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. College Board Scholastic Assessment Test (SAT) or American College Testing Service (ACT)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Advanced Placement (AP) test</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Armed Services Vocational Aptitude Battery (ASVAB)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

56. As things stand now, how far in school do you think you will get?

(MARK ONE RESPONSE)

Less than high school graduation (GO TO QUESTION 57)
High school graduation or GED only (GO TO QUESTION 57)
Attend or complete a 2-year school course in a community or vocational school
Attend college, but not complete a 4-year degree
Graduate from college
Obtain a Master's degree or equivalent
Obtain a Ph.D., M.D., or other advanced degree
Don't know (GO TO QUESTION 62)

57. Do you plan to continue your education right after high school or at some time in the future?

(MARK ONE RESPONSE)

Yes, right after high school (GO TO QUESTION 58)
Yes, after staying out of school for one year (GO TO QUESTION 58)
Yes, after staying out of school for over a year
Yes, but I don't know when
No, I don't plan to continue my education after high school (SKIP TO QUESTION 62)
I don't know if I will continue my education after high school (SKIP TO QUESTION 63)

58. Which of the following do you plan to attend?

(MARK ONE RESPONSE)

Four-year college or university
Two-year community college
Vocational, technical or trade school
59. Where have you gone for information about the entrance requirements of various colleges?

(MARK ALL THAT APPLY)
- Guidance counselor
- Teacher
- Coach
- Parent
- Friend
- Brother or sister
- Other relative
- College publications or websites
- College representatives
- College search guides, publications, or websites
- None of the above

60. Would you like to participate in athletics (not intramurals) at the collegiate level?

- Yes → (GO TO QUESTION 61)
- No → (SKIP TO QUESTION 63)

61. Do you hope to receive an athletic scholarship to pay for all or part of your college expenses?

- Yes → (SKIP TO QUESTION 63)
- No → (SKIP TO QUESTION 63)

62. Which of the following are reasons why you have decided NOT to continue your education past high school?

(MARK ONE RESPONSE ON EACH LINE)
- Yes
- No

- a. I do not like school
- b. My grades are not high enough
- c. I will not need more education for the career I want
- d. I cannot afford to go on to school
- e. I'd rather work and make money than go to school
- f. I plan to be a full-time homemaker
- g. I do not feel that going to school is important
- h. I need to help support my family

63. Write in the name of the job or occupation that you expect or plan to have right after high school.

- I don't plan to work right after high school
- I don't know
64. Write in the name of the job or occupation that you expect or plan to have at age 30.

__________________________

○ I don't plan to work when I'm 30
○ I don't know

WHEN WE SAY PARENT(S), MOTHER, OR FATHER, ANSWER FOR THE PARENT, GUARDIAN, OR STEPPARENT WITH WHOM YOU LIVE MOST OF THE TIME.

65. How far in school do you think your mother and father want you to go?

(MARK ONE RESPONSE IN EACH COLUMN)

<table>
<thead>
<tr>
<th></th>
<th>Mother</th>
<th>Father</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than high school graduation</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>High school graduation or GED only</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Attend or complete a 2-year school course in a community or vocational school</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Attend college, but not complete a 4-year degree</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Graduate from college</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Obtain a Master's degree or equivalent</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Obtain a Ph.D., M.D., or other advanced degree</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Don't know</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Does not apply</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

66. What do the following people think is the most important thing for you to do right after high school?

(MARK ONE RESPONSE ON EACH LINE)

<table>
<thead>
<tr>
<th></th>
<th>Does not apply</th>
<th>Go to college</th>
<th>Enter a trade</th>
<th>Enter a full-time job</th>
<th>Enter an apprenticeship</th>
<th>Enter military service</th>
<th>Get married</th>
<th>They think I should do what I want</th>
<th>They don't care</th>
<th>I don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Your mother</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>b. Your father</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>c. Your friends</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>d. A close relative</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>e. School counselor</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>f. Your favorite teacher</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>g. Coach</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
PART IV: LANGUAGE

