

A Case Study of Middle Class African American Males Taking Advanced Mathematics
Classes in High School

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ABSTRACT

African American males in all socioeconomic levels are underperforming in school. Many researchers have conducted studies hoping to find reasons for the underperformance. This study focused on three middle class African American males in a suburban school district. These African American male students took upper level math courses that included Algebra III, Math Analysis, AP Calculus, and AP Statistics. This study modeled the study by E. Wayne Harris. He believed students were influenced by eight factors to include parents, past and present achievement, teachers, love of math, counselors, high school graduation/college admissions requirements, peers, and future plans.

I conducted a qualitative case study in which students, parents, teachers, counselors, and the math department supervisor were interviewed. The interview questions provided data that were analyzed to determine the influences of the factors listed above. The data gathered during the interviews was used to assess the influence of the factors in the decision making process of the middle class African American males in the study to take upper level math classes.

This researcher concluded 1) The parents expected their children to attend college, but the school staff did not have goals that directed the students to take courses that would prepare them for college, 2) Students had post secondary plans. 3) Two of the three parents advised their sons on what math classes to take, 4) There were no policies or practices in place to influence African American males to take more than the required three years of math or upper level math classes, 5) The school culture did not encourage student to take more academic classes, 6) There was no negative peer pressure for taking upper level math classes, and 7) Parents, teachers, counselors and the math department supervisor need to provide more input to African American male students to increase their participation in upper level math classes. In addition, factors such as love of math, high school graduation/college admissions requirements, peers, and future plans must also be addressed if schools hope to increase the number of African American males taking upper level math classes.

Table of Contents

CHAPTER 1 INTRODUCTION	1
Statement of the Problem	3
Significance of Study	6
Harris Study.....	6
Research Questions	7
Definitions	8
Limitations.....	10
Delimitations	10
Conceptual Framework	11
Overview of the Dissertation.....	12
CHAPTER 2 REVIEW OF THE LITERATURE	13
A Look at the African American Male.....	13
Middle Class African Americans	15
Middle Class African American Male Underperformance.....	18
Student Factors – Social and Cultural.....	18
The Stereotype Threat Model.....	18
Cultural-Ecological Theory.....	20
Resilience	22
Underachieving Moderate Achievers and High Achieving Students.....	22
Parent Factors	26
Teacher Factors	30
Counselor Factors/Help Preparing for the Future	32
Peer Factors	34

Math and Past and Present Achievement Factors.....	36
Summary.....	36
CHAPTER 3 METHODOLOGY	39
Research Questions	39
Rationale for a Qualitative Design	40
Setting.....	40
Participant Selection Process.....	41
Informed Consent and Permission Procedures.....	42
Assurance of Confidentiality.....	43
Data Collection Procedures	44
Protocol Development.....	44
Student Interview	44
Adult Interviews.....	44
Data Analysis Procedures.....	46
Analysis of Interview Transcripts	46
Document Review	47
Data Quality Procedures.....	47
Validity.....	47
Internal Validity	48
External Validity	48
Summary.....	48
Participants	50
Student A2.....	50
Student A10.....	50

Student B7	50
<i>Green Teacher</i>	50
<i>Yellow Teacher</i>	51
<i>Red Teacher</i>	51
<i>Purple Teacher</i>	51
<i>Pink Teacher</i>	51
<i>Orange Teacher</i>	52
<i>Brown Teacher</i>	52
<i>Blue Teacher</i>	52
<i>Counselor A</i>	52
<i>Counselor B</i>	52
<i>Counselor C</i>	52
CHAPTER 4 FINDINGS.....	58
Student Perspectives.....	61
Parent Perspectives.....	66
Teacher Perspectives	70
Counselor Perspective	75
Department Supervisor Perspective	80
Summary.....	82
CHAPTER 5 SUMMARY, RECOMMENDATIONS	84
Paul.....	85
Charles.....	86
Michael.....	88
Differences between Students	90

Parents	90
Teachers	91
Counselors	92
Peers	93
Present and Past Achievement.....	94
Love of Math	95
High School Graduation and College Admission Requirements	95
Future Plans	96
Comparison with Harris Study	96
Suggestions to Theodore High School	99
Concluding Statements	101
REFERENCES	104
APPENDIX A_ Student Interview Questions	110
APPENDIX B_ Parent Interview Questions.....	112
APPENDIX C_ Counselor Interview	114
APPENDIX D_ Interview Questions for Teachers	115
APPENDIX E_ Interview Questions for Math Department Supervisor.....	116
APPENDIX F_ Math Options	117
APPENDIX G_ Course Descriptions	118
APPENDIX H_ Letter from the Superintendent	120
APPENDIX I_ Research Questions/Protocol/One to One Tracking	121

Table of Figures

FIGURE 1 Conceptual Framework	11
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List of Tables

TABLE 1 Math Level as Predictor of Obtaining a Bachelor’s Degree	2
TABLE 2 NAEP Mathematics Scores 2007	4
TABLE 3 Comparison of Income of Middle Class Whites and African-Americans	16
TABLE 4 Residences of White and African-American Population	17
TABLE 5 Responses of High School Males to the Statement, “My teachers support me and care about my success in their class”	32
TABLE 6 Numbers of Students in Higher Level Mathematics Classes 2009-2010 and 2010-2011	53
TABLE 7 Sample A – African-American Students Taking Upper Level Mathematics Classes in 2009-2010	55
TABLE 8 African-American Students Taking Upper Level Mathematics Classes in 2010-2011	56
TABLE 9 Grades obtained in Math classes by students in the study 2010-2011	57
TABLE 10 Comparison with Harris Study-American	96

CHAPTER 1 INTRODUCTION

While many students fail to take higher level math classes, African American students take such courses less frequently than White students. Schools often place African Americans in lower level classes such as Algebra Readiness, Pre-Algebra, Algebra I Part I and Algebra I Part II instead of higher level math courses (Rees, Argys & Brewer, 1996). Such placements decrease the student's chances of taking the higher level math classes later. Lack of higher level math skills will eventually affect SAT and ACT scores which are an important component of college admissions and also affect college performance and readiness in the job market (Achieve, 2005).

Parents, teachers, and counselors need to direct students early to courses that will result in optimal outcomes for their education. Math offerings in high school include Algebra I, Algebra Functions, & Data Analysis, Geometry, Algebra II, Algebra II/ Trigonometry, Algebra III, Trigonometry, Math Analysis, Calculus I, AP Calculus AB, AP Calculus BC, AP Statistics and Probability and Statistics. Students may also choose regular or honors Geometry and Algebra II/Trigonometry. The honors classes move at an accelerated pace. Students taking Algebra I in the 9th grade may advance to Algebra III, Probability and Statistics, Trigonometry or Math Analysis in their 12th grade year. Students taking Geometry in the 9th grade may advance to Calculus I, AP Statistics, AP Calculus AB, or AP Calculus BC in their 12th grade year. Students taking Algebra II or Algebra II/ Trigonometry in the 9th grade may advance to AP Calculus AB, AP Calculus BC, or AP Statistics in their 12th grade year.

States require between two and four years of math for high school graduation (U.S. Department of Education, 2008). If a student takes Algebra I in the 7th or 8th grade, they may meet state requirements before reaching their senior year; therefore, many students do not take math classes during all four years in high school. While high school and college admissions requirements may be met, students must understand that higher level math skills are essential no matter what post-secondary plans a student selects to pursue. (Achieve, 2005). Lower level math classes often leave the student unprepared for tests such as the Preliminary Scholastic Assessment Test (PSAT), Scholastic Assessment Test (SAT), American College Testing (ACT), and Armed Services Vocational Aptitude Battery (ASVAB). If students do not take higher-level math courses in high school, they may be ineligible to enter some occupations and run the risk of not being prepared for college (Johnson & Kritsonis, 2006). Even if a student decides to take an

entry-level job, the level of math taken in high school will influence a student in terms of jobs and income. Numerous careers in manufacturing, construction, banking, insurance, finance and others may not require a college degree, but higher-level math skills are needed (Achieve, 2005).

Achieve (2005) tracked students after they entered college and found that “taking a high level of math in high school is the strongest predictor of a student obtaining a Bachelor’s degree (p.1).” As indicated in Table 1, the rate of students obtaining Bachelor’s degrees increases as the level of math taken in high school increases in rigor.

Table 1.

Math Level as Predictor of Obtaining a Bachelor’s Degree

Highest Level of Math Attained	Rate of Students Obtaining a Bachelors Degree
Algebra I	7%
Geometry	17%
Algebra II	39%
Trigonometry	60%
Pre-Calculus	75%
Calculus	83%

Note: Taken from Achieve (2005), p.1.

Thirty-nine percent of students completing Algebra II as their highest math class obtain a bachelor’s degree while 83% of the students progressing through Calculus obtain a bachelor’s degree. A student taking Calculus has more than double the chances of obtaining a degree from college than a student stopping math classes after Algebra II.

The need for direction in course selection is particularly crucial for African Americans who may elect not to take higher level math classes because, among other things, they have experienced low expectations from teachers that do not foster a feeling of success. Thompson (2004) shared a story of how her 10th grade Algebra I teacher suggested that she drop the class when she stayed after school for help. The teacher was not willing to change his teaching style to accommodate the student. Thompson had more success in Geometry because the teacher kept teaching until all students understood the concepts. The teacher showed that he cared about the

students learning the subject matter. These experiences followed Thompson into college. She doubted her skills in math because of the one teacher in the 10th grade. Many students experience a poor teacher much earlier in their educational journey and decide early not to attempt certain classes.

Statement of the Problem

The Black-White achievement gap has been long standing. There was some glimmer of hope because the gap narrowed in mathematics between 1973 and 1986. In addition, the gap narrowed in reading between 1971 and 1988 for thirteen-year-olds on the National Assessment of Educational Progress (NAEP) by 22 points on a 500-point scale, the equivalent of two grade levels (Rothman, 2001, p 4). African American students' performances rose during these years while the performances of White students remained stable (Rothman, 2001, p.4).

Continuing into the 1990s, African American students' achievement remained well below the level of White students. One commonly sees articles in the newspaper such as “Lingering Academic Gap Riles National Association for the Advancement of Colored People [NAACP]” (Washington Post, November 6, 2007), “Achievement Gap Seems to be Widening Even as Scores Rise” (Louisiana Weekly, December 11, 2006), “Black Parents Tackle a Gap” (Boston.com news, March 28, 2005), and “Test Scores Show a Racial Divide – White students are the only subgroup that meet federal standards this year” (Alexandria Gazette Packet, September, 2008). All of these articles point to the fact that even as African American students gain points on achievement tests and take more advance placement classes; they still lag behind White students. Table 2 displays the achievement gap on the mathematics sections of the 2007 National Assessment of Educational Progress [NAEP] (U.S. Department of Education, 2009).

Table 2.

NAEP Mathematics scores 2007

	Whites	Blacks	Gap
Mathematics achievement scores at grade 4	248	222	26 pts.
Mathematics achievement scores at grade 8	290	259	31 pts.
Mathematics achievement scores at grade 4 (Males)	249	221	28 pts.
Mathematics achievement scores at grade 8 (Males)	292	258	34 pts.
Mathematics achievement scores at grade 4 (Males), not eligible for free or reduced lunch	252	232	20 pts.
Mathematics achievement scores at grade 8 (Males), not eligible for free or reduced lunch	295	268	27 pts.

Note: Taken from: U.S. Department of Education, 2009, pp. 7-11.

The national gap for grade 4 was 26 points and ranged from a low of 14 points in Hawaii to a high of 54 points in the District of Columbia (U.S. Department of Education, NCES 2009-455, 2009 p.13). In the eighth grade, the national gap was 31 points with the gap ranging from a low of 16 points in Oregon to 51 points in Nebraska (U.S. Department of Education, NCES 2009-455, 2009 p. 21). The gaps appear to increase from fourth to eighth grade in most states. The gap for male students not on free or reduced lunch rose from 20 points in the fourth grade to 27 points in the eighth grade. Thus, male students not on free or reduced lunch showed gaps even with higher incomes.

Gaps continue to be evident with high school students. The average scale score for long term trend mathematics among 17 year olds in 2008 was 314 for White males, 284 for African American males, and 292 for Hispanic males. The level of math taken in high school by these ethnic groups may play a part in the gap. The College Board collected data on how many students take Precalculus or Calculus. African Americans take Pre-calculus and Calculus classes at a lower rate than other races. The College Board (2008) reported that 67% of Asians, 45% of Hispanics, 53% of Whites, and 35% of African Americans take precalculus and that 45% of

Asians, 19% of Hispanics, 28% of Whites, and 14% of African Americans take calculus in high school.

The SAT mean scores for Whites, Asians, African Americans, and Hispanics are another indicator of achievement, especially since the SAT is a good indicator of who will attend college. The maximum score on the SAT is 2400. Scores from the 2008 College Bound Senior Total Group profile report the mean score is 1583 for Whites, 1610 for Asians, 1364 for Hispanics, and 1280 for African Americans (College Board, 2008). Male math mean scores by ethnicity were 555 for Whites, 596 for Asians, 482 for Hispanics, and 434 for African Americans (College Board, 2008). The scores for the African American males are the lowest and show another sign of lower educational progress in school. Not only were the scores lower for African American males, but the number of African American males taking the test was considerably lower than that of White males. In 2008, 74,755 African American males took the SAT test (12% of the males). This number is small compared to the 404,020 White males taking the test (60% of the males) (College Board, 2008).

The high school graduation rate for African American males further illustrates poor achievement. Data from the National Assessment of Educational Progress (NAEP, 2005) showed that the percent of male students who graduate from high school with a standard diploma in four years is 72.3 percent for Whites, 52.3 percent for Hispanics, and 46.2 percent for African Americans. The Schott Foundation (2008) stated “more that half of Black males did not receive diplomas with their cohort in 2005/2006.” The Black Boys Report listed the graduation rates for the lowest and highest performing states and districts. Michigan was the lowest performing state graduating 33% of its African American males and 74% of its White males, with a 41% gap (p.5). The highest performing state was North Dakota with 89% African American males graduating and 84% White males graduating with a -5% achievement gap.

Although researchers and educators have studied the achievement gap, relatively few have focused on the gap that exists between middle class students. Harris (1995) noted that the factors influencing the suburban middle class African American males reach farther than economic, social, and/or cultural influences. He noted that a gap in mathematics existed even when the parents were college educated, owned a home, and had professional jobs. Noguera (2003) stated that middle class status and all of the advantages associated with it fail to keep

middle class African American males from underachievement. This is evident when looking at the data regarding students not eligible for free and reduced lunch. There was a 20 point gap for male students in the 4th grade and a 27 point gap for students in the 8th grade. Students not eligible for free and reduced lunch still exhibited a large gap when compared to other students not receiving free and reduced lunch.

Significance of Study

This study focused on middle class African American males who are successful in school. Most studies look at the success or failure of urban African American males living in poverty. It is important to note that while some middle class African American students are unsuccessful, others succeed in school. This study identified characteristics that contributed to the success of middle class African American males. The results provided important information for students, parents, teachers, and counselors regarding what influenced these students to take higher level math classes. This information has the potential to help all stakeholders develop more appropriate programs and improve current educational strategies and practices which will improve the outcomes for African American males in higher level math classes, increase their scores on the SAT and ACT. This information can increase the number of African American males graduating high school with skills needed to enter the work force and/or college.

Harris Study

This study replicated and updated the study conducted by Harris (1995) which focused on middle class African American students. I am replicating this study because my interest also lies in the middle class African American male. Harris noted that many studies deal with the failure of lower class African American males. He researched African American males who were taking higher level math courses and succeeding in school and argued that the factors influencing these young men to succeed in high school could be recreated to help others succeed.

Harris interviewed 24 juniors and seniors who attended two high schools in a predominantly white, middle class, east-coast suburban school district. He focused on ways that parents and school staff thought that they influenced the students. It helped him to draw connections between what the parents and students deemed important factors influencing course selection.

Harris selected middle class students for several reasons including: (1) Gaps in mathematics participation existed even when African American males lived with both parents who were college educated and owned their homes in middle class settings; (2) Middle class schools may find it easier to implement strategies because they have fewer problems than urban schools; and (3) The number of students in higher-level math classes lends itself to actually test an intervention strategy after the research was completed.

In his study, Harris drew the following conclusions regarding the factors influencing the middle class African American students in his study to take higher-level math classes:

1. Parents, counselors, and school staff all had goals that directed the students to take courses that would prepare them for college.
2. Students in the study were focused on their plans after school.
3. Parents and other adults had expectations for the students and 19 of the 24 students took four years of math.
4. School policies and practices were in place that actually influenced African American males to take three to four years of math.
5. The school culture appeared to encourage students to take more academic classes.
6. Other African American peers or friends who participated in the study were also taking higher level classes which helped create a culture that higher level classes were expected
7. African American males within the two high schools factors came together to lead them to take higher level math classes.

Harris concluded that these factors could be duplicated to bring success to more middle class African American males.

Research Questions

This research study has one major research question and five sub-questions.

1. What were the perceptions of the high-achieving African American males, their families, friends, and school officials (collectively the “Interested Parties”) with regard to why the males took higher level high school math classes?

- a. To what extent did the Interested Parties perceive that parents, teachers, and counselors influenced the decisions of the African American males to take higher level math classes?
- b. To what extent did the Interested Parties perceive that prior success in mathematics and other classes influenced the decisions to take higher level math classes?
- c. To what extent did the Interested Parties perceive that peers influenced the decisions to take higher level math classes?
- d. To what extent did the Interested Parties perceive that graduation requirements and/or post/secondary plans influenced the decisions to take higher level math classes?
- e. To what extent did the Interested Parties perceive that a love of math influenced the decisions to take higher level math classes?

Definitions

Achievement gap - A noticeable difference in learned skills of different races or gender. This study focuses on gaps in mathematics between African Americans and Whites.

Algebra III- This course is designed for the college bound student. Algebra 2 concepts are reinforced and extended in depth. Topics include solving linear and quadratic equations and inequalities, graphing and analyzing functions, and matrix operations.

AP Calculus AB- This course is designed for the college- bound student with high math ability. It emphasizes the fundamental concepts of differential and integral calculus including applications in both areas.

AP Calculus BC- This course is designed for the college-bound with exceptional math ability. It emphasizes the concepts of differential and integral calculus, series, and parametric functions and applications in differential and integral calculus. This class meets one block per day.

AP Statistics- This Advanced Placement course in Statistics introduces students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. Students will be exposed to exploring data, planning a study, anticipating patterns, and applying statistical inferences.

Authoritarian parents - Very rigid parents who give their children rules to follow and who do not expect to be questioned (Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh, 1987).

Authoritative parents - Parents who talk to their children and discuss issues facing the children and family (Dornbusch, et al, 1987).

Calculus- This honors course is designed for the college-bound student. It emphasizes the fundamental concepts of differential calculus including applications and introduces integral calculus.

College Admissions Requirements – The high school credits, grade point average, SAT score/s, and any other assessments requested by a college for a student to earn the right to attend a college or university.

Counselors – High school employees responsible for recommending courses for students to take in high school (Harris, 1995).

Future Plans - Goals or directions a student has for after high school to include work or college (Harris, 1995).

High School Graduation Requirements - Minimum requirements a student needs to graduate from high school to include credits in English, Mathematics, Laboratory Science, History and Social Sciences, Foreign Language, Health and Physical Education, Fine Arts or Career and Technical Education, Electives and student tests identified by the state of residence.

Higher Level Math Classes –Courses including Algebra III, Math Analysis, AP Statistics, Trigonometry, Probability and Statistics, Calculus I, AP Calculus AB and/or AP Calculus BC.

Love of Math - A student's desire to take classes offered in the math curriculum because they feel that they can be successful based on past achievement (Harris, 1995).

Map Testing (Assessment) – A computerized adaptive assessment that provides detailed data on students. These tests are given to students in grades 3 – 10 three times a year in the school district of Theodore High School. Districts determine when they want to give the test.

Math Analysis – This honor course is designed for the college-bound student who either desires preparation for college level-math courses or wishes to pursue a career in the mathematical, scientific or engineering fields. It emphasizes fundamental concepts in elementary functions, analytic geometry and Trigonometry and provides for prerequisites for the Advanced Placement (AP) Calculus course.

Middle Class Status - Those students not on free and reduced lunch, whose parental occupation(s) salary falls within the middle class range (\$50,000 - \$99,000), whose parental education is beyond high school, and whose residence is in a middle class neighborhood within the school boundaries.

Past and Present Achievement – Academic progress in previous and/or current classes including grade point average (Harris, 1995).

PowerSchool – Web based student information system.

Probability and Statistics - This semester course provides the college-bound student with basic instruction in analyzing statistical data and probability concepts.

SOL's (Standards of Learning) – Rigorous academic standards set by the state of Virginia to measure achievement.

