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PRACTICES OF HIGH SCHOOL PRINCIPALS REGARDING OPEN ENROLLMENT
IN ADVANCED PLACEMENT COURSES AND STUDENT PERFORMANCE
RESULTS IN 2009

by

LEIGH ANN BRADSHAW
B.S. Auburn University, 1990
M.B.A. Mississippi College, 1993

A dissertation submitted in partial fulfillment of the requirements
for the degree of Doctor of Education
in the Department of Educational Research, Technology and Leadership
in the College of Education
at the University of Central Florida
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Major Professors: Rosemarye Taylor
Debbie Hahs-Vaughn

ABSTRACT

The goal of this research was to determine whether or not there was a relationship between principals' reports of practices regarding open enrollment in Advanced Placement (AP) courses and student achievement results on the AP examinations. Because the percentage of the school population enrolled in AP courses and the percentage of students scoring a 3, 4, or 5 on AP examinations were anticipated to impact high school grades in Florida beginning in 2010, research from this study may provide important information to Florida school leaders. Because of school accountability and educational reform initiatives, the study is also important to educational leaders on a national level. Relationships between open enrollment practices shaped by high school principals' decisions and beliefs and the increased enrollment and student performance on AP exams were examined to allow school districts to make curricular decisions regarding rigorous curricular opportunities based on the importance of designing high school AP programs that provide equity and access for all students.

The population for this study included all public high schools and their principals ($N=56$) in five central Florida school districts that administered AP exams in May 2009 and received a Florida Department of Education assigned school grade during the 2008-2009 school year. A multiple linear regression analysis was conducted to examine the relationships between the percentage of students from a school who took or passed the AP examination (dependent variable) and three independent variables describing principal's attitudes toward the school's AP program: (a) access and equity practices, (b) open enrollment practices, and (c) a rating of importance of the AP program. The goal

was to determine if the AP examination passing percentage or enrollment percentage could be predicted by these three principal attitudinal variables. The schools' percentages of students scoring a 3, 4, 5, on AP examinations or taking AP examinations were gathered from the Florida Department of Education website. Principals' reports of practices were obtained from self-report on the AP Course Enrollment Survey.

When examining to what extent, if any, was there a relationship between the principals' reports of practices regarding open enrollment in AP courses and overall student achievement results on AP examinations in five central Florida counties, there were significant predictors based upon the regression model. In predicting the school's percentage of white, Hispanic, and Asian populations passing the AP examinations, only the principal's perception of access and equity was a statistically significant factor. There were no statistically significant predictors of a school's percentage of African American students passing the AP examinations. Neither principal's perception of open enrollment nor importance contributed to the model results regarding open enrollment in AP courses and overall student achievement results on AP examinations.

When examining to what extent, if any, was there a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of students enrolled in AP courses in five central Florida counties, there were significant predictors based upon the regression model. In predicting the school's percentage of students taking AP examinations, only the principal's perception of importance was significant for overall and for all student populations. Open enrollment was significant for the overall populations as well as white and Asian subpopulations.

Access/Equity was only significant for white students. Thus, importance was the main cause of the model significance regarding open enrollment in AP courses and the percentage of students enrolled in AP courses.

This investigation revealed that as schools increased the access and equity in AP programs that successful student performance percentages increased as did AP course enrollment percentages. Also when the variable of importance by principals was placed on AP programs, it typically had a positive impact on student performance percentages yet sometimes caused a decrease in AP course enrollment. The investigation also revealed and was supported by research that the open enrollment practices of a school may cause a decrease in successful student performance percentages. However, open enrollment practices increase student enrollment in AP courses and student success over time.

Educational leaders have the natural responsibility to increase student achievement in schools. There must be appropriate practices and procedures put in place and monitored by principals to meet accountability standards and to increase equity in and access to a rigorous curriculum for all students. Based on educational reform and school accountability demands, balancing the benefits of open enrollment for AP programs, cost effectiveness of AP programs, the allocation of scarce resources, and maintaining course validity and rigor are important issues for educational leaders to consider (College Board, 2004).

This work is dedicated to my parents, Clarence and Frances Williamson, who encouraged me throughout my life, supported me through this endeavor, and always emphasized the importance of a quality education.

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CHAPTER 1 THE PROBLEM AND ITS CLARIFYING COMPONENTS

Introduction

The College Board Advanced Placement (AP) program was founded upon the beliefs of excellence and equity in education. The purpose of an AP program has been to prepare, encourage, and provide all students with high quality educational opportunities and the college experience. According to the College Board (2002), providing a high school curricular program that focuses on rigor and high quality teaching enhances the possibility of a student's college success and predisposition to earn a college degree.

The College Board AP program has been a rigorous curricular program in which high school students have the opportunity to take courses endorsed as college level classes while enrolled in high school. AP exams have been given to students during May of each year in order to gauge the curricular knowledge of the students participating in AP courses. Depending on the admission policies of particular colleges, college credit in specific courses can be awarded to students who scored a 3, 4, or 5 on a corresponding AP exam based upon the college's predetermined formula (Dodd, Fitzpatrick, De Ayala, & Jennings, 2002).