67. Is English your native language (the first language you learned to speak when you were a child)?

- Yes —> (SKIP TO QUESTION 71 ON PAGE 23)
- No —> (GO TO QUESTION 68)

68. What is your native language (the first language you learned to speak when you were a child)?

(MARK ONE RESPONSE)

- Spanish
- A Chinese language
- Japanese
- Korean
- A Filipino language
- Italian
- French
- German
- Greek
- Polish
- Arabic
- Farsi
- Urdu
- Hindi, Tamil or other Indian subcontinent language
- Portuguese
- Vietnamese
- Cambodian
- Other Southeast Asian language
- American Indian language
- Other

69. How often do you speak your native language with ... (IF ANY EXAMPLE DOES NOT APPLY TO YOU, PLEASE MARK "Does not apply.")

(MARK ONE RESPONSE ON EACH LINE)

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Sometimes</th>
<th>About half of the time</th>
<th>Always or most of the time</th>
<th>Does not apply</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. your mother?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. your father?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. your brothers and sisters?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. your friends?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
70. How well do you do the following? (MARK ONE RESPONSE ON EACH LINE)

a. Understand spoken English
   - Very well
   - Well
   - Not well
   - Not at all

b. Speak English
   - Very well
   - Well
   - Not well
   - Not at all

c. Read English
   - Very well
   - Well
   - Not well
   - Not at all

d. Write English
   - Very well
   - Well
   - Not well
   - Not at all

PART V: MONEY AND WORK

71. In which of the following work-based learning experiences have you participated during high school? (MARK ALL THAT APPLY)

- Cooperative education (work experience that is part of a vocational class and for which you earn class credit)
- Internship (work experience arranged by your school, but not necessarily part of a vocational class)
- Job shadowing or work-site visits (school-arranged visits to work places to observe one worker or many workers)
- Mentoring (a school-arranged match with an adult in your career area for advice and support)
- Community service (volunteer work arranged by your school to support your local community)
- School-based enterprise (working in a business run by students or teachers from your school)
- None of these

72. Have you ever worked for pay, not counting work around the house? (MARK ONE RESPONSE)

- No → (SKIP TO INSTRUCTION BOX BEFORE QUESTION 81 ON PAGE 25)
- Yes, and I am currently employed → (SKIP TO QUESTION 74 ON PAGE 24)
- Yes, but I am not currently employed → (GO TO QUESTION 73)

73. When did you last work for pay, not counting work around the house?

<table>
<thead>
<tr>
<th>Month</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
74. When did you start your current or most recent job?

[Month] [Year]

75. How many hours do/did you usually work each week on your current or most recent job?

[ ] [ ] hours

76. How many of those hours each week are/were on the weekend (Saturday or Sunday)?

Weekends (Saturday or Sunday)

[ ] [ ] hours

77. What kind of work do/did you do for pay on your current job or most recent job? (If you have two or more jobs, answer for the job that pays the most per hour. Do not include work around your own house.)

(MARK ONE RESPONSE)

○ Fast food worker, waiter/waitress, host/hostess, dishwasher/busboy
○ Babysitter or child care
○ Cashier, grocery clerk/bagger
○ Salesperson, customer service
○ Lawn work or odd jobs
○ Camp counselor, lifeguard, coach, umpire, or referee
○ Farm worker
○ Construction work
○ Computer related job (e.g., repair, Web-design, network installation)
○ General office or clerical worker
○ Warehouse worker
○ House cleaning or janitorial work
○ Hospital or health worker
○ Beautician, hair stylist, barber
○ Other

78. Item deleted.
79. How did you get this job?

(MARK ONE RESPONSE)
- School-arranged co-op program
- Other assistance from school or teacher
- Family
- Friends
- Read an ad, sign or notice
- Placed an advertisement
- Other

80. Is this job related to the job you want to have when you have completed your education?

(MARK ONE RESPONSE)
- Closely related
- Somewhat related
- Not related at all

---

PART VI: FAMILY

WHEN WE SAY PARENT(S), MOTHER, OR FATHER, ANSWER FOR THE PARENT, GUARDIAN, OR STEPPARENT WITH WHOM YOU LIVE MOST OF THE TIME.