Trigonometry – This course is designed for the college-bound student. Basic Trigonometry terminology and concepts are covered using both right triangle and unit circle approaches. Topics include Trigonometry identifies, solving Trigonometry equations, graphing Trigonometry functions, inverse Trigonometry functions, and using Trigonometry to solve triangle and other problems.

Limitations

A case study lends itself to rich and detailed descriptions and it allows the researcher to study a specific group. The case study does not lend itself to generalization in the statistical sense. The results cannot be generalized to girls, other male ethnic groups, or students with different socio-economic levels (Merriam, 1998).

Delimitations

The three participants in the study were not randomly selected. The participants were selected because they are middle class African American males as defined by parents income, parents occupation, education beyond high school, and residence in a middle class neighborhood within the city limits. Middle class was selected because many people believe that middle class status may serve as a protective factor from underachievement. Low socioeconomic status does not explain why middle class African American males also exhibit an achievement gap. The dilemma of the achievement gap with middle class African American males has not been studied

to the same extent as with African American males from lower socioeconomic status. Males were selected because they are often the lowest achievers (Mandara, 2006).

Another focal point of the study was higher-level math classes. The study only considered the African American male if he was taking Algebra III, Math Analysis, AP Statistics, Trigonometry, Probability and Statistics, Calculus I, AP Calculus AB and/or AP Calculus BC in high school. The number of subjects were kept at three because in-depth data could be collected from the students, parents, teachers, and counselors (Best and Kahn, 2003).

Conceptual Framework

The conceptual framework for this study was developed by E. W. Harris (1995). The Harris Model (see Figure 1) has eight factors that may influence African American males in their decision to take higher level math classes.

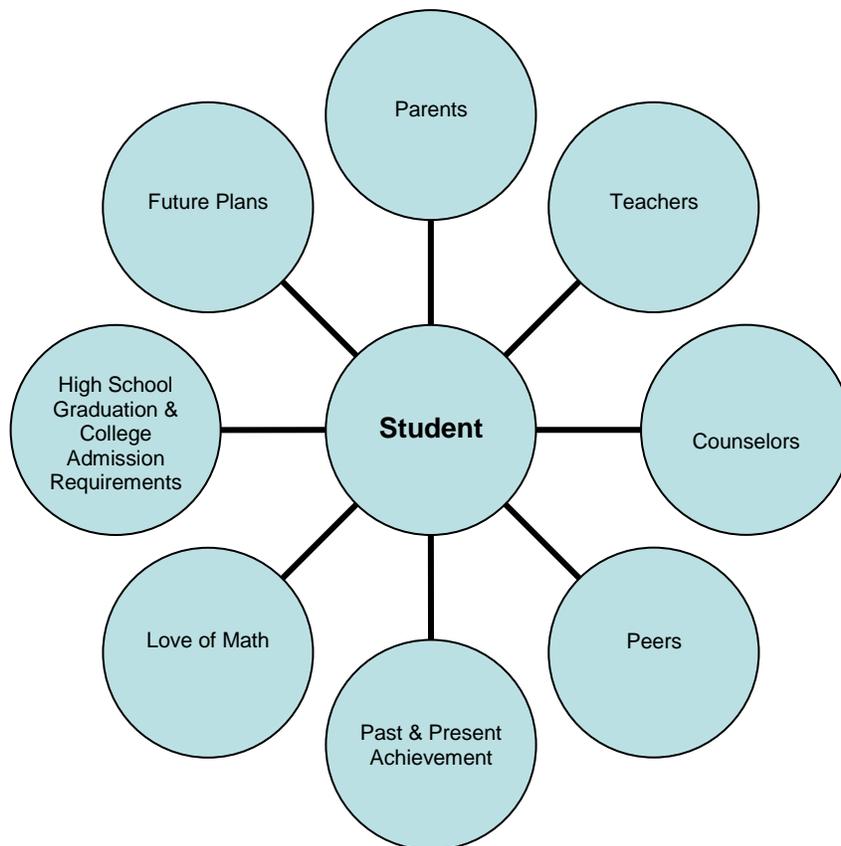


Figure 1 Conceptual Framework

Overview of the Dissertation

This dissertation is organized into five chapters. Chapter 1 contains the overview of the study, the statement of the problem, significance of the study, information about the Harris Model, the research questions, definitions, limitations, delimitations, conceptual framework and an overview of the dissertation. Chapter 2 contains a review of the literature regarding the low achievement of African American males, a review of middle class African American males, and the roles played by social and cultural factors, parents, teachers, counselors, peers, past achievement, love of math, and future plans. Chapter 3 describes the research methodology. Topics include the research questions, rationale for a qualitative study, setting, participant selection process, informed consent/ permission procedures, data collection procedures, data quality procedure, data analysis procedure, and a brief summary. Chapter 4 presents the findings of the study. Chapter 5 is an analysis of the data and recommendations to increase the number of middle class African American males taking upper level mathematics classes.

CHAPTER 2 REVIEW OF THE LITERATURE

This literature review includes a discussion of theories addressing social and cultural factors underlying the Black-White achievement gap, with a focus on middle class African American males. African American males are often the lowest achievers (Mandara, 2006). Some of the causes can be attributed to lower socioeconomic levels, but the poor achievement of many middle class African American males is a puzzle to many parents, educators and researchers. The middle class African American male has the luxury of educated parents, good neighborhoods, better schools, and positive role models, but these young men still lag behind in school. Theories about why middle class African American males are not working up to their potential indicate that social issues, cultural issues, peer pressure, parenting styles, relationships with teachers, and relationships within neighborhoods and communities can all affect the educational outcomes of the middle class African American male.

This literature review examines issues associated with African American males' underperformance in school. It begins with a discussion of the African American male, in general, and then discusses the middle class African American male. The underperformance of African American males is followed by a review of the literature related to the role of various key persons (parents, teachers, counselors and peers) in the performance of African American males. The chapter concludes with a review of literature related to past/present achievement and future plans.

A Look at the African American Male

Fletcher (2007), a contributor to the book, *Being a Black Man: At the Corner of Progress and Perils*, wrote about three hypothetical young African American male kindergartners that appeared alike in intelligence, talent, and character. If the boys followed the typical path in the United States, one decade later one of the boys would likely head for prison; the second if he had not already dropped out would seriously weigh leaving school and be pointed toward an uncertain future. The third boy would be speeding toward success by most measures.

Researchers have shown that African American boys are in trouble with respect to educational achievement. Gewertz (2007) noted that African American boys lagged behind African American girls and non-African American males on key indicators of educational

success. Mandara (2006) wrote that African American males have the lowest academic achievement of all major American groups. A third confirmation came from the Maryland Department of Education (2006), which indicated that school, without exception, was an at-risk environment for the African American male.

Garibaldi (1992) analyzed the 1986-87 school year data of African American males in New Orleans and made some stark discoveries regarding their overall performance in the educational environment. African American males “represented 43% of the school population and accounted for 57.5% of the nonpromotions, 65% of the suspensions, 80% of the expulsions, and 45% of the dropouts” (Garibaldi, Jones, Jr., Brooks, p. 5, 1988). More than half (800 of 1,470) of the students retained in the first grade and almost 60% (1,600 of almost 2,800) of the students retained in the sixth through eighth grades were African American males. Only 18% of the African American males scored in the highest quartile on the math component of the test and 13% scored in the highest quartile on the reading test. Just one third scored at or above the mean on both tests (Garibaldi, 1992).

The results of this study were similar to the findings in other districts. In Prince George’s County Public Schools in Maryland, data indicated that 23% of African American males were in the top reading group in the first and fourth grade, but that number dropped to 12% by sixth grade. In the Milwaukee public schools, 45% of African American males scored above the national norm in the second grade. This proportion dropped to 33% in the fifth grade and 22% in the seventh grade.

Due to these school related difficulties, African American males face tough times later in life. River (1995) cites the following statistics indicating that an African American male has a: 1 in 3,700 chance of getting a Ph.D. in engineering or natural sciences, 1 in 766 chance of becoming an attorney, 1 in 395 chance of becoming a physician, and a 1 in 2 chance of not attending college, even if he graduates from high school.

African American males also have a better chance of achieving negative outcomes. Rivers (1995) indicates that an African American male has a: 1 in 9 chance of using cocaine, a 1 in 12 chance of contracting gonorrhea, and a 1 in 20 chance of being imprisoned while in his twenties.

These statistics indicated that the African American male is more likely to be a cocaine user who needs an attorney than to be an attorney defending a cocaine user. The African American male may need to see a doctor for a venereal disease, but his chances of becoming a physician are 1 in 395. The African American male has a high chance of going to jail, but the cost for a college education is much less than paying for him to be in prison.

Alexander (2004) stated the number of African American men in college is dwindling. Thirty-seven percent of African American male high school graduates enroll in college; however, about 35% of these males graduate from Division I colleges within six years. In contrast 44.5 % of White male high school graduates enroll in college and 59% graduate of those enroll. One might attribute a portion of the reason for poor outcomes to low socioeconomic backgrounds among African American students. Unfortunately, as the next section will show, middle class status does not insulate an African American male from becoming part of these statistics.

Middle Class African Americans

African American youth from higher income households and/or with more highly educated parents do much better in school than African American youth who lack these advantages. However, African Americans don't do nearly as well as Whites from similar family circumstances. The school performance of affluent African American children is closer to that of poor White children than that of affluent White children (Gosa & Alexander, 2007). The College Board (1999) pointed out that a large Black-White achievement disparity exists even with comparable family socioeconomic status (SES). The gap often is largest among students with college-educated parents.

Comparing middle class African Americans to middle class Whites is more complex than using the words, "middle class." Ford (1997) described the African American middle class as a diverse population encompassing individuals who vary in class standings from lower middle and upper middle to the elite social strata. Middle class African Americans range in scope from the working poor to the affluent. President Obama has used several figures in reference to middle class indicating that this class has income around \$150,000, but less than \$250,000 (Garrett, 2009). The U.S. Census Bureau identified the middle class as the middle twenty percent of the

country with earnings of \$40,000 to \$95,000 annually. Lacy (2007) identified the middle class as comprising individuals earning between \$30,000 and \$100,000 and those making more than \$100,000 as upper middle class. The percentages of middle class African Americans and Whites, as defined by Lacy, (income ranges above \$30,000) are shown in Table 3. As indicated in the data, a larger percentage of middle class African Americans than middle class Whites are at the lower end of the spectrum in reference to income.

Table 3.

Comparison of Incomes of Middle Class Whites and African Americans

Annual Income	Whites	African American
\$30,000 to \$49,000	53%	65%
\$50,000 - \$99,000	37%	31%
Greater than \$100,000	10%	4%

Whites tend to be at the upper level of middle class status while African Americans tend to be at the lower level. Middle class African Americans are more likely to hold white collar jobs or jobs such as teacher, foreman, government worker, office assistant, receptionist and firefighter (Pattillo, 1999). Middle class Whites are more likely to hold jobs such as professionals, entrepreneurs, managers, and executives (Pattillo, 1999).

Rothstein (2004) noted that even when both African Americans and Whites were considered middle class, the differences in wealth between the parents may be important in determining student achievement. White families with the same income tend to have more assets to support their children. African American families also sometimes find themselves supporting poorer family members while White families do not bear this burden as often.

In addition, no matter what their income or education, African Americans continue to encounter subtle discrimination throughout their lives (Gosa & Alexander, 2007). Lacy (2007) noted that African-Americans' social class is not obvious when they are in the public, so African Americans often have to make it known by dress, behavior, or language that they are legitimate members of the middle class. Otherwise, middle class African Americans may be treated as if they were poor.

Middle class status provides some benefits which separates members from the lower class. Cellious and Oyserman (2001) stated that the African American middle class members benefit primarily because they are able to enter institutions and occupations from which they were once barred. Day-Vines, Patton, and Baytop (2003) stated that the middle class serves as a protective mechanism against poverty, dilapidated housing, inferior education and malnutrition. This protection comes with a price, however; as these authors observed that African American middle class students may commute regularly between several cultures (home, school, church and peers) and that home and school life may be unsynchronized. Turley (2003) pointed out that African American children living in higher income, predominately White neighborhoods were less socially integrated at the local level, had few in-neighborhood friends and had more out-of-neighborhood friends. Living in affluent neighborhoods yielded improved school behaviors and performances only when those communities were predominantly African American. Pattillo (1999) delineated the differences of area of residences for the two groups, as shown in Table 4.

Residences of Whites and African American Populations

Area of Residence	Whites	African American
Suburban Areas	58%	46%
Cities	24%	46%
Rural Areas	18%	8%

Note: Taken from Pattillo, 1999, p. 42

Leventhal and Brooks-Gunn (2000) contend that the neighborhood does not insulate African American males from other disadvantaging community conditions to the extent that it does for Whites. Middle class African Americans continue to associate with African Americans living in low-income area because family members and friends may still live in these areas. In addition, the lower and middle class African American may shop, eat out, and go out for entertainment in the same locations (Pattillo). While researching and living in the Groveland, Chicago neighborhood, Pattillo (1999) found that the African American youth must learn to negotiate right from wrong because they may still be exposed to drugs, crime, negative relatives, and less frills more than one would imagine for a middle class family.

The Groveland African American neighborhood in Chicago described by Pattillo may be typical of many neighborhoods in America. Middle class African Americans living in middle class neighborhoods may live blocks from African Americans who live in poverty (Pattillo, 1999). The neighborhood dynamics are often poor African Americans, middle class African Americans, and then middle class Whites. African Americans are not shielded from the lives and problems of those living in poverty. Middle class Whites' interactions with lower class African Americans are almost non-existent. The neighborhood may also be different. The white collar workers outnumber the college educated workers. Some of the children of these homes will not be able to maintain middle class status as adults (Pattillo, 1999).

Middle Class African American Male Underperformance

Student Factors – Social and Cultural

There are numerous theories and ideas regarding the achievement gap between African Americans and Whites. This section reviews the work of researchers such as Steele (1992), Ogbu (2003), Majors and Billson (1992), Gayles (2005), Fisher (1999), Diamond, Lewis, and Gordon (2007), all of whom address social and cultural factors that may impact the education of African American students in our schools today. Four models/theories are discussed: the stereotype threat model, the cultural ecological theory, the cool pose theory, and the resilience model.

The Stereotype Threat Model

Steele's model of stereotype threat identifies negative stereotypes as a culprit in the academic underperformance of students of color. Steele feels that all students suffer from anxiety in school, but he stated that African American students suffer from additional anxiety. Steele noted that a wrong answer for African American students can be personally damaging and can confirm the negative stereotype that others have of them. Steele and Aronson (1995) found that telling college students that intelligence was being measured had a different impact on the performance of White versus African American college students. In addition, African American students did not want to give their race.

Steele (1992) defined "academic disidentification" as a lack of relationship between academic self-esteem and global self-esteem. Academic disidentification represents the process by which the individual's general self concept becomes increasingly less identified with

academic performance the longer the student stays in school. It also acts as a psychological defense mechanism to protect one's self esteem and vulnerabilities by causing a fracture in the relationship between academic achievement and overall self-concept.

According to Steele and Aronson (1995), disidentification occurs in two stages: situational stereotype threat and disengagement. Situational stereotype threats are the initial fears that stigmatized individuals have of confirming negative stereotypes about their academic abilities. Steele's study (1992) showed that African Americans' achievement is suppressed in environments that focus on academic achievement gaps. To protect their self-esteem from the effects of not working up to their potential, many African American students avoid academic domains deemed too intellectually challenging. The avoidance of difficult academic domains often resulted in African Americans taking fewer challenging classes. African American males often opted not to take the Honors and AP classes that would allow them to gain more skills and to work to their potential. Avoiding higher level classes to prevent fulfilling perceived stereotypes is a form of disengagement. Students elect not to attempt a class over taking the class.

Rothman (2001) noted that Steele found that African American students performed much worse when asked to identify their race in a preliminary questionnaire. Graduate students were given a 30 minute mini test from the verbal Graduate Record Examination (GRE) test. Students were told that the test was measuring ability in one session and told that it was simply a laboratory test in another session. When not asked to identify their race, African Americans outperformed Whites. The question about race promoted the stereotype threat. African American students performed much worse when they were told that the tests measured their abilities, and performed comparably or better than whites when they were told the tests were laboratory studies. The identification of the test activated a racial stereotype and provoked self-doubt among the test takers. Steele found that students who experienced stereotype threats worked just as hard, or harder, to complete the test. However, they were less efficient; they spent more time on the test (project); and they produced less.

Cultural-Ecological Theory

Ogbu's (2003) cultural-ecological theory looked at the low educational achievement of affluent African Americans living in Shakers Heights, Ohio. The African Americans there performed well above the national average for African Americans. However, they were underrepresented in Honors and Advanced Placement (AP) classes and lagged behind local Whites on most educational measures including subject proficiency scores, grade-point average, high school rank, and later college attendance. Ogbu (2003) stated that the students were characterized by low effort syndrome. This meant, "that the students were not highly engaged in their schoolwork and homework. The amount of time and effort they invested in academic pursuit was neither adequate nor impressive" (p. 18). The academic disengagement resulted in African American students rejecting behaviors perceived to be "White behaviors." Ogbu found that this syndrome began in elementary school.

Ogbu (2003) noted that two factors influenced minority students' engagement and performance in school. The first factor was the system which is "the way society and its institutions treat or have treated minorities." (p.45). The second factor is,

community forces "which arise from how the minorities themselves interpret and respond to their treatment, that is, their adaptations to the U.S. society and to their minority status, which depends on their unique history of how they become minorities in the United States. (p. 45)

Ogbu went on to explain that these factors can affect African American education directly and indirectly. Discrimination in education may affect both the jobs one can obtain and the education that is available after high school. Residential segregation can directly affect the school that one attends, and the education received may be superior or inferior.

Ogbu (2003) also distinguished between the immigrant or voluntary minorities that come to the country voluntarily and the involuntary or non-immigrant minorities who have been subjugated and/or brought into the country or society against their will. The student who came to the country voluntarily usually developed positive attitudes about school and achieved without any problems. These students' academic success is thought to be caused by a dual frame of reference. Students were willing to accommodate to improve chances for a successful education. Ogbu believed that those students whose families were involuntarily brought into the country

responded unfavorably to their surroundings; they equated schooling with assimilation into the dominant group; they did not try to achieve academically; and they had the burden of “acting White.” Ogbu (2003) further explained that many African American students are involuntary minorities and see school, for them, as inappropriate. These students’ ancestors were forced to live in the United States. The feeling of mistrust, possibly felt by generations, stopped the student from giving up parts of their African American identity such as language and culture. These students decided that good grades and Standard English were the “White Way.”

Cool Pose Theory

Majors and Billson (1992) argued that many African American students adopt a “cool pose.” The African American male use the coolness for survival against subtle and unsubtle discrimination found in schools. The cool-pose student is probably thought to be oppositional by observers such as educators and administrators in the school setting. Majors and Billson (1992) went on to explain that the cool pose often leads to behavior that is not in line with the school setting and that does not meet the standards set forth for the model student. Werner (1993) noted that “Whites may read the coolness as being fearless, emotionless, macho, aloof, shiftless, irresponsible, unconcerned, unmotivated, and having attitude problems” (p.144). The cool African American male may not show that he cares about anything.

Sixty African American teenagers were interviewed for six years in Boston (Majors and Billson, 1992). They had the ability to stay cool under pressure and the ability to maintain detachment, even during tense situations. Werner (1993) described Majors and Billson’s cool pose as the style some African American males use to establish their male identity and negotiate the dangers African American males encounter. The cool pose allowed the African American male to be visible, empowered, and helped blunt the pain of denied societal opportunities.

Majors and Billson’s (1992) theory is very similar to Ogbu’s cultural-ecological theory. African American males do not succeed and work up to their potential because their coping skills are somewhat lacking. Employing strategies that promote the use of humor or not working in class, do not help students complete school. The Majors and Billson study was geared toward understanding the cool pose of the ghetto African American males who did not see a way to move up the socio-economic ladder through education while Ogbu’s work was geared toward the middle class.

Resilience

Resilience is a trait that can help students overcome the factors identified by Majors Billson, and Ogbu. Gayles (2005) studied three African American males in a nonaffluent neighborhood. The three youth succeeded despite “community forces” described by Ogbu. The three young men (Baldwin, Lonnie, and Ronald) used academics to help them succeed in school and in the future. Each of these young men were very independent in their current life, but they knew a better life was available in the future. There was an expectation that the hard work in high school would yield high benefits later in life. The boys used school as a vehicle to move out of their circumstances and to have a different life in their thirties. Gayles described education as a credential to obtain what they wanted in the future. These young men knew that education could change their lives. These young men were not worried about “acting White.” Gayles (2005) went on to say that, “the insult of acting white was inextricably bound to the present, while their achievement was inextricably bound to their futures” (p.259).