IN THE FOLLOWING QUESTIONS, "GUARDIAN(S)" MAY INCLUDE FOSTER PARENTS, LEGAL GUARDIANS, OR OTHER OLDER ADULTS LIVING IN YOUR HOUSEHOLD, SUCH AS GRANDPARENTS, WHO ARE RESPONSIBLE FOR YOU.

81. a. What kind of work does your mother normally do? That is, what is the job called? (If she is unemployed, retired, or disabled, answer for her most recent job. If she works more than one job, answer for the job you consider to be her major activity.)

- My mother/female guardian is a full-time homemaker → (GO TO QUESTION 82 ON PAGE 26)
- Does not apply → (GO TO QUESTION 82 ON PAGE 26)

OCCUPATION: ________________________________

b. What does she actually do in that job? That is, what are her main duties?

__________________________
82. a. What kind of work does your father normally do? That is, what is the job called? (If he is unemployed, retired, or disabled, answer for his most recent job. If he works more than one job, answer for the job you consider to be his major activity.)

- My father/male guardian is a full-time homemaker → (GO TO QUESTION 83)
- Does not apply → (GO TO QUESTION 83)

**OCCUPATION:**

b. What does he actually do in that job? That is, what are his main duties?


83. How far in school did your parents go? Indicate your mother's and father's highest level of education.

(MARK ONE RESPONSE IN EACH COLUMN)

<table>
<thead>
<tr>
<th></th>
<th>Mother (or female guardian)</th>
<th>Father (or male guardian)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did not finish high school</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Graduated from high school or equivalent (GED)</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Graduated from high school and attended a two-year school (such as a vocational or technical school, a junior college, or a community college), but did not complete a degree</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Graduated from a two-year school (such as a vocational or technical school, junior college, or a community college).</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Graduated from high school and went to college, but did not complete a four-year degree</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Graduated from college</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Completed a Master's degree or equivalent</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Completed a Ph.D., M.D., or other advanced professional degree</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Don't Know</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Does Not Apply</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
84. Does your family have the following in your home?

(MARK ONE RESPONSE ON EACH LINE)

<table>
<thead>
<tr>
<th>Have</th>
<th>Does not have</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. A daily newspaper</td>
<td>O</td>
</tr>
<tr>
<td>b. Regularly received magazine</td>
<td>O</td>
</tr>
<tr>
<td>c. A computer</td>
<td>O</td>
</tr>
<tr>
<td>d. Access to the Internet</td>
<td>O</td>
</tr>
<tr>
<td>e. DVD player</td>
<td>O</td>
</tr>
<tr>
<td>f. Electric dishwasher</td>
<td>O</td>
</tr>
<tr>
<td>g. Clothes dryer</td>
<td>O</td>
</tr>
<tr>
<td>h. More than 50 books</td>
<td>O</td>
</tr>
<tr>
<td>i. A room of your own</td>
<td>O</td>
</tr>
<tr>
<td>j. A fax machine</td>
<td>O</td>
</tr>
</tbody>
</table>

85. How often do your parents do the following?

(MARK ONE RESPONSE ON EACH LINE)

<table>
<thead>
<tr>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Check on whether you have done your homework</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>b. Help you with your homework</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>c. Give you privileges as a reward for good grades</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>d. Limit privileges because of poor grades</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>e. Require you to do work or chores</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>f. Limit the amount of time watching TV/playing video games</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>g. Limit the amount of time going out with friends on school nights</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

86. In the first semester or term of this school year, how often have you discussed the following with either or both of your parents or guardians?

(MARK ONE RESPONSE ON EACH LINE)

<table>
<thead>
<tr>
<th>Never</th>
<th>Sometimes</th>
<th>Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Selecting courses or programs at school</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>b. School activities or events of particular interest to you</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>c. Things you've studied in class</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>d. Your grades</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>e. Transferring to another school</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>f. Plans and preparation for ACT or SAT tests</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>g. Going to college</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>h. Community, national and world events</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>i. Things that are troubling you</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>
87. How much do you agree or disagree with the following statements?

(MARK ONE RESPONSE ON EACH LINE)

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Circle" /></td>
<td><img src="image" alt="Circle" /></td>
<td><img src="image" alt="Circle" /></td>
<td><img src="image" alt="Circle" /></td>
</tr>
<tr>
<td>a. When I do mathematics, I sometimes get totally absorbed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><img src="image" alt="Circle" /></td>
<td><img src="image" alt="Circle" /></td>
<td><img src="image" alt="Circle" /></td>
<td><img src="image" alt="Circle" /></td>
</tr>
<tr>
<td>b. Because reading is fun, I wouldn't want to give it up</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><img src="image" alt="Circle" /></td>
<td><img src="image" alt="Circle" /></td>
<td><img src="image" alt="Circle" /></td>
<td><img src="image" alt="Circle" /></td>
</tr>
<tr>
<td>c. Because doing mathematics is fun, I wouldn't want to give it up</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><img src="image" alt="Circle" /></td>
<td><img src="image" alt="Circle" /></td>
<td><img src="image" alt="Circle" /></td>
<td><img src="image" alt="Circle" /></td>
</tr>
<tr>
<td>d. I read in my spare time</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><img src="image" alt="Circle" /></td>
<td><img src="image" alt="Circle" /></td>
<td><img src="image" alt="Circle" /></td>
<td><img src="image" alt="Circle" /></td>
</tr>
<tr>
<td>e. When I read, I sometimes get totally absorbed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><img src="image" alt="Circle" /></td>
<td><img src="image" alt="Circle" /></td>
<td><img src="image" alt="Circle" /></td>
<td><img src="image" alt="Circle" /></td>
</tr>
<tr>
<td>f. Mathematics is important to me personally</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><img src="image" alt="Circle" /></td>
<td><img src="image" alt="Circle" /></td>
<td><img src="image" alt="Circle" /></td>
<td><img src="image" alt="Circle" /></td>
</tr>
</tbody>
</table>

88. How much do you agree or disagree with the following statements?

(MARK ONE RESPONSE ON EACH LINE)

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Circle" /></td>
<td><img src="image" alt="Circle" /></td>
<td><img src="image" alt="Circle" /></td>
<td><img src="image" alt="Circle" /></td>
</tr>
<tr>
<td>a. Most people can learn to be good at math</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><img src="image" alt="Circle" /></td>
<td><img src="image" alt="Circle" /></td>
<td><img src="image" alt="Circle" /></td>
<td><img src="image" alt="Circle" /></td>
</tr>
<tr>
<td>b. You have to be born with the ability to be good at math</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><img src="image" alt="Circle" /></td>
<td><img src="image" alt="Circle" /></td>
<td><img src="image" alt="Circle" /></td>
<td><img src="image" alt="Circle" /></td>
</tr>
</tbody>
</table>
89. How often do these things apply to you?

**MARK ONE RESPONSE ON EACH LINE**

<table>
<thead>
<tr>
<th></th>
<th>Almost never</th>
<th>Sometimes</th>
<th>Often</th>
<th>Almost always</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>I'm confident that I can do an excellent job on my math tests</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>I'm certain I can understand the most difficult material presented in math texts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td>I'm certain I can understand the most difficult material presented in English texts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td>I study to get a good job</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td>When I sit myself down to learn something really hard, I can learn it</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td>I'm confident I can understand the most complex material presented by my English teacher</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td>When I study, I make sure that I remember the most important things</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h.</td>
<td>I study to increase my job opportunities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i.</td>
<td>I'm confident I can do an excellent job on my English assignments</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>j.</td>
<td>When studying, I try to work as hard as possible</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>k.</td>
<td>I'm confident I can do an excellent job on my English tests</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>l.</td>
<td>I'm confident I can understand the most complex material presented by my math teacher</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>m.</td>
<td>I'm certain I can master the skills being taught in my English class</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n.</td>
<td>If I decide not to get any bad grades, I can really do it</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o.</td>
<td>When studying, I keep working even if the material is difficult</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>p.</td>
<td>I study to ensure that my future will be financially secure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>q.</td>
<td>If I decide not to get any problems wrong, I can really do it</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>r.</td>
<td>I'm confident I can do an excellent job on my math assignments</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>s.</td>
<td>When studying, I try to do my best to acquire the knowledge and skills taught</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>t.</td>
<td>If I want to learn something well, I can</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>u.</td>
<td>I'm certain I can master the skills being taught in my math class</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>v.</td>
<td>When studying, I put forth my best effort</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
90. Among your close friends, how important is it to them that they ...