Gayles also stated that some research indicated that ethnic minorities who pursued academic achievement paid a social and personal cost, but the achievements of Baldwin, Lonnie, and Ronald came at no expense to their cultural integrity. These students separated their achievement and social life, so their achievement did not have a negative consequence. Gayles pointed out that the three boys used something very similar to the dual frame of reference discussed by Ogbu. The boys adjusted their behavior to fit the environment. The three boys viewed making good grades as a way to escape social circumstances in the terms of, “*I’m here today, but I will not be here tomorrow.*” Community forces can play a part in the life of African American males, but many find ways to be successful in spite of the negative community forces.

Baldwin, Lonnie, and Ronald employed several strategies to succeed. Baldwin did not brag about his grades; he downplayed their importance. Lonnie “acted stupid” sometimes when around friends. He also made sure not to have a reputation of studying all the time like many smart kids. All three boys separated their personal lives from their achievement.

Underachieving Moderate Achievers and High Achieving Students

Fisher’s exploratory study (1999) was conducted to gain an understanding of the factors that contribute to the success or underachievement of African American students, who were

judged by their teachers to be academically capable of success. Students who were failing or not judged to be academically capable to cope with the work were not included in the study. The study explored the differences of underachieving and overachieving students in a diverse urban high school in Massachusetts. Fisher's (1999) criterion for the high achieving students was:

The student shows effort in class; is prepared for test, presentations, and daily discussion; achieves high grades; takes responsibility for work that needs to be done, whether it is during school or coming after school for assistance; and shows a desire to learn and the student plans for the future. (p.202)

The criteria for the underachieving student was:

The student shows a lack of effort and sets low goals; has a lack of concern or interest in performing well academically; is irresponsible and lazy; has low self-worth; has a difficult living and/or social environment; has no parental support; and has no traditional or academic related plans for the future." (p.202)

Fisher (1999) had three main questions that guided his research:

(a) What experiences have underachieving and high achieving African American students had that they feel were obstacles or barriers to succeeding in school? (b) What experiences have these students had that helped them to succeed in school? and (c) How are the experiences and reflection of the high achieving and underachieving similar or different? (p.202)

The high achievers overcame many challenges such as busy schedules, lack of time, family obligations, and parental problems. These barriers did not stop negative stereotyping from the teachers, White students, and African American students. Fisher stated that the higher achievers had success as a result of high self-concepts, time management skills, parental support, and high expectations. These students also sought to prove the stereotypes wrong, set their own high expectations, and desired to be responsible for their own lives and destiny. These students noted that there was often no encouragement or support from their teachers. They also noted that they were "one in twenty."

The underachievers admitted that they were smart, but lazy. Many of the underachievers said that they respected the high achievers and that it was cool to be African American and smart. According to Fisher, they knew that with effort they would achieve greater success. They

also said that stereotypes held by White teachers and the treatment from these teachers was a hindrance to academic success. The underachievers believed that the majority of teachers within the school had prejudged them before getting to know them as students. Fisher reported that “the lack of support and connection to the school in combination with acceptance at home of mediocre grades seems to contribute to underperformance” (Fisher, 1999, p.204). These students also stated that they wanted to pursue other interest such as being rappers, self-made millionaires, or business owners.

All of the high achievers were immigrants or first-generation U.S. citizens. All of the underachievers had been in the United States for multiple generations. These findings appear to align with the theory set forth by Ogbu (2003), but not with Fisher’s reasoning. Fisher noted that the underachiever’s lack of academic success was not seen as a way to be anti-White or pro-African American. These students had faced rejection and were looking at other opportunities to work toward success. Many of these students were ambitious, but were not working up to their academic potential. Fisher gives an example in which a student may have wanted to be a rapper. He pointed out that the teacher could use this career goal to spark a student’s interest in English and poetry. However, this student’s goal was often dismissed as being no goal at all because it did not represent the American Dream. Fisher concluded that the students in both groups valued education as an important tool for success, but the high achievers saw how education could benefit them. The low achievers did not see a direct benefit, but set their hopes on non-traditional jobs.

Diamond, Lewis and Gordon (2007) conducted a study at Riverview High School, a midsized suburban school with a history of success which attracted many looking for a good education. Just over 30% of the students were low income. Nearly 80% of the graduates attended college, including about 70% of the African Americans. At a glance, the numbers looked impressive, but there were differences in school achievement and in the courses that students took. Students were placed on two separate tracks after testing in the fourth grade. One track led to higher-level courses including calculus by the twelfth grade, and the other track did not. By the eighth grade, most of the White students had completed Algebra I, with very few African Americans being represented in the class. Most African Americans were in low level classes. African Americans made up 40% of the student population, but only 9% of the students who

took AP courses. By contrast, Whites made up 50% of the student population and 82% of the students taking AP classes.

Seventy students were interviewed for the Diamond et al. (2007) study, including 42 African Americans and 28 White students. Student achievement fell into one of three categories using a scale of 4.0; high achievers were students with a grade point average between 3.0 and 4.0; moderate achievers had a GPA between 2.0 and 2.9; and low achievers had a GPA below 2.0. The researchers examined information on the students' school experience, educational aspirations and expectations, perceptions about race and opportunity, and beliefs about peer dynamics that impacted the school environment. Diamond et al. (2007) found:

- African American students were far more likely to see race as a meaningful part of their identity and to believe that their race would have negative implications on them getting ahead. For the most part, White students believed that race did not matter for them.
- African American students recognized and were concerned about the racial composition of classes. One student argued, "The fact is that Riverview is two schools in one. There was the honors White school, and then there's the other school" (p. 667).
- Negative peer pressure was experienced by very few high achievers and was not more common among African American students than among White students.
- Low achieving students were concerned about their academic performance, sought ways to improve their grades, and found support from friends. Students were motivated to strive for higher grades.
- High achieving African American students reported low expectations from White teachers. One White student commented "I think that usually the perception is...that African American people are dumber than White people and Hispanics are not as smart as everyone else" (p. 670).

The Riverview High School study noted that African American students were more likely to perceive that their race would limit their life chances, as the oppositional culture argument suggests, but it did not lead to the development of oppositional orientation toward school (Diamond, et al. 2007). The African American students wanted to obtain good grades and had

college aspirations. The students expressed that expectations for them were often low and that they were the students often not in the Honors and AP classes. Low achieving students in most cases knew that better grades were essential. In many cases they were trying to improve their grades.

Ogbu (2003) believed that students did not work hard in school because they did not want to “act White.” Other studies indicated that African American students were not holding back. Ferguson (2002) noted that African American students were no more likely than Whites to say that they did not try as hard in school as they could. Rothman (2001) said that reluctance may stem from a fear of isolation. African American students may not want to be a conspicuously small minority in Honors and AP classes. Superintendent of the Fort Wayne Community Schools, Thomas Fowler-Finn, noted that even when students are in these classes they may be reluctant to strive for high grades (Rothman, 2001).

Gibson (2005) noted in her study that there was not a sense of belonging by some students, including their decisions to participate or not participate in clubs, sports, etc. She noted that African American students may opt for easier classes where they have more friends and where they feel they can be themselves constantly without being silenced or on guard, fearing some insult to their identity or intelligence. The alienation and lack of support may play a role in lower expectations and performance.

Parent Factors

Gibson (2005) reviewed Ogbu’s evaluation that students failing to reach their potential were described to have a lack of adequate parental involvement in schooling, lack of good study skills, and a lack of parental understanding about how the educational system works in reference to placement in as Honors and AP classes. Ogbu (2003) described African American parents as passive. He stated the parents did not consider themselves agents in the process and, therefore, did not need to be involved.

Rothstein (2004) pointed out that African Americans and Whites have different child-rearing patterns that may affect the academic performance of students. Rothstein stated that parents of different social classes often have different ways of disciplining their children, different ways of expressing expectations, and different ways of reading to their children.

White parents are described as being authoritative parents. This parenting style is associated with higher achievement (Mandara 2006). Their disciplinary methods are supportive, rather than punitive. Children are involved in the decision making process regarding their lives. These parents allow their children to vocalize their feelings, and they consider their ideas. They want their children to be assertive as well as socially responsible, self-regulated and cooperative.

Many African American parents are considered authoritarian. This type of parenting is described as highly demanding and directive, but not responsive. The parents expect their orders and commands to be obeyed without question or comment. These parents provide well-ordered and structured environments with clearly stated rules. The child's opinion is not valued. African American parenting styles evidenced less warmth and less sensitivity to children's wishes, but African American parents have to prepare their children for a world that is harsher and more threatening than the one experienced by White youth (Lacy, 2007). Jenkins (2006) stated that many African American parents, no matter what their status, were suffering a sense of defeatism, leaving African American children alone to navigate the psychological and social oppression that begins at an early age. African American parents may not inquire too much about school because they feel that their child will need to know how to handle the same issues as adults and that it is part of the territory.

In addition, parents may be neglectful or indulgent (Steinberg, et. al, 1992). Neglectful parents do not discipline their children, and they are not bounded by any rules. Indulgent parents give their children whatever they want, and they suffer few, if any, consequences for inappropriate behavior. Inappropriate or appropriate behavior has no affect on the parents' reactions to these children.

Interestingly, studies show that parenting style was a major predictor of GPA for all adolescents except African Americans (Steinberg et al., 1992). In addition, Mandara (2006) cited that Dornbusch, Ritter, Leiderman, and Roberts reported that they did not find a correlation between authoritative parenting and African American achievement. In addition, Steinberg did not think any parenting style played a role in the grade point average of the African American student (Steinberg, Lamborn, Darling, Mounts, and Dornbusch, 1994). Authoritative parenting yielded good results and neglectful parents yielded poor results for both White and Hispanic

students. The Asian students appeared to produce higher grade point averages with authoritarian parenting.

Mandara and Murray (2002) found that African American boys with neglectful parents scored lower than boys with authoritative and authoritarian parents. These students displayed behaviors considered to be negative by most educators to include the personality profiles of being “highly cynical, rude, uncooperative, and generally emotionally unstable” (Mandara 2006, p. 209). Boys in authoritative homes had “high self-esteem, self-control, feelings of personal power, and secure racial identity, and they displayed a personality profile of a very well-adjusted adolescent” (Mandara, 2006, p.209).

Steinberg, et al. (1992) stated that parents influence the achievement of their children through their involvement with school activities, helping with homework, attending parent-teacher conferences, watching children in extracurricular activities or sports, and giving encouragement. Regarding African American children, neither parental involvement nor parental encouragement was a significant predictor of school performance or school engagement, paralleling the finding reported earlier that parental authoritativeness is not a good predictor of academic achievement in African American homes (Steinberg et al., 1992). It indicated that the school-specific parenting practices on adolescent achievement may be weaker in African-American homes.

Mandara’s (2006) findings indicated that African American boys whose parents were not perceived by their teachers to be actively involved were the group at greatest risk of underachievement by far. Mandara noted that teachers rated boys less favorably and perceived their parents as participating at home less often as compared with African American girls.

While the type of parenting does not appear to be a good indicator of GPA, Winsbush (2001), author of the book *The Warrior Method*, described three ways African American parents rear their children in America – the White Way, the Gray Way, and the Black Way. These parenting styles all include characteristics similar to that of authoritative, authoritarian, neglectful parent. He believed that most African American parents practiced the White Way model. He stated that,

it assumes that White society places undue burdens on young black men with police harassment, severe sentencing in juvenile court, and low

expectations for academic performance. In spite of this these parents feel that the system is basically fair to them, and if problems do arise, they can be solved within a system that is relatively stable and unbiased. (p.45)

They were submissive and usually felt that the teacher was always right. These parents had unconsciously adjusted to racism, inequality, and the impact on their children. Ogbu (2003) described the White Way parent in his work. These parents were not agents in the education process.

The Gray Way parents understood that the system that African American boys travel through must be carefully navigated (Winbush, 2001).

The Gray Way Parent differs from the White Way parents' because they react to racism rather than unconsciously accepting it. These parents are often angry and frustrated at the way their sons are treated. The Gray Way parents visited the school frequently, wrote letters to those in authority, and challenged disciplinary action. These parents took time to listen to their sons, and they were tuned in to what was happening to them. (p.49)

Winbush (2001) believed that the Black Way parents would be the most effective, but were rare. These parents were actively involved in their children's education. These parents believed that African American-centered methods and values were the only choice in raising healthy African American males. The African culture is evident in the home with books, pictures, and the celebration of Kwanzaa. Winbush (2001) indicates that, "These parents see their sons as warriors doing battle on several levels with racism, and they support them in these struggles" (p.52). The Black Way parent and the Gray Way parent are similar in that they found protest a necessary tool to ensure that their sons received proper treatment, but the Black Way parent worked for change to institutions, such as becoming schools that will help their son and others. These parents believe that the education of their son is their responsibility. The Black Way parents were extremely concerned about their sons from boyhood to manhood. These parents took an active role in their sons' upbringing. African American history and ways to overcome obstacles were stressed throughout the males' life.

Winbush stated that, "black boys can be educated to understand what the world expects of them and how they can change the negative opinions held by educators, law enforcement officials, and policy makers; and they can create effective strategies for change" (p. 193).

Winbush felt that the combination of good parenting and exposure to the African American culture was the necessary balance to achievement in school.

Teacher Factors

The Task Force on the Education of Maryland's African American Males indicated that teachers play a major role in the education of African American males. The effects noted in the report are:

- “The teacher effect can be separated from that of race/ethnicity, wealth, and parent influence.
- The teacher effect increases with grade and is most pronounced in math.
- The teacher effect on student achievement is measurable at least four years after students have left that teacher.
- The damage inflicted by having an ineffective teacher or a series of them is rarely reversed by having more effective teachers later on.
- Regardless of race, children of similar achievement levels tend to respond similarly to the same teacher.
- Teacher quality was a far more reliable predictor of academic success than students' earlier achievement, class size, and ethnic socioeconomic classification.”

(Maryland State Department of Education 2006, p.5)

Students in the Maryland report (2006) indicated that African American males wanted:

Teachers who care for them, who believe in them, who expect as much from them as anyone else, and who would give them as much. They want safe classrooms and secure playgrounds. They wanted rigor and discipline tempered with compassion and love. They wanted their school staffed with people who didn't think authority and empathy were mutually exclusive or that equity is impossible. They want teachers and administrators who aren't afraid of them, but also not afraid to care about them either. The young men weren't angry, but they were hurting. The young men did not feel forgotten as much as they felt forsaken.

(Maryland Task Force, 2003, p. 3)

This passage strongly suggested that many African American males desired to have the same educational environment as that provided to their White peers. It is also safe to conclude that the males in the report described expectations of an educational environment that would support a high probability of their academic success and future aspirations.

The Maryland State Department of Education (2006) report also stressed that highly qualified teachers must be placed in classrooms serving African American males if we want them to succeed. Well-rounded, well-trained teachers produce well-educated students. In addition to being highly qualified, teachers must be culturally competent. The modern American public school system, for the most part, is designed for and run by European American women. One problem that African American males may have in such environments is the cultural discontinuity between their parents' belief in firm parental control and their teachers' belief in a more permissive socialization style. Several studies showed that children who receive inconsistent socialization have more externalizing and internalizing problems at home and lower academic achievement (Mandara, 2006).

Gosa and Alexander (2007), quoting Bowman, Donovan & Burns (2001), noted that African American males often have a hard time forming positive relationships with teachers. African American males may be judged more severely than White males in terms of following rules and talking. This behavior can lead to problems later in school and may start to build distrust toward teachers at an early age. The African American male will probably not come to school ready to sit quietly, talk softly, raise his hands or walk slowly.

Rothman (2001) noted that there are often negative relationships between teachers and students. Some teachers simply believed that African American students could not succeed. A study in Washington, D.C. reported that honor students felt that they had to prove their honors status each year. Teachers let it be known that they wondered if these students should be in the class. African American students, including males, were often not encouraged by teachers to take Advanced, Honor, or AP classes even when the ability and grades are evident. In many cases, high goals were not set for African American males. They were not pushed to work towards their potential. Garibaldi (1992) noted in his study that 40% of the African American male students felt that teachers did not set high enough goals for them, and 60% desired for their teachers to push them harder.

Noguera (2003) asked students to respond to the comment, “My teachers support me and care about my success in their class” (p.448). Students responded with strongly agree, agree, disagree, and strongly disagree. The results are shown in Table 5:

Table 5

Responses of High School Males to the Statement, “My teachers support me and care about my success in their class”

Response	African American Males	Asian Males	White Males
Strongly Agree	8%	24%	33%
Agree	12%	42%	21%
Disagree	38%	16%	18%
Strongly Disagree	42%	18%	28%

Only 20% of African American males strongly agreed or agreed that teachers cared for them, while 80% disagreed or strongly agreed that teachers care for them. Fifty four percent of White males responded strongly agree or agree, compared to 66% of Asian male students. Asian males were at the top of the spectrum in reference to feeling that teachers cared about and supported them. White males felt supported twice as often as African American males.

It appears from the research that the teacher plays an important role in developing the African American male and may hinder or help the options that the student believes are available in school.

Counselor Factors/Help Preparing for the Future

The counselor can play an important role in helping and motivating students to take higher level classes. Thompson (2004) gave 271 African American high school students a questionnaire asking about their high school coursework and homework. About 60% of the students noted that more counseling about college was needed. Several negative quotes were noted.

It’s terrible, they’re [counselors] not involved at all; There is no contact, nothing at all!; I had to do it all, I had to do all my college stuff on my own; The best thing you can do is to go to a community college; It’s

cheaper for you to go to a community college; and it's on you to come in.
(p. 127)

The statements above do not describe all counselors. Many counselors are playing close attention to the National School Counseling Standards that identify "three aspects of development: academic, career, and personal/social" (Galassi & Akos, 2004 p. 147). Counselors must meet the diverse needs of all students. In their article, Galassi and Akos displayed *The Resiliency Wheel* designed by Henderson and Milstein (1996). If used by a counselor, the wheel could help move the student-counselor relationship into the right direction.

The wheel revolves around two themes:

1. Theme 1 - Build Resiliency in the Environment – Provide Caring and Support, Set and Communicate High Expectations, and Provide Opportunities for Meaningful Participation;
2. Theme Two - Mitigate Risk Factors in the Environment – Increase Prosocial Bonding, Set Clear-Consistent Boundaries, and Teach Life Skills (Henderson & Milstein, 1996, p. 12).

Building relationships would be a major step in the right direction. Students stated that career goals helped them in determining what classes they would need for post secondary career goals. A good counselor and student relationship has the potential to lead to appropriate class selection. If the counselor knows the career path of the student they can help the student select classes that will benefit them in high school and post secondary instruction. Students' knowledge of career goals and the classes they needed to reach the goals was evident in Harris's study (Harris, 1995).

Thompson (2002) reported that 96% of the African American students she interviewed said that they were going to college, but only 68% actually applied to colleges. Some of these students may not have known what courses were essential for them to reach their goals. Appropriate grades and course selection were essential for post secondary success. The courses taken would determine if the student was ready for work or college. If a student was going into the work force, he/she would benefit from the acquisition of technology, math, science, and/or English skills. Students hoping to enter college would need to have acquired the required units of

English, math, science, social studies, foreign language; the preferred course of study in AP , honors , IB classes; SAT or ACT scores; and letters of recommendations.

Peer Factors

Counselors make recommendations for the student's schedule, but students may also influence the classes that their friends are taking. Some students may be concerned about their peers' reaction to their schedule, and they often do not want to be the only African American in the class. Small and nearly equivalent numbers of high achieving African American and White students experienced negative peer pressure at Riverview School (Diamond et al., 2007). Among high achieving African Americans approximately 21% reported that they had experienced negative peer pressure and among Whites it was 22%. Some students also used the term in a joking or teasing manner to describe their interaction with peers, but also commented that being a "nerd" would increase anyone's chances of being teased.

Horvat and Lewis (2003) studied a group of academically successful black female high school seniors from various class backgrounds. These girls maintained friendships with multiple African American peer groups. The authors called their ability to have different peer groups, "managing academic success." Managing academic success included accommodations made by students to hide or downplay their success among some peers, but also sharing academic success with others. These students learned how to act differently among different peer group. The results from this study may not necessarily be generalized to African American males, but the African American females did not have a problem managing their academic success. Horvat & Lewis (2003) stated that the female participants of the study did not talk about being sanctioned or ostracized by their peers regarding academic success, but they did not want to make their less successful friends uncomfortable. These students changed their behavior to fit the setting they were in, but most saw this as an asset, not a problem. Students who fail to manage their academic success might become underachievers if negative peer pressure keeps them from studying, taking honors or taking Advanced Placement classes.

African American students encounter many different peers during the school day. Horvat and Lewis (2003) stated that they must "have the ability to discern and discriminate among

friends when they decide to disclose information about their academic achievements and aspirations or to disavow claims to academic excellence” (p.276). African American students can be themselves with peers with the same or similar goals. Students manage academic success or downplay their achievement when they feel they may suffer negative peer pressure or when they do not want to make their friends feel bad about their academic status, (Horvat & Lewis, 2003).

Gibson (2005) said that both the students at Shaker Heights, Ohio and at Hillside, New Jersey realized that their peers could be negative, but they could also offer support. The type of friends that one was involved with could be a determining factor in one’s school success or failure. Gibson (2005) went on to say that students depended on peers to help them with their homework, to share information about colleges and scholarships, and to provide emotional support.

Peers may be one factor associated with the African American male student taking easy courses and making the conscious decision to stay in lower track classes. The individual can make the decision to take all or some honor classes, play sports, get involved in school clubs, and/or work. The African American male can allow his peers to drive him either way. Peer groups must be used to reinforce achievement. Some students cannot handle not having friends in their classes and not socializing with the neighborhood friends. Managing academic success (Horvat & Lewis, 2003) and having a dual frame of reference (Ogbu, 2003) appear to be important strategies when dealing with peers.

Fryer (2006) noted that being academically successful in private and all-Black schools does not appear to affect a student’s relationship with peers. Students do not have to decide on being popular or smart. Integrated schools with 80% or less African Americans appear to suffer from greater peer pressure. Fryer researched to see if high achieving students have fewer, less popular friends than their low achieving peers and how this compared to White students. Fryer measured student achievement with a composite of grade point average (GPA) based on student self reports of their most recent grades in English, math, history/social studies, and science. All students were attending the same school. Students with lower GPAs had little difference among ethnic group and popularity. High-achieving African American students were more popular with their ethnic group than high-achieving Whites with theirs. African American students with GPAs

up to 3.5 continued to have more friends than those with lower grades. The students with GPA's higher than 3.5 tended to have fewer friends (Fryer, 2006).

Math and Past and Present Achievement Factors

African American students may have experienced success or failure in math classes. In addition, they may be steered in a different math path. Students in the Riverview community took a test in the fourth grade that put them on a path that would not allow the African American student to take as many math classes in high school as the White student. Many White students took Algebra I by the 8th grade, but African American students were not on the same track (Diamond, et al, (2007).

Thompson (2002) reported that her questionnaire indicated math was the most difficult subject for 70% of the high school African American students she interviewed. While math may have been difficult for a large portion of these students, those having success continued to take courses in the subject area. If African American students experienced failure, they appeared to stop taking math classes once they reach the requirements needed to graduate, and they did not appear to elect to take any higher level math classes.

Harris (1995) reported that students stated a variety of reasons for taking math classes beyond the requirements. Their reasons included: earning high grades in previous classes; math was enjoyable, they enjoyed working with numbers, and they noted that the classes built on acquired skills from one level to the next..

Summary

Findings in educational studies point to several reasons for the underachievement of African American males that may cross socioeconomic levels.

1. They include: Low teacher expectation (Murray and Jackson, 1999)
2. Tracking into low ability classes (Kershaw, 1982)
3. Underachieving peer groups (Bankston & Caldas, 1998)
4. Stereotypes from television, movies, music, and videos (Jenkins, 2006)
5. Lack of parent involvement (Ogbu, 2003)
6. Community interactions (Ogbu, 2003)

7. Limited or no knowledge of African American history (Winbush, 2001)

Most studies have focused on lower income and urban African American males. Presumably the middle class African American male in most cases has the parental involvement, economic stability, educated parents, exposure and integrated enrichment activities, good role models, and community support (Lacy 2007). Even with this, many African American males are not succeeding or working up to their full potential. In spite of all the stable socioeconomic and educational supports, many middle class African American males can still be found in low-ability classes, hanging out with low-achievers, with low teacher expectations.

The research completed by Gayles (2005) and Fisher (1999) illustrates that students can succeed. Gayles' research pointed out that students can separate their achievement and social environments. Fisher's study showed that many African American students are underachieving. One can question if these students need to be taught about the dual frame of reference or managing academic success. African American males have many obstacles, and they need to learn strategies to help eliminate the obstacles that lead to poor achievement.

Researchers such as Steele and Ogbu have stated their opinions on why African American students are not successful and/or not enrolled in challenging classes. Steele (1992) found that African American students become disengaged with academic performance. Ogbu (2003) looked at the low educational achievement of affluent African Americans and indicated that the students were characterized by Low Effort Syndrome. The students were not highly engaged in schoolwork and homework and rejected many of the "acting White" behaviors. While Steele and Ogbu identified disengagement and Low Effort Syndrome as possible causes for the underperformance of African American students, Gayles (2005) found students who were achieving despite social and cultural factors. He found three young men who separated their achievement and social life; therefore, they were successful in school.

Harris (1995) argued that African American males were influenced by a host of factors when deciding to take higher-level math classes. Harris focused on how adults (such as parents, teachers, and counselors) influenced the choices that middle class African American males make when selecting classes. He also looked at how peer factors, past and present performance in math and/or other classes and having a love of math influenced the courses taken by African American

males. Lastly, Harris also suggested that high school requirements and post secondary plans/ future plans for life after high school influenced the students' choice in taking higher level math classes. Harris concluded that these factors can have a positive influence on the course selections made by students. He noted that both the home and school expressed high expectation for the students. Harris felt that the factors could be replicated to help other students succeed.

CHAPTER 3 METHODOLOGY

Chapter 3 describes the methodology used to conduct a case study examining the perceptions and experiences of high achieving middle class African American males in the high school setting. This study was designed to pinpoint the factors that African American students, parents, teachers, counselors, and peers perceive influence high achieving African American males to take higher level math courses. The study is based on the eight factors that comprise Harris model of Influential Factors.

1. Parents,
2. Past and present achievements,
3. Teachers,
4. Love of math,
5. Counselors,
6. High school graduation/college admissions requirements,
7. Peers, and
8. Future plans.” (Harris, 1995)

This chapter includes the following sections: research questions, the rationale for a qualitative study, the setting, participant selection procedures, procedures, informed consent and permission procedures, data collection procedures, data analysis procedures, data quality procedure, and a brief summary.

Research Questions

The specific questions explored in this study are:

1. What were the perceptions of the high-achieving African American males in the study and their families, friends, and school officials (collectively the “Interested Parties”) with regard to why the males took higher level high school math classes?
 - a. To what extent did the Interested Parties perceive that parents, counselors, and teachers influenced the decisions of the African American males to take higher level math classes?

- b. To what extent did the Interested Parties perceive that prior success in mathematics and other classes influenced the decisions to take higher level math classes?
- c. To what extent did the Interested Parties perceive that peers influenced the decisions to take higher level math classes?
- d. To what extent did the Interested Parties perceive that graduation requirements and/or post/secondary plans influenced the decisions to take higher level math classes?
- e. To what extent did the Interested Parties perceive that a love of math influenced the decisions to take higher level math classes?

Rationale for a Qualitative Design

A qualitative case study provides an opportunity for the researcher to study a real life phenomenon in the natural setting. In many cases, the reasons for the phenomenon are unknown. The qualitative study helped the researcher understand and explain the phenomenon (Merriam 1998; Yin, 2003)

In addition, Merriam (1998) defines qualitative case studies as being particularistic, descriptive, and heuristic. A case study is particularistic because it has a focal point. The unique focal point of this study is the middle class African American male. This study looked at the achievement of students taking and excelling in higher level classes. Case studies are descriptive because the data gathered is reported and analyzed with great detail. Case studies are also heuristic because the researcher is able to draw conclusions that will help others both understand the phenomenon and think about options for change.

A qualitative case study was appropriate because it allowed the researcher to study high-achieving African American males in great depth. The participants responded to the open-ended questions in their own words. The author of this study asked for clarification and probed for more detail as needed (Best & Kahn, 2003).

Setting

The setting for this study was a suburban school in Virginia. Theodore High School was selected because there were sufficient African American males in the school from middle class

families taking higher-level math classes. Theodore High School enrolls approximately 2,000 students. The median income of families at the school exceeds \$70,000. Slightly over half the student population is White, about a quarter of the population is Hispanic, and most of the rest are African Americans. Only about 25% of the students qualify for free and reduced lunch.

Curriculum offerings include the core areas of English, mathematics, science, social studies, and health/physical education, along with a variety of foreign languages and a wide range of electives. Individual needs of students are further met with honors and Advanced Placement classes. The eight block schedule allows students to broaden the scope of their studies while having the opportunity to earn thirty-two credits to include higher level math courses. The courses that a student may select beyond Algebra II/Trigonometry are AP Statistics, Calculus I, AP Calculus BC, AP Calculus AB, Math Analysis, Algebra III, Trigonometry and/or Probability and Statistics.

Twenty-two credits are required for a standard diploma and twenty-four credits are required for an advanced studies diploma. The opportunity to take 10 credits beyond the graduation requirement allows students to take higher-level math courses beyond Algebra I, Geometry, and Algebra II/Trigonometry. If students take Algebra I in the 8th grade, they are eligible to take a higher level math class in the 11th and 12th grades. If students take Algebra I in the 9th grade, they are eligible to take a higher level math class in the 12th grade.

Participant Selection Process

The subjects of this study consist of African American male students who meet the criteria of taking higher level math classes and come from a middle class family. The students were selected by purposeful sampling. Purposeful sampling assumes that this study's author wanted to gain information from a specific group (Merriam, 1998). The students involved in this study were middle class 11th and 12th grade African American males who were taking higher-level math classes. Higher-level math classes were defined as Algebra III, Math Analysis, AP Statistics, Trigonometry, Probability and Statistics, Calculus I, AP Calculus AB, and/or AP Calculus BC. The Guidance Director was asked to identify African American male students who met the criteria of taking higher-level math classes.

The author of this study determined which of the identified African American male students had parents with middle class status. For the purpose of this study, middle class was defined using several criteria including: (a) not on free and reduced lunch, (b) parental occupation(s) with a salary that fell within the middle class range of \$50,000-\$99,000, (c) parental education beyond high school, and (d) residence in a middle class neighborhood within the school boundaries. The middle class salary range for the purposes of this study was based on Lacy's (2007) definitions of middle class: lower middle class \$30,000-\$49,000; middle class income \$50,000 - \$99,000; and upper middle class \$100,000 and above. This study focused on students whose parents' income fell within the \$50,000 - \$99,000 range.

If more than three students met the criterion once permission slips were returned, the following selection process was put in place

1. Priority was given to seniors taking a fifth year of math (including Algebra I in middle school) such as Calculus I, AP Calculus BC, AP Calculus AB, or AP Statistics who had met the requirements for both graduation and/or college admission.
2. If participants were still needed, seniors who were taking either Math Analysis or Algebra III or Probability and Statistics, or Trigonometry and who had met the requirements for both graduation and/or college admission were selected.
3. If participants were still needed, juniors were selected who had taken Math Analysis, AP Statistics, Algebra III, Probability and Statistics, and/or Trigonometry. (See Appendix E and F)

Parents, counselors, and teachers were also asked to participate in the study. These participants were selected based on the student participants. The parents, the school counselor(s) for the students and all math teachers who had taught a math course to the selected students were asked to participate in the study.

Informed Consent and Permission Procedures

Prior to conducting the study, approval was needed from the school district and Virginia Tech's Institutional Review Board (IRB). To gain permission to conduct the research at Theodore High School, a meeting was scheduled with the superintendent and principal to explain

the nature of the study. Research questions, type of design, desired participants, interview questions, and parental consent forms were presented. The superintendent wrote a letter giving the researcher permission to conduct the study in the district (See Appendix H). Paperwork was completed requesting permission for research from the Virginia Tech Institutional Review Board after the prospectus.

Once potential student participants were identified a phone call was made and the telephone script was read to the student and parents explaining the study. The students and parents were and asked permission to send the description of the study and the parental consent form to parents of the selected students. Once a parent consented to their child's participation, the researcher met with the selected participant individually at a mutually agreed upon date and time. The student was asked for assent to participate. The parental consent included written consent to digitally record the interview.

The teachers and counselors of the selected students received a phone call explaining the study and they received a description of the study. Once the staff member consented to their participation, the researcher met with each participant individually at a mutually agreed upon date and time. Each consent form included written consent to digitally record the interview.

Assurance of Confidentiality

The parental consent process informed parents and students that their information would be kept confidential. A coding system was used to identify the students, parents, counselors, and teacher. Students and parents were identified by numbers (Examples: Student A 1, Parent A 1). Teachers were identified by color (Examples: Blue Teacher, Green Teacher, and Red Teacher, etc.). Counselors were identified by letters (Example: Counselor A, Counselor B, etc.). A key with the participant names and their identifying code were locked in a file cabinet assessable by the researcher only. The key and data were stored in two different locations. The actual names of the participants did not appear on any documents, only the coded name. Pseudo names were used in all reports of findings of the study.

The interviews were digitally recorded and transcribed. All transcribed documents were locked in a file cabinet. All subjects were informed that they were free to leave the study at any time because participation in the study was voluntary (Yin, 2003).

Data Collection Procedures

Protocol Development

Questions were adapted from the replicated Harris study. Each question from the Harris study was read, revised, or deleted as needed. The questions were field tested with students over the age of eighteen who were not eligible for the study.

Counselors working at other schools, parents with students in lower grades, and teachers at another school were used to field test the adult questions. All these parties were asked if the questions were easy to answer and if they understood what was being asked. Secondly, the researcher looked at the answers to determine whether the questions were yielded relevant information. Questions were revised as needed after the field test, if they were confusing or did not reap any functional information.

Student Interview

Permission for students to participate in the study was requested by having the students and parents sign a letter for participation. Interviews were held over the period of three months. The students were recorded using a digital audio recorder. Once the interviews were conducted, the researcher transcribed the interviews. The transcriptions were used for the analysis.

Student answers to the questions in Appendix A indicated if students suffered from low effect syndrome, and if they associated taking challenging classes with acting white. The participants' responses to the questions revealed how much they were influenced by parents, teachers, counselors, and peers. Interviewing multiple students allowed the researcher to see if the factors affected all students the same. The participants' answers were informative regarding the role that a love of math, previous success in math and other classes and/or future plans play in decisions to take higher level math classes. This depth of information would not have been evident in a survey or other forms of qualitative study.

Adult Interviews

Interviews of adults to include parents, teachers, counselors, and the math department supervisor took place over three months. Semi-structured open-ended questions as seen in

Appendices B, C, D, and E were asked of parents, counselors, teachers, and the math department supervisor, respectively.

African American parent involvement and support were not considered significant predictors of school performances. (Steinberg, Dornbusch, Darling, 1992). Both students' answers in Appendix A and parents' answers in Appendix B uncovered the influence that parents have on their children's decision to take higher level math classes. By talking to parents, I determined whether the parents had high expectations for their children and if they played a part in selecting higher level math classes. I analyzed the collected data regarding whether the parents and student perceptions were the same. Did the students actually listen to their parents and how great was the parent's influence?

The Maryland Report (2003) stated that the teacher effect increases with grade and is most pronounced in math. In addition, teacher quality was a predictor in student's academic success. The teacher and counselor interview questions in Appendix C and D probed how teachers may have encouraged or not encouraged students to take higher level math courses. Teachers told why they may not have supported student goals to take higher level math classes and if the low effect syndrome was evident in their classes. The counselor must look at the whole picture and help the student make correct decisions regarding their future, especially when all parties involved have not suggested the same options for classes.

Lastly, the math department supervisor answers to questions in Appendix E made known the policies and goals of the school in reference to encouraging African American males to take higher level math classes. The department supervisor also knew the feeling of the department and what they do to make the experience successful for students.

Interviewing provided in-depth responses that would not be received with surveys. The researcher looked at what factors influenced students to take higher level math classes. The interviewing of students, parents, teachers, counselors, and the math department supervisor gave the researcher a well rounded picture of how the Harris factors influenced the students in making decisions on taking higher level math classes.

In addition to the interviews, adults were asked what data they relied on to help them make recommendations to students' regarding their course selection decisions. Adults were

asked if they use report cards, MAP testing if available, past teacher recommendations, SOL scores, PSAT scores, and/or SAT scores.

Data Analysis Procedures

Analysis of Interview Transcripts

The researcher analyzed the responses participants made to identify the most common themes related to the research questions. Categories included those in the Harris' Model of Influential Factors: parent, teacher, counselor, and peer encouragement, support, expectations, past and present achievement, love of math, high school graduation/college admissions, and future plans. The researcher also analyzed the responses to determine whether any additional categories appeared in the data.

Data were collected, organized, and then stored in a locked file cabinet. Focus was given to the research questions dealing with factors that influenced high achieving African American males to take higher level math classes. The interview format allowed each participant an opportunity to express their thoughts and views as they related to them individually. Focusing on excerpts allowed me to highlight what influenced parents, counselors, teachers, and peers had on the students' course selections in reference to the Harris factors. The students gave firsthand information regarding their contributions in deciding the classes they would take..

Data from each interview was constantly compared (Merriam, 1991). This study's author interviewed the individual, transcribed the interview, and then made notations on the field notes, if comments were of interest. Comments were grouped and categorized as it is compared. These steps were taken after each interview. Constant comparison after each interview was the focal point when adjusting questions.

When reviewing the data the author of this study looked for direct quotes, expressions, and perceptions that helped explain how students define failure or success, the roles of adults, and the role of peers. The author looked for underlying patterns, themes, and connections between various categories that address the research questions. Differences of opinions were also noted. The author looked for material that was consistent or inconsistent with the theories of Steele (1992), Ogbu (2003), Gayles (2005), and Steinberg (1992, 1994), Harris (1995), and the Maryland State Department of Education report (2006). The author used participants' language

as much as possible. The author also wrote down reflections after each interview and discussed the findings with individuals in the field.

Document Review

Several school documents such as the School Improvement Plan, student schedules, transcripts, emergency cards, and other forms of communication were reviewed. The data from the documents validated information gathered from other sources including parents, students, teachers, and counselors (Merriam, 1998). Documents provided information that was accurate and that had been collected for reasons other than research (Yin, 2003).

Class schedules were used to determine what math courses the student were enrolled in for the current school year. The schedule was also used to identify current math teachers. The transcripts were used to determine: (a) the previous math classes taken in grades 8, 9, 10, and/or 11 by the student, (b) previous teachers, and (c) the grade earned for each class. The report card revealed the grade for the current math class. The emergency card was used to obtain personal information to include address and parent occupation, which helped the study's author determine if the student met the criteria for middle class. The guidance records shed light on the student's achievement throughout school.

Data Quality Procedures

Validity

Validity in qualitative studies is important in order to ensure that the information is believable and can be explained or justified (Johnson, 1997). The following was included in this study to increase its validity: participant feedback, low inference descriptors, peer review and data triangulation.

Participant feedback involved letting the study participants review the data analysis. The participants were asked to check to see if what they said was represented in the correct manner. They were given the opportunity to clear up any misunderstandings (Johnson, 1997).

Low inference descriptors were used by the researcher to convey the actual language of the participant. Direct quotes were used to give the reader an understanding of the participant's thoughts and attitudes (Johnson, 1997).

Colleagues, including fellow administrators and educators, were asked to review the research through peer reviews. Colleagues provided valuable input. They were asked to question a comment by the researcher or participant. In addition, colleagues had the opportunity to suggest that more detail was needed in a section or question and why certain elements were added or missing (Johnson, 1997).

Data triangulation allowed the researcher to collect data from different people including students, parents, teachers, and counselors. The researcher checked to see if the information obtained from these different sources was in agreement. Comments and quotes were compared from the students, peers, teachers, and counselors interviewed during the study. The researcher looked for common themes and comments.

Internal Validity

Internal validity deals with the reality. Did the researcher tap into what was actually happening? The study yielded conclusions that shed some light on why some middle class African American students were successfully taking higher level math classes. Parents, teachers, and counselors were interviewed in the same setting (Merriam, 1998).

The internal validity was checked using participant feedback. Participants were asked to read what the researcher wrote to see if it accurately depicted their feelings. Analyzing interview material from students, parents, counselors, and teachers resulted in data triangulation (Merriam, 1998).

External Validity

External validity involves the ability to generalize across studies (Merriam, 1998) The researcher used thick, rich descriptions in hope, that the reader would be able to determine if findings could be generalized. Case studies do not usually lend themselves to generalization, but in the Harris (1995) study, the researcher hoped that the findings could be used to assist other middle class African American males by making more resources available.

Summary

Chapter Three discussed the case study methodology used in this study and described the purpose of the study, research questions, study participants, data collection, and data analysis.

Chapter Four summarized the finding of the study. Chapter Five presented the conclusions, implications, and recommendations for further study to support the needs of educators to facilitate the math achievement of African American males.

PROLOGUE TO CHAPTER 4

Participants

The prologue will give the readers details about the participants and the school. The reader can gain insight on the participants.