(MARK ONE RESPONSE ON EACH LINE)

<table>
<thead>
<tr>
<th></th>
<th>Not important</th>
<th>Somewhat important</th>
<th>Very important</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. attend classes regularly</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. study</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. play sports</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. get good grades</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. be popular/well-liked by others</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. finish high school</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. have a steady boyfriend/girlfriend</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. continue their education past high school</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. item deleted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>j. do community work or volunteering</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>k. have a regular job</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>l. get together with friends</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>m. go to parties</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n. item deleted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o. item deleted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>p. item deleted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>q. make money</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

91. Altogether, how many of your close friends have dropped out of school before graduating?
(Do not include those who have transferred to another school.)

(MARK ONE RESPONSE)

- None of them
- Some of them
- Most of them
- All of them

92. How much do you agree or disagree with the following statements?

(MARK ONE RESPONSE ON EACH LINE)

<table>
<thead>
<tr>
<th></th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. It is important that girls have the same opportunity to play sports as boys</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Some sports should be just for boys</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Girls should have equal access to sports, but through their own teams</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. For most sports, girls should have the opportunity to be on the same team with boys</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
93. Item deleted

94. Do you have close friends now who were also your friends when you were in 8th grade?
   O Yes
   O No

95. Item deleted
QUESTIONS 96 AND 97, LIKE ALL ITEMS IN THIS QUESTIONNAIRE, ARE VOLUNTARY. WE HOPE YOU WILL ANSWER THESE QUESTIONS, BUT YOU MAY SKIP ANY QUESTION YOU DO NOT WISH TO ANSWER.

96. During the past year, have you observed high school students placing bets on college or professional sporting events?
   - Yes → (GO TO QUESTION 97)
   - No → (SKIP TO QUESTION 98)

97. How were these bets placed?
   (MARK ALL THAT APPLY)
   - With friends
   - With family members
   - With a bookie
   - With an Internet website
   - Other

98. Please fill in today's date.

<table>
<thead>
<tr>
<th>Month</th>
<th>Day</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2002</td>
</tr>
</tbody>
</table>

THANK YOU FOR YOUR COOPERATION
APPENDIX B

Southeastern School District Student Questionnaire

1. In a typical week, how much time do you spend on school-sponsored extracurricular activities (for example, sports, school clubs)?

   Hours

2. How much do you agree or disagree with the following statements?

   (MARK ONE RESPONSE ON EACH LINE)

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
</table>
   a. When I do mathematics, I sometimes get totally absorbed | O     | O        | O                 | O                 |
   b. Because doing mathematics is fun, I wouldn't want to give it up | O     | O        | O                 | O                 |
   c. Mathematics is important to me personally | O     | O        | O                 | O                 |
3. Do you hope to receive an athletic scholarship to pay for all or part of your college expenses?