Student A2(Student will be referred to as Paul in Chapters 4 and 5)

Grade 12 (2010-2011)

Mathematics Classes – Algebra I (8th grade), Geometry (9th grade), Algebra II (10th grade), Algebra III (11th grade), No math class (12th grade)

SOL Results- Algebra I (510), Geometry (428), Algebra II (433)

SAT Score – None listed on transcript

Student A10 (Student will be referred to as Charles in Chapters 4 and 5)

Graduated from high school in June 2010, attending college

Mathematics Classes in high school – Algebra I (8th grade), Geometry (9th grade), Algebra II/Trigonometry (10th grade), Math Analysis (11th grade), AP Calculus and AP Statistics (12th grade).

SOL Scores- Algebra I (535), Geometry (600), Algebra II (600)

SAT Score – Math (720)

Student B7 (Student will be referred to as Michael in Chapters 4 and 5)

Grade 11 (2010-2011)

Mathematics Classes- Algebra I (8th grade), Geometry (9th grade), Algebra II (10th grade), Algebra III (11th grade – dropped the class before the two week deadline 9/17/10).

SOL Scores – Algebra I (402), Geometry (369), Algebra II (338)

SAT Score – None listed on the transcript.

Green Teacher

Educator for 25 years in public school setting

Currently teaching – Geometry, Geometry Skillbuilders, Algebra 2/Trigonometry, Math Analysis, AP Statistics

Previously Taught – Algebra I, Probability and Statistics, Math 8, Honors Geometry

Yellow Teacher

Educator for 35 years in public school setting/taught 7 years part time at NOVA

Currently teaching – AP Calculus (BC), Math Analysis, Geometry

Previously taught – 7th Grade Math, 8th Grade Math, Algebra I, Math 9, Math Applications, Algebra Readiness, Algebra I Part I, Algebra II/Trigonometry, AP Calculus (AB)

College Level – Developmental Math, Liberal Arts Math, Pre-Calculus, Calculus I, Statistics

Red Teacher

Educator for 5 years in public school setting

Currently teaching – Geometry, Algebra I, Probability and Statistics, Trigonometry

Previously taught – Algebra II, Algebra Functions and Data Analysis, Geometry Skillbuilders

Purple Teacher

Educator for 26 years in public school setting

Currently – Athletic Director

Previously taught – Algebra I, Algebra II, Geometry

Pink Teacher

Educator for 12 years in public school setting

Currently teaching – Algebra Functions and Data Analysis, Geometry

Previously taught – ESOL Mathematics, Algebra I Part I, Algebra I Part II, Algebra I, Integrated Algebra and Geometry I, Integrated Algebra and Geometry Part II, Geometry Skillsbuilders, Algebra II, Algebra II/Trigonometry, Probability and Statistics

Orange Teacher

Educator for 27 years in public school setting

Currently Teaching – Geometry, Math Analysis, Calculus I

Previously Taught – General Math 9, Consumer Math, Algebra I, Algebra I Part 2, Basic Geometry, Advanced Geometry, Algebra 2/Trigonometry, Trigonometry, SAT Prep, Probability and Statistics

Brown Teacher

Educator for 2 years in public school setting

Currently teaching – Algebra II, Geometry

Previously Taught – Algebra II

Blue Teacher

Educator for 15 years in public school setting

Currently teaching – Inclusion Geometry, Honors Algebra II/Trigonometry, Calculus I

Previously taught – ESOL Algebra Readiness (Pre-Algebra I), Algebra I Part I, Algebra I, Algebra I Part II, Geometry, Inclusion Geometry, General Algebra II, Algebra II/Trigonometry, Algebra 3 (College Algebra), Calculus I, AP Calculus (AB), AP Calculus (BC)

Counselor A- Counselor for 28 years in public school setting

Counselor B- Counselor for 11 years in public school setting

Counselor C – Counselor for 9 years in public school setting

Table 6

Number of Students in Higher Level Mathematics Classes 2009-2010 and 2010-2011

Course	Year	Asian		Black		Hispanic		White	
		Male	Female	Male	Female	Male	Female	Male	Female
Algebra III	2009-10	5	1	7	2	4	16	35	21
Algebra III	2010-11	5	5	8	16	12	10	39	43
Probability and Statistics	2009-10	1	1	5	1	5	4	19	16
Probability and Statistics	2010-11	0	0	2	4	4	4	0	2
Trigonometry	2009-10	2	3	3	3	3	6	18	15
Trigonometry	2010-11	0	0	1	0	2	1	6	5
Math Analysis	2009-10	7	6	1	5	8	4	38	33
Math Analysis	2010-11	6	3	2	3	4	10	39	35
Calculus AB	2009-10	1	1	0	0	1	0	8	2
Calculus AB	2010-11	0	0	0	0	0	0	0	0
Calculus BC	2009-10	2	1	1	0	1	0	10	5
Calculus BC	2010-11	4	3	0	1	2	1	7	9
AP Statistics	2009-10	1	1	1	0	1	0	0	6
AP Statistics	2010-11	0	0	0	0	2	1	5	6
Calculus I	2009-10	1	1	1	1	0	0	10	12
Calculus I	2010-11	0	0	1	2	3	1	17	13

Table 6 indicates number of students taking upper level mathematics classes by ethnic groups. Caucasians took the most upper level mathematic classes. In 2009-2010, 56 Caucasians took Algebra III compared to 9 African Americans. In 2010-2011, 82 Caucasians took Algebra III compared to 24 African Americans. The number of African Americans in enrolled AP classes such as Statistics and Calculus African American enrollment was even less. In 2009-2010 only one African American took AP Statistics compared to 6 whites. In 2010-2011, there were no African Americans taking AP Statistics.

When taking upper level mathematic classes, African Americans appeared to be more likely to take Algebra III, Probability and Statistics, Trigonometry, and/or Math Analysis. The numbers were much lower in Calculus I, Calculus AB, Calculus BC, and AP Statistics.

The researcher identified three students to be included in the study. Students were selected from Sample A and Sample B. Sample A students were enrolled in upper level math classes in the 2009-2010 school year. Sample B students were enrolled in upper level math classes for the 2010 – 2011 school year. Two students were selected from Sample A. When Sample A was exhausted the researcher expanded the search for an additional student by reviewing students in Sample B.

Sample A was comprised of 13 students. Two students agreed to participate in the study from this sample. Three students were never contacted because they failed their math class. One student indicated that he was too busy. Four students/parents did not return phone calls after the initial contact. One student moved out of the state. Two students did not meet the middle class criteria. (See Table 7)

Table 7

Sample A- African Americans Students Taking Upper Level Mathematics Classes in 2009-2010

Student	Grade	Course	Paperwork Mailed	Paperwork Returned	Comments
Student A1	11	Algebra III	Yes	No	Indicated too busy on phone call
Student A2	11	Algebra III	Yes	Yes	Agreed to participate
Student A3	11	Algebra III	No	No	Never returned call
Student A4	12	Algebra III	No	No	Failed class
Student A5	12	Algebra III	No	No	Failed class
Student A6	12	Algebra III	No	N/A	Did not return phone calls
Student A7	12	Algebra III	No	N/A	Failed class
Student A8	11	Math Analysis	No	N/A	Moved out of the state
Student A9	12	Math Analysis	Yes	No	Did not return follow-up phone call
Student A10	12	AP Calculus BC AP Statistics	Yes	Yes	Agreed to participate
Student A11	12	Calculus I	Yes	Yes	Did not meet criteria
Student A12	12	Trigonometry Probability and Statistics	Yes	No	Did not return follow-up phone call
Student A13	12	Trigonometry	No	N/A	Did not meet criteria

From Sample B, one student agreed to participate in the study after several contacts. Seven students were contacted by phone, but the student and/or parents did not return the phone calls. One student did not meet the criteria. Two students from Sample A were also in Sample B. Of these two students one student remained too busy and the other student moved out of state. One parent did not think her son wanted to participate in the study. (See Table 8).

Table 8

African American Students Taking Upper Level Mathematics Classes in 2010-2011

Student	Grade	Course	Paperwork Mailed	Paperwork Returned	Comments
Student B1	12	Algebra III	No	N/A	Called, No response
Student B2	11	Trigonometry Probability and Statistics	No	N/A	Called, No response
Student B3	12	Trigonometry Probability and Statistics	No	N/A	Did not meet criteria
Student B4	12	Trigonometry	No	N/A	Called, No response
Student B5	12	Trigonometry Probability and Statistics	No	N/A	Too busy to participate in the study (A1 in Sample A)
Student B6	12	Calculus I	No	N/A	Moved to another state (A8 in Sample A)
Student B7	11	Algebra III	Yes	Yes	Agreed to participate in the study
Student B8	12	Algebra III	No	N/A	Called, No response
Student B9	12	Trigonometry Probability and Statistics	No	N/A	Did not meet criteria
Student B10	12	Algebra III	No	N/A	Called, No Response
Student B11	12	Algebra III	No	N/A	Called, No response
Student B12	12	Probability and Statistics	No	N/A	Decided not to take the class
Student B13	11	Math Analysis	No	N/A	Called twice, parent said child would not want to do this

Table 9

Grades obtained in math classes by students in the study 2010-2011

Name	Algebra I	Geometry	Algebra II	Algebra II and Trigonometry	Algebra III	Math Analysis	AP Calculus	AP Statistics
Student A2 Grade 12	77	77	87	N/A	78	N/A	N/A	N/A
Student A10 Graduate	99	97	N/A	94	N/A	97	95	95
Student B7 Grade 11	80	69	68	N/A	Dropped	N/A	N/A	N/A

Note: Grades of students participating in the study

CHAPTER 4 FINDINGS

Three students were selected to participate in the study. Chapter four provided findings as they related to Student A2 (Paul), Student A10 (Charles) and Student B7 (Michael).

Paul was a likable student. He associated with a few close friends who were Asian. The counselor described Paul as a young man interested mainly in literature with a slight interest in video games. The counselor believed that he stayed away from other African American males because his interests were different. Paul took four classes his senior year of high school and had an early dismissal daily. Paul expressed an interest in attending college after high school when he started high school, but he most recently talked about joining the Air Force after completing high school.

Charles was a very studious student. He was not interested in looking or acting cool, but academics played a important part in his life. Charles had high expectations for himself and planned to follow in his father's footsteps to become an engineer. He wanted to take as much math as possible. Charles was described as curious and often visited teachers after school to gain additional knowledge about concepts that were taught in class. Charles always wanted to know "why" and he was not satisfied with surface answers. Extracurricular activities included the Math Honors Society and the Robotics Club. Charles closest friends were White. He stated these were his friends because they were in his classes and they were his neighbors.

Michael was described as being extremely quiet. Most teachers commented that he worked better with one on one instruction. One teacher, who had also been a basketball coach stated that he tried to draw Michael out. While quiet in the classroom, Michael showed

confidence on the basketball court. He scored double figures in most games. Michael maintained a cool demeanor on the basketball court while he scored and rebounded. Michael was friends with a diverse group of peers and many were also athletes. Michael's planned to attend college and to become a basketball coach or commentator.

Data were collected from students, parents, teachers, the math department supervisor, and counselors. Each participant answered questions in one-on-one interviews. Paul and Michael had their mothers attend the interview; Charles had both parents attend the interview. Paul and Michael were asked follow up questions.

Paul was asked an additional question because he decided not to take a math class his senior year. He decided to have a reduced case load of four classes this school year. Paul noted that he would probably go into the Air Force for four to six years and then go to college. Paul noted that he had not talked with his counselor, but he had just come up with a plan.

Charles is currently in college. He noted that his teachers and parents expected him to go to college. He said his parents pretty much stated it. In addition to taking the upper level math classes in high school he also took Computer Math 1, Computer Math 2, Cisco I, and Electronics I, to help him prepare for college. He took Single and Multi Variable Calculus during the fall semester in college, and noted that he would be taking Differential Equations the spring semester. He plans to study electrical engineering and computer science. After college, he will consider graduate school or a job.

Michael was asked an additional question because he dropped Algebra III and decided not take a math class this school year. He filled out paperwork after the September 17, 2010

deadline to drop Algebra III because he felt it was too much taking Algebra III and Chemistry at the same time. His reasoning was that he would take Algebra III or another math course his senior year. On the add/drop request, the math department supervisor wrote that she did not suggest skipping a year of math. The school counselor said that she was not consulted. The Director of Guidance denied the change. After the denial, the parent contacted the Principal, who approved dropping the class. The student, student's mother, teachers, and school counselor had been interviewed prior to September 17, 2010.

Michael is also a basketball player. His athletic ability suggests that he will definitely be attending college on a full scholarship. His busy schedule may or may not have been a factor in his decision to focus on Chemistry and to take math the following school year.

When the parent read her interview transcripts she asked if she did the right thing. The researcher expressed concern that the student was losing a year of instruction in math and this may have a negative effect since math was not a strong area for him. Michael and his parents were not offered any alternatives. Neither the school counselor nor the Director of Guidance were given an opportunity to offer alternatives such as after school tutoring, study groups, and/or changing the math course. The Principal should have directed the parent back to the teacher, school counselor, and/or Guidance Director. Michael appeared to have low self-esteem in his ability to be successful in math. Thompson (2004) mentioned that a poor teacher may affect the student for many years. Michael's teachers may not have opened up his math interest or ability.

Many African American males may experience setbacks because they are not receiving appropriate advice. Three students in Sample A actually failed the upper level math class that

they were enrolled in. Sample A student's elected failure over working to maintain a decent grade in classes. Semester grades in January 2011 indicated that four students from Sample B were currently failing. Two students have D's and three students had C's. Michael and his parents made a decision to drop the class rather than experience the possibility for failure, but they did not receive any counseling to make sure the best decision was in place for Michael.

The data were reviewed to answer the research questions. The main research question was: What were the perceptions of the high achieving African American males, their families, friends, and school officials (collectively the "Interested Parties") with regard to why the males took higher level high school math classes? Data from the interview sub-questions was displayed in five parts for each group interviewed.

Student Perspectives

A. To what extent did the Interested Parties perceive that parents, teachers, and counselors influenced the decisions of the African American males to take higher level math classes?

When asked who helped you make decisions about math classes, Paul expressed "It was not one person." "I just wanted to finish, to do four years." When asked to describe conversations with someone regarding taking a math course, Paul said that he did not talk to his parents, but he had talked to one teacher and his school counselor in past years. Paul stated, "I don't really go to no people on the faculty, I kind of talk to friends or keep to myself" when asked who he goes to when he needed to talk or had a problem.

Charles stated that a lot of people had influenced him to take math. Charles stated "If I had to say who helped me make these decisions, definitely friends and family." When asked to

describe conversations with someone regarding taking a math course Charles acknowledged that there were no specific conversations about math, but he often used his father as a resource since he was an engineer. In addition, Charles talked to several teachers about courses including math and science. When asked who he goes to if he encounters a problem in class, Charles stated “There are many people that I go to. If there is a problem in a class it depends on the class. If it is math I would stay with the Yellow Teacher. Friends are also a big help.”

Michael expressed the following when asked who influenced him, “My parents and everyday when I go home they influenced me to keep on trying.” When asked to describe a conversation with someone regarding taking a math course Michael stated that he had conversations with his parents and counselor. Michael stated that he went to one of his basketball coaches when he had a problem or needed someone to talk to. He stated “He helped me often by just helping me.” Michael mentioned being able to go to this coach’s room to get help whenever needed.

B. To what extent did the Interested Parties perceive that prior success in mathematics and other classes influenced the decisions to take higher level math classes?

Paul and Charles expressed the idea that math was easy and used the example that $1 + 1 = 2$. Paul stated “You always know that $1 + 1 = 2$, you don’t have to really think outside of it that much, it’s not, it’s for certain, it’s for sure, you know.” Charles stated “I think logically when I do things. Math is something that flows logically (like $1 + 1 = 2$), that I can readily apply to thing I done in my everyday life.” While Paul and Charles voiced that math was easy,

Michael stated that math was tough. He stated “I never really got math, but I just try my best in classes.”

All of the students knew that higher level math classes were needed for college.

Paul took Algebra III his junior year and when asked if he planned to take a math class for the 2010-2011 school year he stated “I can’t, there are no more classes to add.” Paul knew that he had enough credits for an advanced diploma. He also knew that he did not want to take Trigonometry or any other advanced mathematics classes.

Charles added AP Statistics to his schedule his senior year. He stated “I did not have an open class spot and I had to switch out of another class and then continue that on my own time, so to work on Statistics that was pretty much out of self interest.” Charles also noted that math was the most important subject and would be the most use to him. He stated that there should be four years of math and less English and Social Studies.

Michael stated colleges like higher math. He signed up for Algebra III and stated “I am taking Algebra III and my parents pretty much told me to do that and I thought it was best for me also.” Michael listened to his parents on two separate occasions. They encouraged him to both take the class and to drop the class. Michael understood that Algebra III would give him an advanced diploma and that it would look good on his high school transcript for college. Once the class started, Michael decided that the class was more advanced than he had expected. Michael decided to focus on Chemistry and to raise his grades before tackling a math class his senior year of high school.

C. To what extent did the Interested Parties perceive that peers influenced the decisions to take higher level math classes?

None of the students expressed that their peers had ever discouraged them from taking higher level math classes. When asked what their peers planned to do after high school, Paul stated, “They are going to college, probably Northern Virginia Community College (NOVA)”, if I had to say and “We are going to college.” Paul indicated that most of his friends were Asians.

Michael stated “One of my best friends is pretty smart and he sends a lot, he is a senior and he sends a lot of things like to different colleges. Like he hopes to go to Navy and stuff like that and that just influences me because I don’t want to be left behind and stuff like that.” Michael noted that he has a variety of friends to include African American, White, and Hispanics. He is close to the students on the basketball team.

In reference to his friends’ influence, Charles stated “I couldn’t say their plans, but definitely what we do together and our interests have sort of shaped what I plan to do with my life. Like for instance with one friend, we like to just make a lot of stuff and work a lot, build stuff in his garage and in his yard. Definitely I can say the aspects of creation and electronics and thinking and designing things on your own might have shaped me more towards the career path that I am choosing.” The majority of his friends were taking the same route as him and they were identified as being White.

D. To what extent did the Interested Parties perceive that graduation requirements and/or post secondary plans influenced decisions to take higher level math classes?

All of the students knew the graduation requirements for a standard and advanced diploma. All of the students planned to take at least take four years of math to receive an advanced studies diploma. Charles also knew that he wanted to take courses such as AP Calculus and added AP Statistics to his schedule his senior year. He would have taken these classes with or without requirements because he was interested in the classes. Charles's goal is to become an electrical engineer, and he felt math would be the core in everything. He felt that engineering and medical science careers required math, and this was where the money is.

Paul stated that he had talked to a teacher and his counselor, but not really his parents. His comments included "I haven't really talked to my parents all that much. He also noted that Counselor B had told him to just keep his grades up because that would allow him to go to any college that he wanted to."

Michael stated "some of the things you learn in math class can help you further in life." He also verbalized "I would probably do it again because I just need it." He signed up for a fourth year of math to receive an advanced studies diploma. He was taking math because he needed it to achieve that goal.

E. To what extent did the Interested Parties perceive that a love of math influenced the decisions to taker higher level math classes?

Paul never stated that he loved math. He stated "I wanted to do as much math as possible to keep myself you know, keep sharp." "I wanted to do four years." When asked if he would take the same math classes, Paul stated "Yeah, I like it because like I said that if you take math $1 + 1 = 2$ and $2 + 2 = 4$ and you know that there is not much, it gets more complicated than

that, but you know it's always the same." He felt that the repetition in math made it easier for him.

Charles stated "Personally, I think out of everything that I got here math was by far the most important and it most definitely the one that has been the most use to me compared to other subjects. I think compared to other subjects in fact if it was up to me I would require people to take four years of math and less English and Social Studies because, just the way the world works and where the jobs are now and what people are doing math and science are far superior to the other two cores that are stressed a lot more." His strong interest in computers played an important part in his desire to take a lot of math. He realized that a desire to design computers one day would be affected by what courses he took in high school. He stated "the extra year of math was out of necessity because of what I was interested in and what I wanted to do compared to other things."

Michael stated that math was tough and he never got it. Michael also stated "If I was good at math, I would like it because it makes you smarter." He continued to take math, but he did not feel it was one of his strengths.

Parent Perspectives

A. To what extent did the Interested Parties perceive that parents, teachers, and counselors, influenced the decisions of the African American males to take higher level math classes?

All parents had an expectation for their sons to continue their education beyond high school. Paul's' parent expected her son to go to college, but she expressed that her son had currently expressed an interest to join the Air Force. She stated "I expect him to, well I expect

him to go to college. We just came from the Air Force recruiter so he may be considering that. In five years to be working on his masters.” Even if he decided to take this route instead of going directly into college, the mother stated that he would be working on his masters within five years. The mother went on to state “He actually had a couple of areas that he was strong in and he decided which advanced courses he was going to take. Other than challenging him to continuously to do better in any of the classes that he is taking I really haven’t encouraged him specifically in the math area.” Paul’s parent also remembered speaking to the counselor about Paul attending college. Counselor B stressed that good grades would ensure admittance into any college. In addition, her son had observed her attending college when he was younger and they talked about higher education.

Charles’ parents expected their son to go to college and to then attend graduate school or go into the workforce within five years. The parents expressed that college was just expected mostly because of the parents and the extended family. The parents stated “the factors, they are indirect and subtle.” The parents stated that college came up in normal conversations, not when he was in high school, but throughout life. All the immediate family to include aunts, uncles, and grandparents attended college. Charles’ father also stated “We make sure that when the subjects are being picked to take an active role in that because he probably can’t see the end or the end game, but we do and it is important to make sure that he is on the right track as soon as the process begins.” Charles’ father continued, “In the beginning of high school, we were pretty much insistent; so that there we had control, but now they are older it is more of a negotiation.” Both parents agreed that they had not let the school know their expectations. Charles’ mother stated “I think it is natural the school expected him to go to college too” and Charles’ father

added “We just kind of assumed that they did.” The parents did tell Charles to make sure that he took Calculus because it was the gateway to college math courses.

Michael’s parents also expected their son to attend college and then graduate school or a career within five years. Michael had been taken to college related events and the extended family had backed up the need to go to college. Michael’s parent stated “It has been a lot of encouragement and letting him see past even sometimes past the grades he is getting right now to see that it will all pay off.” Michael’s parent stated that she had told teachers that they had high expectations from Michael as far as his academics were concerned. Michael’s parent also spoke of Michael having a good teacher. She stated “I would say that his teachers help. The parent remembered a good teacher from Algebra I in the 8th grade that was very nurturing and it made him look forward to taking the next level.” Michael’s math grade fell from an 80 to grades in the D range so the teacher may have made a difference.

B. To what extent did the Interested Parties perceive that prior success in mathematics and other classes influenced the decisions to take higher level math classes?

Michael’s parents were not concerned about prior success. These parents encouraged their son to take higher level math classes despite the fact that he was not making high grades. Michael’s parents told the student “You are getting important information from taking the classes, you don’t realize it now, but just continue and persevere.”

Paul’s parents stated “the higher math classes were based on previous test scores and previous classes that he had excelled in.”

Charles' parents felt that classes should be chosen to make sure you stay on progression. Charles' father reviewed class selections yearly and made sure his son was taking the correct classes from elementary through high school. Both parents took an active part in monitoring Charles' classes. Charles' father identified the concept as "Seeing the end." Charles' parents made sure that all classes were going to help Charles meet his goals.

C. To what extent did the Interested Parties perceive that peers influenced the decisions to take higher level math classes?

Paul's parent felt peers were important and stated "early on in high school, junior high and high school that his friends did have an impact because he had friends that were in gifted and talented programs, if that is what they still call it. He had friends taking advanced classes, so I think it was more of a competition."

Charles' mother replied "They certainly had an impact in terms of certainly teachers, classes." Charles' parents went on to discuss that a good friend had gone to Governor's School. Charles was really interested in attending Governor's School the following year after his friend came back and told him about the experience. While at Governor's School Charles heard about his current college, and he decided to attend this school. Charles' parents felt that the right peers can have a negative or positive impact. The parents felt that Charles's peers had also influenced the after school activities that Charles participated in high school.

Michael's parent felt that peers had influenced Michael in a positive way. Michael's parent stated his friends were also taking higher level math courses. She stated "I think it is helpful for him to look and say I am on par with him." Michael's parent also expressed that at the

same time friends not taking higher level math classes seemed not to be working so hard, so this was negative peer pressure. Encouragement from the parents pushed Michael toward the positive.

D. To what extent did the Interested Parties perceive that graduation requirements and/or post secondary plans influenced to take higher level math classes?

All of the parents expected their sons to attend college after graduation. Charles' parents stated "as far as college it was just expected." Michael's parent stated "I have let Michael know from the time he was a child that we expected him to attend college." Paul's' parent stated that she expected college also.

E. To what extent did the Interested Parties perceive that a love of math influenced the decisions to taker higher level math classes?

Paul's parent stated "I would say overall that he has had a like for math in high school." Charles' parent stated "I think he likes it. It is very difficult to continue doing something that you don't like. That has been a plus." Michael's parent stated "he has a like and dislike. He likes it because it is a challenge to him. And I think he feels good about himself when he is doing well in something that is difficult for him." She felt that this was his most difficult subject and it was a challenge to him. The parent expressed that Michael often did not get the grades that he wanted.

Teacher Perspectives

A. To what extent did the Interested Parties perceive that parents, teachers, and counselors influenced the decisions of the African American males to take higher level math classes?

All seven teachers interviewed stated that they reviewed previous grades before recommending that students take higher level math courses. The teachers often referred to a flow chart that indicated what grade should be considered before students moved on to the next level. After reviewing previous grades, teachers noted that other predictors to consider are maturity level, work ethic, willingness to do homework, previous classes taken, and the current grade.

Several teachers also reported that they would recommend borderline students for higher level classes if they did their work, took responsibility, and got extra help. The Red Teacher stated “I have had students who are kind of border line and struggling, but they do their work and take responsibility to try to get extra help so I kind of push them up to the next level. The Red Teacher even went on to say that some students are capable as far as the content is concerned, but their maturity level is very low. He went on to state, “If they are not working up to their potential, and that is the trickier case because students can mature over the summer, but if they don’t they are in fishy water.” The Blue Teacher spelled out that you have to talk to the students and stated “I like to talk to them about their circumstances because sometimes they have a reason for a score.”

When teachers were asked if they had specifically encouraged African American males to take higher level mathematic classes, the results were mixed. Comments included the following “I try to encourage all of my students, not just African American male students to challenge themselves and I always try to get them ready for college.” “In all honesty, I can’t immediately think of a case when it was different, like how I conducted that from one race to another.” I really did encourage Charles to take AP Statistics because I think the course is useful.” “If they

did well in a class, I would advise them to go to a higher level math just as I would for any other student.” “Never have I told a student not to take a math class.” and “I would not treat them, not any different.”

Overall, teachers seemed to think they should not treat African American students any different.

B. To what extent did the Interested Parties perceive that prior success in mathematics and other classes influenced the decisions to take higher level math classes?

Teachers noted that they reviewed MAP scores, SOL scores, and previous grades in SASI or PowerSchool and some teachers have had these students before. The Red Teacher noted “They are not that confident in math ability, and they claim they don’t like math. But I think a lot of those kids up there are self-conscious, unsure about their math abilities, so I think that goes into what they think they need.” Teachers consider what is needed for college if the student shares plans to attend. The Purple Teacher stated “Past Algebra II, the most important factors are the student’s decision.” Several teachers recommended completing math through Math Analysis because Calculus is often the first class a college freshman will see.

Several teachers ask students at the beginning of the year to tell them what they think about math and what they needed to be successful in the class. All the teachers interviewed conduct one on one interviews with the students where they discuss what math course the student should take for the upcoming year. This meeting is usually held sometimes during the 3rd grading period. Teachers make recommendations for students, but it is not binding. Theodore High School has an open door policy, so students can sign up for whatever classes they want to

take. The Blue Teacher stated “Never have I told a student not to take a math class” and went on to state that if she disagrees with the students’ choice, she tells them what they need to complete prior to the end of the year to be successful in the class of their choice.” All teachers stressed that the process is individualized.

C. To what extent did the Interested Parties perceive that peers influenced the decisions to take higher level math classes?

Many teachers did not see peers affecting the decisions to take upper level math courses, but the reflections were mixed. The Pink Teacher noted that peer pressure was an issue and stated “I think a lot of it is peer pressure.” This teacher shared that students were at both spectrums. Some students said they would just go to NOVA and stop taking math as soon as they could, while other said they were going to college and I would take as much math as possible, even if planning to attend NOVA. The Red Teacher felt that once students reached the upper level classes students say “What do my parents think I need to get in college and what can I push myself to do.” The Yellow Teacher stated that she had heard seniors say that they were not taking a math class because they do not want to work hard their senior year. This is in line with a teacher who stated “I would definitely say the work load and sometimes they look at who is going to teach it.” The Yellow Teacher’s statements regarding peers sums it up when saying one reason for not taking a class should not be “my buddies are doing or not doing it which is unfortunately, frequently, the reasoning.”

D. To what extent did the Interested Parties perceive that graduation requirements and/or post secondary plans influenced the decisions to take higher level math classes?

The Red Teacher noted that Geometry and Algebra II are two subjects needed for the SAT. This teacher felt anything after that should be based on what the student planned to do in college. The Pink Teacher felt that students knew that the math graduation requirements were three credits for a standard diploma and four credits for an advanced studies diploma. This teacher did not feel that enough thought went into which classes to take to obtain those credits. The Blue Teacher felt that students had to know their plan for college and a career and the choices were very individualized.

E. To what extent did the Interested Parties perceive that a love of math influenced the decisions to take higher level math classes?

Teachers of Charles all indicated that he displayed a love of math which definitely led him to take upper level math classes. Charles added a math class his senior year because he had an interest in Statistics. All of his teachers could see his love of the subject because he was curious, stayed after school to ask questions, and liked to assist with teaching. The Blue Teachers shared “His questions and wanting to know the understanding behind everything” were an indication on how much he loved math.

The Pink Teacher noted that a student could simply know that math was important and was needed to succeed in life. The Red Teacher also had Paul, and when asked if he observed a love of math from this student he commented, he commented “I wasn’t convinced.” “He had the potential to be good and may have been innately good.”

The Brown Teacher did not observe that Michael had a love for math, but she state, “He cared about the subject and his grades.”

Counselor Perspective

A. To what extent did the Interested Parties perceive that parents, teachers, and counselors influenced the decisions of the African American males to take higher level math classes?

Counselor A believed that teacher input, parent input, and student input all played a part in the decision to take higher level math classes. Counselor B stated “it is kind of a group decision or team decision. We rely on the math teacher that they are enrolled with and they are taking classes with.” In addition, “the students will generally tell you if they like math and whether they want to take math classes and what they want to take.” Counselor 1 stated “When the student and I confer to determine what class they will be registered for the following year it is up to the student to choose supported with his parent and I hope with that teacher recommendation.” Counselor C summed it up “Student trumps; we have open access which I think is wonderful.”

In reference to involving the parents of Charles, Counselor A stated that she did not involve the parents. “He was identified early on. He took Algebra I in the 8th grade. He took Honors Geometry in the 9th grade, so he had already been identified and accelerated in his math courses.” Counselor C stated “well there is parent involvement in the scheduling process. And “I honestly can’t speak to one specific student since we have so many.” And Counselor B stated “Last year, no. I met with her his mother his 8th and 9th grade year.” “I think a lot of parents as they get older they kind of withdrew, pull back ...”

Counselor B believed that a lot depended on the student’s ability. Counselor B stated “If they are strong in math then we encourage them to take honors classes, AP classes. If they are

not, they can still get the advanced studies diploma by taking regular classes but ending up with at least Algebra II as their final math credit then hopefully it will prepare them enough to get in a college they want to go to.” Counselor B relied on the math teachers’ recommendations for their feedback, if the student liked math, and if they wanted to continue. If a student was struggling Counselor B tried to provide support for example by pairing up Geometry and Geometry Skills Builder. Counselor B stated that he spoke to African American male students about advanced courses and the advanced studies diploma. Ultimately, Counselor B felt that the decision was the students’ with them handling positive or negative consequences just as they would in college. Counselor B also matched students up with good teachers.

Counselor C believed that different conversations had to be held with the students. Counselor C looked at MAP scores, SOL scores, teacher recommendations, and discussed where the student wanted to go for college. Counselor C also noted that students enter Theodore High School at different levels. A ninth grader may come in taking Algebra I, Geometry, Honors Geometry, Algebra II, or Algebra II/Trigonometry. Counselor C stated “it is based on the student assessment of themselves and how ready they think they are. Counselor C felt that some students were hesitant because they had not been recommended for the higher level math classes in elementary school or no one had ever said you can do this if you want to. Counselor C stated that she suggested the students “go ahead and step up to the plate.” Counselor C stated that teachers no longer made recommendations (which were untrue) and the policy was open access. Counselor C stated that she asks students “Where would you like to end up when we are done with this progression of math here and do you want yourself to be competitive in college admissions?”

In regards to Charles, Counselor A stated that the student was identified early as being on the accelerated track in math. In regards to Paul, Counselor B did not specifically talk about math, but career paths. Counselor B felt that Parent A2 pulled back and eventually withdrew. Counselor B did not meet with the parent during Student's A2 junior year. In regards to Michael, Counselor C thinks that the parent was involved in scheduling, but honestly Counselor C could not remember speaking to the Michael since the caseload is high. Counselor C was inclined to think that a conversation had taken place in reference to long term plans and where Michael wanted to end up as far as math.

When counselors were asked if they made any special cultural considerations when assisting African American males take higher level math courses their responses were quite different. Counselor A stated that all students were encouraged to take the highest level of math according to their ability. Additional statements from this counselor included "there are no specific plans to identify any one culture and their success," and this counselor also felt that if a student was not college bound, they did not need an advanced studies diploma, noting that the diploma type dictated the math classes that were required. There was no attempt to identify African American males to encourage them to take upper level math classes. Counselor B stated "when it comes to placement all teachers are not created equal" and "some teachers do not work well with African Americans." Counselor B admitted, "I will go through my course load or the schedules and see what teachers are teaching which students and move some students around. That is pretty much it; we have teachers who are not particularly friendly to African American students, well now even Hispanic students." Counselor C stated "like I said before, I work with all students regardless of gender and ethnicity and so, I really don't do anything special."

B. To what extent did the Interested Parties perceive that prior success in mathematics and other classes influenced the decisions to take higher level math classes?

Counselor A believed that “previous classes, commitment, and motivation” influenced decisions to take higher level math classes. Counselor A relied more on the ability shown in past classes rather than scores on the MAP, SOL, or PSAT tests. But Counselor A did make the statement that “ If you can only make a “D” in a specific class you may want to re-consider and take a math class that is going to highlight your strengths and also count for college.”

Counselor B discussed the foundation of students and what they start with in elementary and middle school. Counselor B felt that many students are lost in elementary school and they come to high school not comfortable with taking higher level math classes. Counselor C made recommendations based on teacher comments, what the student felt they could handle, and their aptitude. Counselor B stated that counseling a student not to take a class would never happen. Mediation was held between the teacher and student if needed and the student made the final choice.

Counselor C takes into consideration how much time is left for taking courses, best choices taking into consideration the student’s interest, and if they are willing to work. Counselor C felt that the math flow chart made it easy to determine what math classes the students should or should not take, and this is largely based on grades from previous classes. Counselor C has counseled a student not to take a math class because the student was not performing well. Counselor C felt that stepping down was better than having the student being stressed and overwhelmed.

C. To what extent did the Interested Parties perceive that peers influenced the decisions to take higher level math classes?

Counselor B noted that peers influence does happen. Counselor B stated that students are told that they must follow their own path and try to focus on their career goals. Students are also told that they can see their friends at lunch or after school. Counselor B noted “We try to get them to focus on their career goals instead of what their friends are taking.”

Counselor C felt that peer pressure was more evident in the lower grades. The statement “A lot of times you have to break them away from their group and get them alone to help them understand that this is about your education.”

D. To what extent did the Interested Parties perceive that graduation requirements and/or post secondary plans influenced to take higher level math classes?

Counselor A and B noted four years of math was needed for an advanced studies diploma. Counselor A felt that colleges preferred an advanced studies diploma while Counselor B expressed a concern that students were competitive with other students in the state. Counselor A stated career plans were only considered “as they apply to either the standard diploma or advanced studies diploma.” Counselor C felt that graduation requirements and post secondary plans were dependent on the student’s college choice. Counselor C noted that a freshman can come to the high school with two math credits ready to go into Algebra II or Algebra II/Trigonometry. Both Counselor B and C stated that students interested in math related fields should expose themselves to as much math as possible. Counselor C also said that students interested in math or science should take AP and Honors classes.

E. To what extent did the Interested Parties perceive that a love of math influenced the decisions to take higher level math classes?

Counselors did not address that a love of math was a decision in taking upper level math classes.

Department Supervisor Perspective

A. To what extent did the Department Supervisor perceive that parents, teachers, and counselors influenced the decisions of the African American males to take higher level math classes?

Based on AYP scores, there are discussions or emphasis to encourage more African American students to take higher level math courses. Teachers currently talk to students during the second semester and enter a non-binding recommendation in the computer for counselors to consider. If the teacher or counselor encourages the student to take an upper level math class they may pass or fail the course. A major factor is the foundation. The Department Supervisor knew that several questions needed to be answered, What kind of foundation do the students have, are they motivated, and do they have the self discipline needed to succeed. The Department Supervisor stated, "There is not any contact with the counselor except that we put in the computer what we suggest for the students." In reference to African American male's students taking more challenging classes, the Department Supervisor said "I don't think we have done enough to make it school-wide.

B. To what extent did the Department Supervisor perceive that prior success in mathematics and other classes influenced the decisions to take higher level math classes?

Teachers sometimes reference that the foundation math skills are not present. Many African American students are not coming with the right skills to succeed in higher level math courses. The Department Supervisor stated “I mainly hear that the foundational math skills are not there, so the ability to take higher level math classes, it is harder to do that if the foundation is not there.

C. To what extent did the Department Supervisor perceive that peers influenced the decisions to take higher level math classes?

The Department Supervisor noted that some African American students are looked down upon if they are too studious, so “they don’t push themselves to take the higher level math and that would make them look like a nerd.”

D. To what extent did the Department Supervisor perceive that graduation requirements and/or post secondary plans influenced to take higher level math classes?

The Department Supervisor felt that graduation requirements were set by the state. These requirements played a part in course selection.

E. To what extent did the Department Supervisor perceive that a love of math influenced the decisions to take higher level math classes?

The Department Supervisor did not address the love of math.

Summary

The Interested Parties all played a part in the decisions of African American males to take higher level math courses. The Interested Parties did not all hold the same weight. For example, Parents were a major factor for Charles and Michael, while graduation requirements were a major factor for Paul. The weight may also be different for each individual student. It appears that parents play an important role in the decision making process. All of the parents expressed the expectation that their sons were going to college. These expectations for the most part were not relayed to the teachers and counselors. There needs to be open and continuous dialogue between parents and all interested parties.

Once the students' goals are known the teachers and counselor need to find a way to communicate more. It appears that this valuable information is not being shared at this time. If there is comprehensive information and appropriate course advisement provided the student, the result could be a more rounded student that is more focused on achieving high goals.

Graduation requirements and the course/s needed for an Advanced Studies Diploma was also mentioned by several students and teachers. The student's understand this, but no programs are in place to encourage or keep African American males in upper level math classes. There were no high expectations. Even a student working toward a standard diploma may need more than three credits of math. In addition, with the chance to take 32 credits, students should take advantage of taking classes that will enrich their lives.

There does not appear to be enough being done to prepare and keep middle class African American males in upper level math classes. Middle class African American males face many hurdles. There does not appear to be an expectation that African American males will be more likely to go to college if their parents completed college. There does not appear to be an acknowledgement that the parents of African American males have high expectations of them. Lastly, there does not appear to be consideration that African American males from middle class environments had goals to improve their quality of life via educational pursuits. No one looks at the middle class African American male and says his parents went to college so I know he is going to college. No one says I know his parents have high expectations of him. No one says he is middle class and I am sure he wants to maintain that life. There does not appear to be a voice for these students. The teachers and counselors felt that African American did not need to be treated differently. Few staff members considered cultural consideration or different teaching strategies. Work is needed not only for the middle class African American male, but professional development is needed for staff.

CHAPTER 5 SUMMARY, RECOMMENDATIONS

Chapter 5 analyzed the data from Chapter 4 and synthesized the data to discuss the research questions in greater depth. The interviews of students, parents, counselors, teachers, and the math department supervisor all helped shed light on how the Interested Parties influenced the middle class African American males with regard to taking higher level math in high school.

The purpose of this study was to determine what influenced middle class African Americans to take upper level math classes. Through the students, parents, counselors, and department supervisor interviews, a qualitative case study design was conducted to gather data. Findings have been presented as they relate to the research question. The research question that guided this study was:

What were the perceptions of the high-achieving African American males, their families, friends, and school officials (collectively the “Interested Parties”) with regard to why the males took higher level high school math classes?

- a. To what extent did the Interested Parties perceive that parents, teachers, and counselors influenced the decisions of the African American males to take higher level math classes?
- b. To what extent did the Interested Parties perceive that prior success in mathematics and other classes influenced the decisions to take higher level math classes?
- c. To what extent did the Interested Parties perceive that peers influenced the decisions to take higher level math classes?
- d. To what extent did the Interested Parties perceive that graduation requirements and/or post/secondary plans influenced the decisions to take higher level math classes?
- e. To what extent did the Interested Parties perceive that a love of math influenced the decisions to take higher level math classes?