   ○ Yes
   ○ No

4. How often do these things apply to you?

(MARK ONE RESPONSE ON EACH LINE)

<table>
<thead>
<tr>
<th></th>
<th>Almost</th>
<th>Sometimes</th>
<th>Often</th>
<th>Almost</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. I'm confident that I can do an excellent job on my math tests</td>
<td></td>
<td></td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>b. I'm certain I can understand the most difficult material presented in math texts</td>
<td></td>
<td></td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>c. I'm confident I can understand the most complex material presented by my math teacher</td>
<td></td>
<td></td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>d. I'm confident I can do an excellent job on my math assignments</td>
<td></td>
<td></td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>e. I'm certain I can master the skills being taught in my math class</td>
<td></td>
<td></td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
</tbody>
</table>
HUMAN SUBJECTS PROTECTION REVIEW COMMITTEE
NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Human Subjects Protection Review Committee in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months. Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: 26111305
PROJECT TITLE: Student Attitudes and Activities That Influence Student Achievement
PROPOSED PROJECT DATES: 11/15/06 to 02/15/07
PROJECT TYPE: Dissertation or Thesis
PRINCIPAL INVESTIGATORS: Jan Griffin
COLLEGE/DIVISION: College of Education & Psychology
DEPARTMENT: Educational Leadership & Research
FUNDING AGENCY: N/A
HSPRC COMMITTEE ACTION: Expedited Review Approval
PERIOD OF APPROVAL: 12/04/06 to 12/03/07

Lawrence A. Hosman, Ph.D.
HSPRC Chair

12-11-06
Date
November 2, 2006

To Ms. Jan Griffin:

As Superintendent of the Ocean Springs School District, it is my personal and professional pleasure to approve your work within the Ocean Springs School District as part of your dissertation program with the University of Southern Mississippi. I have read the survey that you will be issuing, and find it to be both interesting and relevant in terms of educational research. In closing, best of luck to you as you close in on the final phase of your doctoral program. We recognize your dedication, work ethic, experience and practical knowledge of public education. Your many contributions to the Ocean Springs School District are sincerely appreciated by students, administration, staff and community.

In closing, please feel free to contact me personally at 228:875-7706 (work phone) or 228:875-7708 (fax) if you require any further support or documentation to assist in your endeavor.

Sincerely,

Robert E. Hirsch
Superintendent
APPENDIX E

THE UNIVERSITY OF SOUTHERN MISSISSIPPI
AUTHORIZATION TO PARTICIPATE IN RESEARCH PROJECT

Consent is hereby given to participate in the study titled:
Student Attitudes and Activities that Influence Achievement

1. **Purpose:** To gain information about attitudes and activities of sophomore students in the Ocean Springs School District.

2. **Description of Study:** All sophomore students will complete an anonymous 11 item questionnaire that does not require any private or personal information.

3. **Benefits:** The results of the study will be presented to the Ocean Springs School Board and Ocean Springs High School to share with the students.

4. **Risks:** There are no known risks associated with participating in this questionnaire.

5. **Confidentiality:** All responses will be completely anonymous and confidential. No names or other identifying information will ever be used in connection with your child. All information gathered will be kept in a locked cabinet by the researcher.

6. **Subject’s Assurance:** Whereas no assurance can be made concerning results that may be obtained (since results from investigational studies cannot be predicted) the researcher will take every precaution consistent with the best scientific practice. Participation in this project is completely voluntary, and subjects may withdraw from this study at any time without penalty, prejudice, or loss of benefits. Questions concerning the research should be directed to Jan Griffin at 228-818-6717. This project and this consent form have been reviewed by the Institutional Review Board, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research subject should be directed to the Chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5147, Hattiesburg, MS 39406-0001, (601) 266-6820. A copy of this form will be given to the participant.

7. **Signatures:** In conformance with the federal guidelines, the signature of the subject or parent or guardian must appear on all written consent documents. The University also requires that the date and the signature of the person explaining the study to the subject appear on the consent form.

_________________________ Date
Signature of the Research Subject

_________________________ Date
Signature of the Person Explaining the Study

In instances where the subject is a minor (under the age of eighteen years), a signature line for the minor’s assent and a signature line for the parents/guardians’ consent is required:

_________________________ Date
Signature of the Minor Research Subject

_________________________ Date
Signature of Parent/Guardian

Subject’s Initials_____

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REFERENCES


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http://www.education-world.com/a_curr/curr237.shtml


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Study Journal, 33, 141-151.