Paul

Paul is currently in the 12th grade. He took Algebra I in the 8th grade which required a recommendation from the seventh grade teacher. Students in the 8th grade receive a recommendation to take 8th grade Math, Pre-Algebra, Algebra I or Geometry. Paul's grades in his mathematics classes ranged from a "B" in Algebra II to "C" in Algebra I, Geometry, and Algebra III. His overall GPA is a 2.3, but his grades have improved each year while in high school. In the 9th grade, his GPA was a 1.7, a 2.25 in the 10th grade, and a 2.9 in the 11th grade.

Paul never stated that he loved math, but he stated several times that he found math to be easy. Several comments involving taking math classes included "for me math is one of the easier classes you always know $1 + 1 = 2$, and You don't have to really think outside of it that much, it's for certain, it's for sure." Paul knew that he wanted to take four years of math to meet the requirements for an advanced studies diploma. He was not interested in taking a fifth year of math. Paul actually stated "It is pretty much nothing else to take." which was a false statement. He knew that he did not want to take Trigonometry because it had been introduced to him in Geometry and he did not like it. Other upper level math classes did not appear to be a consideration for him. Paul actually decided to have a reduced schedule his senior year opting to leave early each day.

Paul selected his courses without much guidance from his parents, teachers, or counselors. When asked if he had talked to his parents he stated "I never really talked to them about math, I just knew what I wanted to do." His only reference to talking to a teacher was a discussion with the Pink Teacher about her not working up to her potential her first year of college, but getting on track in her second year of college. He remembered the school counselor

guidance telling him to keep his grades up because this would enable him to go to the college of his choice when it was time.

Paul did not appear to reach out to teachers for help. He stated that he talked to friends or stayed to himself. He preferred to deal with problems on his own. Paul considered success to be a combination of good grades and understanding the concepts taught in class. He pointed out that in some classes you may do the homework and get a good grade and vice versa, in some classes you understand the concepts but get lower grades because you do not complete the homework. Not getting a good grade in his view did not mean you were not good at the subject.

Paul had recently become very interested in the Air Force. On the day of the interview, he had just come from the Air Force Recruitment Office. Paul had just decided to serve four to six years in the Air Force before entering college. Paul's current plan is to serve in the Air Force, go to college, and then attend graduate school.

Charles

Charles has been an excellent student since entering middle school. Charles is currently a freshman in college. He took Algebra I in the 8th grade, Honors Geometry in the 9th grade, Honors Algebra II/Trigonometry in the 10th grade, Math Analysis in the 11th grade, and AP Calculus BC and AP Statistics in the 12th grade. In addition to these math courses, he also took Computer Math 1 and Computer Math 2 while in high school. Charles earned an "A" in all the math classes and exited high school with a 4.47 GPA.

Charles expressed that he had an interest in math and computers from an early age. He described math as being easier, being natural and that he was a logical thinker. He talked about making a lot of stuff and working a lot in his driveway with friends. He enjoyed the aspects of

creating and describing things. Plans to study electrical engineering and computer science played a major part in his selection of math classes. Charles stated “Personally, I think out of everything that I got here, math was by far the most important and it most definitely was the one that has been the most use to me compared to other subjects.” He went on to say that he would require students to take more math classes and less English.

The parents played an important role in the life of Charles. He used his father as a resource when he had questions related to homework, his summer job, or projects. Being the third of four children he had also observed and heard older siblings and immediate family members talk about college. In addition, he saw the benefits of attending college.

Teachers were also important to Charles. He stayed after school to gain more information. The Blue Teacher noted that Charles was often at least a lesson in front of her, and he wanted more explanation than the normal honors or AP student. The Green Teacher notes that Charles actually taught a bit in her class because he had read a book and showed great enthusiasm when she mentioned it in class one day. Charles also mentioned that he went to teachers when he needed help or had questions.

One missing piece from the puzzle was counselor interaction. Charles shared that he received help and guidance mostly from his parents. He also interacted with teachers. Charles had a plan and knew which direction he wanted to go early in his high school career, but he did not mention any support from the counselor.

Charles also had a great relationship with his friends. They had similar interest and were next door neighbors. Charles and these friends often built projects together. He and his friends loved creating and designing items. A friend that he met at Governor’s School was responsible

for him attending his college. He was interested in a state university until he heard his friend talk about the college he is now attending.

Michael

Michael also took Algebra I in the 8th grade. The parent actually stated that he was selected as part of a special program to move from 8th grade math to Algebra I after the school year had started. The mother expressed that he had a close relationship to the middle school counselor and teacher his 8th grade year. Michael took Geometry in the 9th grade and Algebra II in the 10th grade. Michael signed up to take Algebra III his 11th grade year. Michael was enrolled in an upper level math class, but his previous math grades were on the low spectrum. His final grade in Algebra II was a 68. It is interesting to note that he scored a 70 the first marking period and an 87 the fourth marking period. This increase may have helped in making the decision to continue in math. Although his math grades were low, Michael's overall GPA rose from a 2.06 his freshman year to a 3.1 his sophomore year.

Michael did not express a great love for math. He was mainly taking Algebra III to get his fourth year of math for an advanced studies diploma. He stated that his parents told him this was best, and he agreed with their recommendation. Michael was thinking about graduation requirements, and he stated, "I hear when you take higher level math, college's look at it and they like it more."

Michael's parent requested that he be removed from Algebra III after the two week deadline for dropping because she felt taking Algebra III and Chemistry the same year was too taxing. The parent said that the student could pick up another math class in his senior year. By this time, Michael had agreed to participate in the study. In addition he, the parent, teachers, and counselor had been interviewed. Michael was kept in the study because he unfortunately

represents many African American males. He was not failing the class when he dropped it, but he felt the load was too much. While Michael dropped the class, many African American males stay in the class and fail. Secondly, he was kept in the study because the teachers and counselors would have been the same individuals. Their views remained important in the study.

Students may request to drop a class the first two weeks of school. The teacher, department supervisor, and Guidance Director must approve the move. The teacher signed the request to drop the Algebra III class. The Math Department Supervisor wrote that she did not suggest the student go an entire year without taking a math class. The Director of Guidance denied the request to drop the class. After the denied request the parent requested to see the Principal. The Principal signed the request to drop the class. The parent asked the researcher if she did the right thing when she came in to read the interview transcript. Failure to actually talk to the counselor, Director of Guidance, teacher, or administrator may hurt the student in the long run.

Michael was described as being very quiet and neither teachers nor the counselor had much interaction with him. His Geometry teacher was a basketball coach who talked about trying to get him to open up and come out of his shell. The Purple Teacher felt they had a good relationship. Michael also expressed having a good relationship with another basketball coach and said that he helped him whenever needed.

Michael knows that he wants to attend college. He spoke about someday being a basketball coach at the college or high school level. Michael also mentioned considering being a commentator. He is currently a star on the basketball team and has a good chance of attending college on a full scholarship for a Division I school.

Differences between Students

Paul, Charles, and Michael all met the criteria for the study, but they were very different. Paul and Michael's main reason for taking upper level math classes were to meet graduation requirements for an advanced studies diploma. Charles took upper level math classes because they would help him meet goals for college and life. He wanted to take as much math as possible to enhance his skills and prepare for college. He was curious and enjoyed gaining information. Paul and Michael did not relate how math could help them in college or with their future life.

By far, Charles is the model student. He had developed a love of math. By 8th grade, when Charles started taking math classes, he had a plan in mind that not only put him in line for an advanced studies diploma, but would place him on the career path that he wanted to pursue in college. He realized that math was probably the most important subject for him to take in high school. He used high school as a resource for taking upper level math classes that would propel him in college for other courses.

Paul and Michael did not have clear career goals and it did not appear that they had given any special consideration to how math classes might impact their futures once they completed high school. Michael knew that he wanted to attend college and become a basketball coach or commentator, while Paul had changed his plans to go directly to college to serve in the Air Force. Paul did not have any career goals.

Parents

All of the parents promoted college. The students saw family members who had completed college. In Charles's family, college preparation appeared to begin early and parents were involved from elementary through high school. In addition, the relatives of Michael are employed in higher education. Paul observed his mother as she pursued her master's degree.

While the students took different amounts of upper level math classes, Charles' parents were the only ones to discuss math courses with him. The other parents did not express that there was ongoing dialogue regarding what math courses their sons were taking and how it would impact their post secondary career plans. In addition, none of the parents spoke of having continuous contact with the counselors or teachers in reference to deciding on courses to select. There was mention of attending Back to School Nights and teacher phone calls or conferences if something was wrong. Talks that occurred appeared to be focused more on general curriculum rather than math courses. The lack of contact with the school goes in line with Winbush (2001) when he described the White Way parent that believed that the school knows best. It is noted that the same amount of contact is not needed for all students. Charles' parents were actively involved at home with helping him select courses, and he had a plan. Paul and Michael would probably have benefit from more direct contact with teachers and counselors.

Teachers

Teachers had voiced some concern to the Math Department Supervisor that they felt some African American students did not have the foundational skills necessary to excel in upper level math classes. SOL results for African American males and females fall well below those of White students. While the teachers in the math department review the SOL scores and AYP results, nothing had been put in place to either raise the scores of African Americans or to encourage more African Americans to take upper level math courses.

Teachers adjusted teaching strategies for Paul, Michael, and Charles. The Green Teacher provided more hands on activities for Charles. Although the teachers of Paul did not recall any teaching strategies, the Red Teacher discussed talking to Paul to encourage him to work harder in the class because he did not always work up to his potential. The Purple and Brown teachers

both noted that Michael benefited from one on one instruction. One important fact in relationship to Michael was that he performed better once a relationship had been established with the teacher.

None of the teachers said that they considered culture when teaching the African American males. The teachers actually were proud to state that they did not make any special concessions or allowances for African American students. The teachers said that they teach all students the same. As teachers they should have noticed that students have various needs and culture should be considered. This is one area that may be explored to both help the students in the classes and to encourage more African Americans take upper level math classes.

Teachers appeared to be upset that they did not have more of a role in student selection of math courses. Teachers submit a non-binding recommendation in PowerSchool. Students do not have to accept the recommendation. At this time, there is little or no dialogue between the teachers and counselors to discuss the recommendations. The counselor in many cases does not know why the recommendation is made and if the recommendation may change before the end of a school year.

Counselors

The counselors have a caseload of about 400 students which exceeds national recommendations. The amount of time each student and/or their parent saw their counselor was minimal. Counselor A did not appear to see Charles much more than when scheduling occurred because she believed that he knew his career path and what he wanted to do in life. Counselor B met with Paul and his parent, but noted that these talks occurred less frequently after his sophomore year. Counselor C did not remember if she had talked directly to the parent of Michael because of her large caseload.

Students are given a course catalog in February. The counselors meet with each student in late February or early March. The counselors discuss with the students what courses they want to take and reviews teacher recommendations with them. With the open admissions policy for honors, Advanced Placement, and/or upper level math classes, students can register for these classes without teacher or counselor input.

The counselors had the same attitude as the teachers when asked what cultural considerations they make when working with African American students. Only Counselor B noted that he looked at students schedules and changed teachers as needed. Counselor B felt that some teachers do not work well with African American students. Counselor A stated “We do not have a specific plan to identify any one culture and their success. Counselor C stated “I work with all students regardless of gender or ethnicity and so. I really don’t do anything special. I encourage all of my students to apply themselves.” The counselors did not acknowledge that cultural considerations must be taken into consideration when working with African American students. Counselors need to look at all the factors mentioned in Harris (1995) study. The counselor’s interaction time with the student should be decided after the counselor determines how the other factors are influencing the student.

Peers

Peers for the most part played a positive role in the lives of the students. Paul said that he felt adoration from friends because he was taking upper level math classes. Charles stated that his friends were in the classes with him. Charles also made a decision on where he wanted to attend college after attending Governors’ School with peers. Michael referenced having a friend that he looked up to because he was researching several colleges.

Peers did not appear to be negative to these three students. The students appeared to be willing to work in the classes they had chosen no matter what their peers were doing in school.

Present and Past Achievement

Teachers placed a great deal of emphasis on past achievement. They spoke about looking at grades in previous classes. A few teachers reviewed MAP and/or SOL scores. The math department also uses a flow chart as a guideline to determine where students should move. (See Appendix (F)) One drawback to using the flow chart is that students' grades may not accurately reflect their understanding of the concepts. Several teachers' comments prove these statements. Students' grades may be lower because they do not complete homework or because they are poor test takers. Students' grades may also be low in a particular year due to unknown circumstances in their lives. Students run the risk of not being recommended for upper level classes if they don't earn the grades listed on the flow chart. These students may totally miss upper level classes if a parent or counselor does not provide appropriate advisement about course selection and needing classes for college or for the major they want to pursue.

The Department Supervisor also spoke about many African American students not having the foundation needed to pursue upper level math classes. An action plan is needed to provide the missing skills so the doors can be open to African American students wishing to take these classes. Table 1 indicated that the students rate of obtaining a Bachelor's Degree increases as the level of math increases. Students completing Algebra II graduated with a Bachelor's degree at a rate of 39%, while the rate rose to 60% with Trigonometry, and 75% with Pre-Calculus. Without the higher level math, African American males have a much lower chance of matriculating with a Bachelor's Degree.

Love of Math

Charles was the only student that expressed a love of math. He realized that math was very important subject and that it would help him reach his goals. Paul and Michael's main goal for taking upper level math courses was meeting graduation requirements. It is noted that students do not have to have a love of math to take or succeed in upper level math classes, but the factor is likely to lead them to take upper level math classes. Parents, teachers, and counselors should coach students on what classes will be beneficial to the career paths that they wish to pursue after high school. The main objective is to make sure students have enough math's to obtain an acceptable SAT score for college admission, to work in the workforce, and to master freshman math in college. One does not need to love math, but they need to gain an understanding of math. If a love of math is instilled in students while they are still in elementary school, there is a better chance that they will want to continue taking challenging math classes as they go through school. Viewing the limited number of African American males taking upper level math classes, grades of African Americans in the class, and the number of failures lead one to assume that there is not love of math in most of these students' lives.

High School Graduation and College Admission Requirements

Paul and Michael were aware of high school graduation and college admission requirements. Both students knew that they wanted to obtain an advanced studies diploma. Charles did not mention high school graduation or admission requirements, perhaps because his career goals led him to take math classes beyond the minimum required for graduation and college admission. Students should be aware of high school graduation and college admission requirements because they should be one of the determining factors in the upper level math courses that they select. High school graduation requirements are listed in the course catalog.

The students have to take initiative to find out about college admissions. In addition, parents and the school should provide additional information. The school houses a career center, but students must go there to gain information. The help is available, but the counselors should stress it more. If a student takes a career inventory, it would definitely help them gain more knowledge in what courses would benefit them.

Future Plans

All of the students had future plans that included attending college. The difference was that Charles had plans that included the study of math in college, so he knew he would be more prepared for college if he took as much math as possible. Michael knew that he wanted to go to college and that he wanted to be a coach or commentator after graduating from college. He did not mention how the math courses would help him with his future plans. Paul stated that he wanted to be prepared for college so he had taken some time to think about what his needs would be when entering college.

Future plans are definitely one of the factors that help determine what upper level math courses are needed or recommended to reach a goal. Parents, teachers, and counselor all need to play a role in helping the student map out their plan.

Table 10

Comparison with Harris Study

Harris Study	Jones Study
1. Parents, counselors, and school staff all had goals that directed the students to take courses that would prepare them for	All of the parents expected their children to attend college. Counselors were split and really left it up to the student to decide which diploma type to select

college.	<p>and what classes to take. Math teachers held a one on one meeting with students to communicate their recommendations once a year. It is possible that the counselors and/or teachers may not have known the parent's expectations or the students post graduation plans. Algebra II or Math Analysis was considered minimum classes if students were going to college. Few African Americans males were in upper level math classes past Algebra III with a few in the Advanced Placement classes.</p> <p>The school has discussed implementing career paths for some time, but it is not in place yet.</p>
2. Students in the study were focused on their plans after school.	All of the students in the study had post secondary plans. Paul had changed his plans to enter college directly after high school.
3. Parents and other adults had expectations for the students and 19 of the 24 students took four years of math.	Two of the three parents had advised their sons on what math classes to take. The third student decided for himself to take four years of math.
4. School policies and practices were in place that actually influenced African American males to take three to four years of math.	There were no school policies and practices in place to influence African American males to take more than the required years of math or upper level math classes. The regular diploma required three years of math, but classes do not have to include upper level math classes. Very few African Americans males were taking upper level math classes.
5. The school culture appeared to encourage students to take more academic classes.	The school culture did not have anything in place to encourage students to take more academic classes.
6. Other African American peers or friends who participated in the study were	All three students had peers in their classes. It should be noted that Charles upper level classes

<p>also taking higher level classes which helped create a culture that higher level classes were expected.</p>	<p>were more advanced than Paul and Michael. Charles noted that his peers were in classes with him. Michael had some peers in class and admired a peer who was researching colleges. Paul thought that his peers may be attending NOVA, but this was not affecting his decisions.</p>
<p>7. Factors in the two high schools came together to lead them to take higher level math classes.</p>	<p>The factors have not come together at this point to encourage more African Americans to register for and take upper level math courses. Some pieces are missing at this time to increase their participations. All of the factors need to come together to provide optimal opportunities for students.</p>

This study had several distinct differences from the Harris Study. Students in the Harris study had goals that they would take classes that would prepare them for college. School policies and practices were also in place to influence African American males to take three to four years of math. In addition, the school culture appeared to encourage students to take more academic classes.

This study found students and parents had college expectations. Regardless of the expectations, there were no school policies and/or practices in place to influence African American males to take higher level math classes. The state graduation requirements are three years of math, but a student may meet this requirement without taking upper level math classes. The school culture did not have anything in place to encourage students to take more academic classes.

In the Harris study all eight factors had come together to encourage African American males to take upper level math classes. This researchers study indicates that programs need to be implemented to bring all the factors together to increase African American male participation in higher level math classes.

Suggestions to Theodore High School to Influence more African American Males to take Higher Level Mathematics Classes

1. Implement a plan that will enroll African American males in the proper classes in elementary (grades 1-4), intermediate (grades 5-6), and middle school (grades 7-8) to give them the proper foundation to take upper level classes in high school. A formal system of communication between each level must be developed. Teachers, students, and parents need to know what the minimum and maximum requirements are for students to be successful in taking upper level math classes in high school. Counselors at all levels must take an active part in class selection because it is their responsibility. Their presence is needed because the achievement gap continues to exist. The African American males' needs are greater than those of White students because of the gap, so all students cannot be treated the same.

A student leaving elementary school is placed in 5th grade math based on pass SOL scores, MAP scores, behavior in class, and suggestions for additional help. A student leaving the 6th grade from intermediate school may currently be placed in 7th Grade Math, 8th grade math, Pre-Algebra, or Algebra I. When the students from the study attended middle school, they all took Algebra I in the 8th grade, but their grades differed greatly ranging from the grade A to D. All three students entered high school taking Geometry, with one taking Honors Geometry that advances at an accelerated rate. The student taking advanced Geometry moves to Algebra II/Trigonometry which is also an accelerated class covering Algebra II in three nine weeks and study Trigonometry the last nine weeks. By the end of their sophomore year, the three students in the study have different skills and they were moving in different directions.

If asked why these students move in different directions, the elementary teacher would probably direct the questioner to standardized test scores and MAP test scores stating that students are placed based on their level and skills. Very little has been put in place to increase the skill level, so students may never move from the low, average, or advanced level unless a concerned parent, teacher, or counselor intervenes.

One major missing component is putting something in place for teachers to talk at the elementary, intermediate, middle, and high school levels. The teachers at the elementary level must discuss the skills needed to be successful at the intermediate level. The intermediate level teachers need to know the skills needed to be successful at the middle school level. Lastly, the

middle school teachers must know the skills needed to be successful at the high school level. All of the math teachers need to meet to discuss the skills that set the foundation for all students. The elementary teachers should also be responsible for teaching in a manner that will create students who develop a love of math. Most importantly, the teachers at all levels must meet face to face to discuss students because passing reports from school to school leaves out important data.

2. Set up teacher training that will assist teachers in identifying African American male students who have the ability to take upper level math classes. Secondly, train teachers to teach all students and to have high expectations for all students.

Some teachers may not have high expectations for African American students and Counselor B even stated that some teachers do not like African American students. When a teacher does not have high expectations because of the color of your skin, being middle class does not make a difference. Middle class status cannot be detected from looking at a person as stated by Lacy (2007). The lack of cultural considerations set many students up for failure the moment they walk in the door. If the other factors are weak, the lack of a supportive and encouraging teacher may lead to poor performance. Poor performance and inadequate teaching over a few years does not prepare a student to take upper level math courses.

Paul and Michael could have been influenced by the stereotype threat syndrome. Paul stated that there was not any more math's for him to take, while Michael was only taking Algebra III because he wants to obtain an Advanced Studies Diploma. Both students questioned their academic ability and they avoided academic domains that appeared to be too intellectually challenging. (Steele and Aronson, 1995).

3. Implement a plan for counselors to spend more time talking to African American male students to first determine their career paths and then help them determine what classes are needed to enter college or the workforce. In addition, create time for counselors to establish relationships with the students.

Counselors must communicate and respond to students in a culturally responsive manner. At least one counselor needs to be trained to communicate with African American students. Counselors must understand how African American parents and students communicate their morals and values. Counselors can help build resiliency in the environment by providing support

opportunities for participation in upper level math classes. Secondly, counselors can introduce strategies to African American male students that will help decrease the risk factors that sometimes hinder achievement (Galassi & Akos, 2004).

4. Create an avenue for student and parents to voice their expectations to teachers and counselors. The only official night for parents to meet teachers is on Back to School Night. The high school schedule needs to incorporate additional times for parents to meet with teachers at convenient times for all parties. The assigned counselor could be a part of this meeting or a separate meeting where career goals are discussed for the student. There are currently no scheduled times for parents to meet with counselors. A copy of the proposed schedule is sent home in the late spring and parent's only return the paperwork if there are changes. This might be another time to allow parents to come in to discuss students concerns and schedules for the upcoming year.

5. Conduct further research such as a survey to determine the African American male perspectives regarding the influences of parents, teachers, counselors, peers, past and present achievement, love of math, high school graduation and college admission requirements, and future plans on taking higher level math classes.

Concluding Statements

Middle class African American males were unrepresented in upper level mathematics classes at Theodore High School. The selections of classes by middle class African American were more likely to be the result of student and/or parent discussions. Teachers' and counselors' interaction and advice were minimal and not consistent. There were no directives to encourage African American males to take higher level math classes. Counselors can help students determine their career goals, and Harris (1995) noted that student career choices and the classes needed to reach those goals were evident in his study. Once students are enrolled in the classes, the teachers must have high expectations for the students and provide a supportive environment.

Paul took four years of math ending with Algebra III. He stated that there was nothing else to take. There are several math courses above Algebra III. Paul felt that he had four math credits for the advanced studies diploma and that he did not want to take Trigonometry. Paul appeared to be selecting his own courses without seeking assistance from his parents or counselor. This points to the need for more conversations between parents and counselor since Paul did not take a math class his senior year.

Charles had a plan and knew that he would take as much math as possible. In addition, his parents stressed that he should take Calculus. The counselor stated that he was identified early and did very little to direct him through his high school years. The parents attended Back to School Night, but had no other contact with the teachers or counselor.

Michael's mother and teachers stated that he was not a strong math student. He decided, without discussion with his counselor, to drop Algebra III in his junior year thinking that he would take a math class in his senior year. The Director of Guidance did not agree with this decision, and the Principal did not uphold the decision. A face to face meeting was needed to discuss the pros and cons of the parent and student request. It is up to the administrators, counselor, and teachers to explain to parents the best options and offer additional help if needed. Michael was selected to go into Algebra I in the 8th grade so someone saw potential to excel in math at that time.

The students in the study were indeed faring better than many African American male students, but they still were not receiving all they needed to make the best decisions in regards to taking upper level math classes. With the exception of Charles, Paul and Michael's math classes selection and grades needed improvement. Several students in Sample A and B actually failed the math classes that they enrolled in. Without proper guidance and balance from the Harris

factors middle class African American males run the possibility of not taking upper level math classes and/or not gaining acceptable skills needed for college entrance exams, college, and jobs.. All students do not have to have the same factors working, but several factors must come together for the student to be successful.

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APPENDIX A

Student Interview Questions

1. What do you plan to do after high school?
2. What do your parents/teachers/counselor expect you to do after high school? How do you know they expect this of you?
3. What do your two best friends plan to do when they finish high school? Have their plans influenced you in any way? How?
4. Think ahead five years and tell me what you want to be doing. What job do you want to have?
5. What math class are you taking this year? How did you decide to take that class?
6. Some students take three years of math; did you ever think about taking more than the required amount of math? Are you planning to take more?
7. Some classes are considered tough; some are considered easy; where do you put math?
8. Who has helped you make decisions about the math classes you have taken? How often did you meet/talk to this person about math class? Who else encouraged you?
9. Describe a conversation you have had with your parents or guardian about the math class you should take; about your plans after high school.
10. Describe a conversation with a teacher or counselor about the math class you should take; about your plans after high school.
11. Are there other adults; besides your parents, teachers, or counselor, who helped you make choices about which mathematics classes you should take during your senior year? If so, who are they and what do they say to you about choosing classes?
12. Who do you go to at school when you have a problem in a class? Why this person? How often and in what ways has this person helped you?

13. Do you think there is a relationship between taking math classes and success in reaching your goal after high school? Why?
14. How much time do you spend per week studying/doing homework?
15. Do you and your friends ever talk about your math classes? If so, what kinds of things do you talk about? How have these conversations influenced your choices of math classes?
16. How do your friends and other students react to you taking upper level math classes (peer pressure or ridicule)?
17. Did you participate in any special programs or activities in the seventh or eighth grades? If so, what were they?
18. Think about the classes you have taken during high school. What do you think the most important factors were that influenced you to take or not take Algebra II Trigonometry, Probability and Stats, Math Analysis, Calculus, and/or AP Calculus?
19. Was there ever a time when anyone tried to discourage you from taking any classes? Who and what classes? How did they try to discourage you? What was your response to them?
20. Describe how your peers have influenced you as you made decisions about what class(es) to take.
21. Describe the racial/ethnic background of the friends you spend time with, talk with about school or after school plans, etc.
22. What are the reasons these students are your friends—why are they your peers?
23. Talk to me about the math class you are currently taking. What's it like? What did you think this class would be like?
24. If you had it to do all over again, would you take this class? Why? Why not? Why did you take this class in the first place?
25. How will what you learned in this class help you next year?
26. Describe what success in a class means to you. What grade means you are good in a subject?

APPENDIX B

Parent Interview Questions

1. What do you expect your son to do immediately after high school? In five years?
2. How do you let your son know what you expect of him after high school? How have you let the school know this?
3. What did you do to stimulate an interest in higher level math for your son?
4. What courses in math have you encouraged your son to take? Why and how did you encourage him? What was his response?
5. In what ways have you been in contact with the school counselors or teachers to talk about the mathematics classes your son will take/has taken?
6. What factors do you think were important in your son's decision to take or not take higher level math classes?
7. Who else has helped your son make decisions about his course selections? How?
8. When your son has a problem with math assignments or in the math class at school, what does he do? Who does he go to for help?
9. Does your son listen to you when you make suggestions to him about math classes he should take or not take? How do you know?
10. In terms of difficulty, how would you describe your son's math courses?
11. Do you think your son's peers have influenced his choice of math classes? If so, who and how?
12. Has anyone tried to discourage your son from taking upper level math classes? If so, who?
13. Who has been the most influential people regarding your son and math selection? How did they influence him?

14. Overall, has your son had a like or dislike for math in high school?

APPENDIX C

Counselor Interview

1. What is this school's philosophy about how much math students need in order to be prepared for admission to college?
2. What information do you consider when you advise a student on which math class to take?
3. How do you convey to a student what math classes he should/should not take?
4. Have you worked with specific African American male students to encourage them to take/not take more math classes? If so, describe what you did to encourage them one way or the other.
5. What factors do you think are the most important in a student's decision to take/not take upper level math classes?
6. Did you involve (name of student) parents as you worked with him to take more math classes? (Previous year)
7. What are some things you have done to support or encourage (name of specific student) to take more math classes?
8. How have you conveyed to your students/the students you counsel that you expect them to take more challenging math classes?
9. Have you ever counseled a student not to take a particular math class? Why?
10. What happens if you disagree with a teacher recommendation on a student's class selection?
11. How do you use test scores (MAP, SOL, PSAT, etc.) in the decision making process on what math courses the student should take?
12. Do you consider future career goals when recommending math courses?

APPENDIX D

Interview Questions for Teachers

1. What is this school's philosophy about how much math students need in order to be prepared for admission to college?
2. What information do you consider when you advise a student on which math class to take?
3. How do you convey to a student what math classes he should/should not take?
4. Have you worked with specific African American male students to encourage them to take/not take more math classes? If so, describe what you did to encourage them one way or the other.
5. What factors do you think are the most important in a student's decision to take/not take upper level math classes?
6. When (name of specific student) experienced a problem in a/your class, did (name of specific student) come to you for advice, support, help? If so, how do you support him? If not, who is he likely to go to for help?
7. Describe the characteristic that (name of student) displayed that led you to believe that he loved math?
8. How do you determine if (name of student) had experienced prior success in math before entering your class?
9. Were different teaching strategies necessary to help (name of student) be successful in the class?
10. What cultural considerations did you make when working with African American students?

APPENDIX E

Interview Questions for Math Department Supervisor

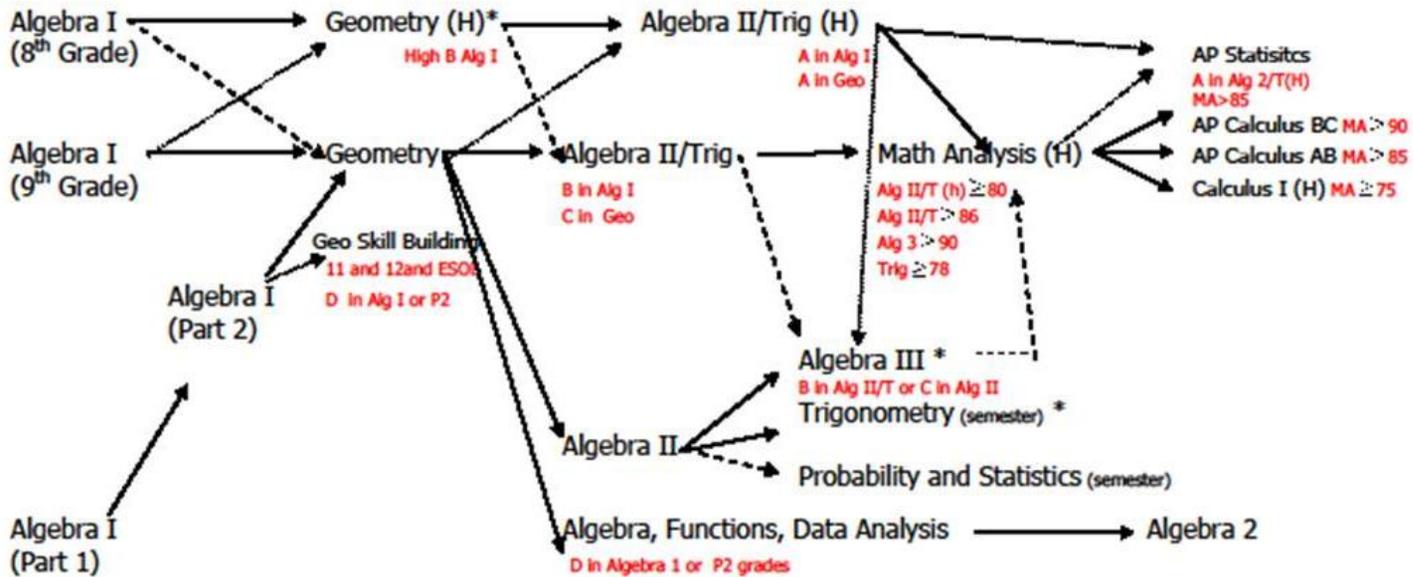
1. What are your perceptions about the course requirements for students who attend this school?
2. Were there any major shifts in operating procedures to accomplish this focus on taking more than the required classes?
3. What roles have you/others at the school/area/system level played in course selection requirements?
4. What are the pros and cons of encouraging students to take more challenging classes?
5. Why do you think that more African American students don't take higher level math classes?
6. For you as an individual, how did you feel about this school's focus or emphasis on students (African American) taking more challenging classes?
7. What were the factors that influenced you to encourage or not encourage the emphasis on more maths for African American male students?
8. Do you know student A, B, and C?
9. What comments have you heard teachers make in reference to the math skills of the students and they ability to take higher level math classes?

APPENDIX F

Math Options

Suggestions for Course Progression (with suggested prerequisites)
Updated for new Grade Scale 2010

MATH OPTIONS



*Algebra III and Trigonometry (semester) must be taken concurrently in order for the student to take Math Analysis the following year.

(H) Honors Course

→ Indicates the **usual** course sequence

→ Indicates the **possible** course sequence

Computer Math I
(C or better in Algebra I)

→ Computer Math II (H) →

AP Computer Science

APPENDIX G

Course Descriptions

Math Courses

Title: **ALGEBRA 3 (Grades 11-12)**

Credit: 1

Prerequisite: Algebra 2/Trigonometry or Algebra 2

This course is designed for the college bound student. Algebra 2 concepts will be reinforced and extended in depth. Topics will include solving linear and quadratic equations and inequalities, graphing and analyzing functions, and matrix operations.

NOTE: A student planning to take Math Analysis or a precalculus college course the following year must take the semester Trigonometry course and Algebra 3 concurrently. This prerequisite includes those students that have taken Algebra 2/Trigonometry.

Title: **TRIGONOMETRY (Grades 11-12)**

Credit: 1/2

Prerequisite: Algebra 2/Trigonometry or Algebra 2

This course is designed for the college-bound student. Basic Trigonometry terminology and concepts will be covered using both right triangle and unit circle approaches. Topics will include Trigonometry identities, solving Trigonometry equations, graphing Trigonometry functions, inverse Trigonometry functions, and using Trigonometry to solve triangles and other problems.

Title: **MATH ANALYSIS (PRE-CALCULUS) (Grades 11-12)**

Credit: 1

Prerequisite: Algebra 2/Trigonometry or Algebra 3 with a semester of Trigonometry

This honors course is designed for the college-bound student who either desires preparation for college-level math courses or wishes to pursue a career in the mathematical, scientific or engineering fields. It emphasizes fundamental concepts in elementary functions, analytic geometry and Trigonometry and provides the prerequisites for the Advanced Placement (AP) Calculus course. Honor classes will require a summer assignment.

Title: **CALCULUS 1 (Grade 12)**

Credit: 1

Prerequisite: Math Analysis

This honors course is designed for the college-bound student. It emphasizes the fundamental concepts of differential calculus including applications and introduces integral calculus. Honor classes will require a summer assignment.

Title: **AP CALCULUS AB (Grade 12)**

Credit: 1

Prerequisite: Math Analysis

This course is designed for the college-bound student with high math ability. It emphasizes the fundamental concepts of differential and integral calculus including applications in both areas. It adheres to the AP Calculus (AB) guidelines and prepares the student for the AP Calculus (AB) exam. Honor classes will require a summer assignment. Students enrolled in this course are expected to take the AP exam in May. **Students are expected to remain in their AP classes for the entire school year.**

Title: **AP CALCULUS BC (Grade 12)**

Credit: 2

Prerequisite: Math Analysis

This course is designed for the college-bound student with exceptional math ability. It emphasizes the concepts of differential and integral calculus, series, and parametric functions and applications in differential and integral calculus. It adheres to the AP Calculus (BC) guidelines and prepares the student for the AP Calculus (BC) exam. Honor classes will require a summer assignment. **This class will meet for one block each day.** Students enrolled in this course are expected to take the AP exam in May. **Students are expected to remain in their AP classes for the entire school year.**

Title: **AP STATISTICS (Grades 11-12)**

Credit: 1

Prerequisite: Honors Algebra 2/Trigonometry or Algebra 2/Trigonometry. This course may be taken concurrently with Math Analysis or Calculus.

This Advanced Placement course in Statistics will introduce students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. Students will be exposed to exploring data, planning a study, anticipating patterns, and applying statistical inferences. **Students are expected to remain in their AP classes for the entire school year.**

Title: **PROBABILITY AND STATISTICS (Grades 11-12)**

Credit: 1/2

Prerequisite: Algebra 2/Trigonometry or Algebra 2

This semester course provides the college-bound student with basic instruction in analyzing statistical data and probability concepts.

APPENDIX H

Letter from the Superintendent

APPENDIX I

Research Questions/Protocol

One to One Tracking- Student Interview Questions

<p>What were the perceptions of the high achieving African American males, their families, friends, and school officials (collectively the ‘Interested Parties’) with regard to why the males took higher level high school math classes?</p>	
<p>a. To what extent did the Interested Parties perceive that parents, teachers, counselors, and teachers influenced the decisions of the African American males to take higher level math classes?</p>	<p>Questions 2, 8,9,10</p>
<p>b. To what extent did the Interested Parties perceive that prior success in mathematics and other classes influenced the decisions to take higher level math classes?</p>	<p>Question 5, 6,7</p>
<p>c. To what extent did the Interested Parties perceive that peers influenced the decisions to take higher level math classes?</p>	<p>Question 3,13,16, 17, 18, 19, 20</p>
<p>d. To what extent did the Interested Parties perceive that graduations requirements and/or post secondary plans influenced to take higher level math classes?</p>	<p>Questions 1, 4, 9</p>
<p>e. To what extent did the Interested Parties perceive that a love of math influenced the decisions to take higher level math classes?</p>	<p>Question 6,15</p>

Research Questions/Proctol

One to One Tracking- Parent Research Questions

What were the perceptions of the high achieving African American males, their families, friends, and school officials (collectively the ‘Interested Parties’) with regard to why the males took higher level high school math classes?	
a. To what extent did the Interested Parties perceive that parents, teachers, counselors, and teachers influenced the decisions of the African American males to take higher level math classes?	Question(s) 3,4,6,8,11,12
b. To what extent did the Interested Parties perceive that prior success in mathematics and other classes influenced the decisions to take higher level math classes?	
c. To what extent did the Interested Parties perceive that peers influenced the decisions to take higher level math classes?	Question/s 10,12
d. To what extent did the Interested Parties perceive that graduations requirements and/or post secondary plans influenced to take higher level math classes?	Question/s 1,2
e. To what extent did the Interested Parties perceive that a love of math influenced the decisions to take higher level math classes?	Question/s 13

Interview Questions-Counselor Interview

<p>What were the perceptions of the high achieving African American males, their families, friends, and school officials (collectively the ‘Interested Parties’) with regard to why the males took higher level high school math classes?</p>	
<p>a. To what extent did the Interested Parties perceive that parents, teachers, counselors, and teachers influenced the decisions of the African American males to take higher level math classes?</p>	<p>Question/s 2,3,4,6,10,14,9,</p>
<p>b. To what extent did the Interested Parties perceive that prior success in mathematics and other classes influenced the decisions to take higher level math classes?</p>	<p>Question/s 5,8,11</p>
<p>c. To what extent did the Interested Parties perceive that peers influenced the decisions to take higher level math classes?</p>	
<p>d. To what extent did the Interested Parties perceive that graduations requirements and/or post secondary plans influenced to take higher level math classes?</p>	<p>Question/s 1,12</p>
<p>e. To what extent did the Interested Parties perceive that a love of math influenced the decisions to take higher level math classes?</p>	

Research Questions/Proctol

One to One Tracking- Teacher Interviews

What were the perceptions of the high achieving African American males, their families, friends, and school officials (collectively the ‘Interested Parties’) with regard to why the males took higher level high school math classes?	
a. To what extent did the Interested Parties perceive that parents, teachers, counselors, and teachers influenced the decisions of the African American males to take higher level math classes?	Questions 2,4,
b. To what extent did the Interested Parties perceive that prior success in mathematics and other classes influenced the decisions to take higher level math classes?	Question/s 3,5,8
c. To what extent did the Interested Parties perceive that peers influenced the decisions to take higher level math classes?	Question/s 5,
d. To what extent did the Interested Parties perceive that graduations requirements and/or post secondary plans influenced to take higher level math classes?	Question/s 1,5,
e. To what extent did the Interested Parties perceive that a love of math influenced the decisions to take higher level math classes?	Questions 7

Research Questions/Proctol

One to One Tracking- Math Department Supervisor

What were the perceptions of the high achieving African American males, their families, friends, and school officials (collectively the ‘Interested Parties’) with regard to why the males took higher level high school math classes?	
a. To what extent did the Interested Parties perceive that parents, teachers, counselors, and teachers influenced the decisions of the African American males to take higher level math classes?	Question/s 2,3,4,6,7
b. To what extent did the Interested Parties perceive that prior success in mathematics and other classes influenced the decisions to take higher level math classes?	Question/s 7,10
c. To what extent did the Interested Parties perceive that peers influenced the decisions to take higher level math classes?	Question/s 5
d. To what extent did the Interested Parties perceive that graduations requirements and/or post secondary plans influenced to take higher level math classes?	
e. To what extent did the Interested Parties perceive that a love of math influenced the decisions to take higher level math classes?	