Because of the implications of No Child Left Behind Act of 2001 and high stakes accountability, educators examined student achievement and school success (NCLB, 2002). Beginning in the 1990's, Florida legislators and school district administrators examined school accountability reform measures and AP programs. Also in 1998, Florida legislators and the Florida Department of Education were responsible for restructuring

the methods for calculating high school grades effective for the 2009-2010 school year. Florida's high school grading system included components based on factors such as the percentage of students enrolled in AP courses and the percentage of students scoring a 3, 4, or 5 on AP exams (FDOE, 2008a). Though AP programs were often expensive to implement, many high schools expanded their programs from 2002 – 2009 (College Board, 2009).

In order to remain competitive, secondary schools must scrutinize their curricular programs, allocation of scarce curricular resources, and enrollment processes. The present research was initiated to examine the number of AP exams taken in Florida high schools as measured by the percentage of students taking AP examinations, the performance at the high school of AP students on the AP examination as measured by the percentage of students scoring a 3, 4, or 5 on the AP examination, and the beliefs and practices of high school principals regarding open enrollment in AP programs. Educational leaders have questioned a variety of factors that could relate to student performance and could be included in the new Florida high school grading system that was being developed by legislators. The present study focused on student performance on AP exams and various factors that could relate to student academic performance and school success as measured by school grades. Those factors, which are introduced in this chapter, formed a conceptual framework for the study and were the major topics for which literature and related research were reviewed.

Conceptual Framework

School Accountability and Reform Movements

Because of the No Child Left Behind (NCLB) Act of 2001 and high stakes accountability, educational leaders evaluated student achievement and curricular decisions (NCLB, 2002). NCLB required states to use assessments to measure school accountability. The NCLB legislation responded to the data on low student achievement, high school graduation rates, and high school dropout rates with mandated school accountability initiatives.

The State of Florida also answered the school accountability reform initiatives with HB 7087, known as the A++ Plan legislation. In 1999, the Florida Department of Education issued school grades based upon student performance. Beginning in the 2001-2002 school year, school performance in Florida was measured by the success of the school's students on the Florida Comprehensive Assessment Test (FCAT) (FDOE, 2007). A Florida school's grade was based solely on the student's performance on the FCAT test. In 2008, Florida legislators and school district administrators examined school accountability reform measures because of the changes in the Florida high school grading system (FDOE, 2007). Florida legislators were charged with restructuring the methods for calculating school grades effective for the 2009-2010 school year. Even though school accountability and reform movements greatly impacted educational leadership decisions, school and district administrators always had the inherent responsibility to

increase student achievement. The effects of school accountability mandates impacted curricular decisions made at the school, district, and state level (FDOE, 2007).

Equity and Access to a Rigorous Curriculum

Adelman (2003) stated that rigorous high school programs of high quality and high intensity were important factors that contributed to students' likelihood and success in earning a postsecondary degree. In 2008, Florida legislators focused on providing students with a relevant and rigorous curriculum. The guiding philosophy for expanding equity and access to a rigorous curriculum via an Advanced Placement (AP) program lies in the AP equity policy statement. The College Board's (2002) equity statement addressed open access, elimination of barriers and the need for schools to meet the needs of a diverse population of students:

The College Board and the Advanced Placement Program encourage teachers, AP coordinators, and school administrators to make equitable access a guiding principle for their AP programs. The College Board is committed to the principle that all students deserve the opportunity to participate in rigorous and academically challenging courses and programs. All students who are willing to accept the challenge of a rigorous academic curriculum should be considered for admission to AP courses. The Board encourages the elimination of barriers that restrict access to AP courses for students from ethnic, racial, and socioeconomic groups that have been traditionally underrepresented in the AP program. Schools should make every effort to ensure that their AP classes reflect the diversity of their student population. (p. 1)

Adelman (1999) indicated that a rigorous academic curriculum in high school was a predictor of success in college. According to the College Board (2008a), many high schools offered AP courses as the structured sanctioned curriculum to guarantee rigorous curricular opportunities equivalent to the college level.

Also, Mayer (2008) stated that minority students were consistently underrepresented in honors and gifted programs on a national scale. Mayer suggested that high-achieving minority students and low-achieving students shared many of the same academic risk factors. Academic intervention programs designed to help these students gain equity in access to rigorous curriculum have not been sufficiently widespread to close the achievement gaps at the high end of the academic spectrum.

Numerous researchers have cited factors affecting equity and access to rigorous curriculum. According to Gándara and Bial (2001), efforts to raise the achievement of low income minority high school students to levels of high achievement typically focused on helping these students become eligible for college. The AP opportunity gap in the area of AP course access was examined as an important factor affecting the access and equity opportunities (Taliaferro & DeCuir-Gunby, 2007). Whiting and Ford (2009) also stated that black students taking AP courses and exams were the most under-represented of all ethnic groups of students. By measuring the conditions in high schools and consequences of high school curriculum through the use of data, numerous factors showed an impact of equity and of access to a rigorous curriculum (Archbald & Keleher, 2008). As stated by Kyburg, Hertberg-Davis, and Callahan (2007), schools must understand how to implement high quality successful programs if they are to increase equity and access to rigorous courses and nurture the growth of academic talent among students, especially minority groups.

The College Board's Advanced Placement Program

The College Board Advanced Placement (AP) program began in the mid-1950s “with two projects financed by the Fund for the Advancement of Education of the Ford Foundation” (Santoli, 2002, p. 23). In January 2009, there were 37 Advanced Placement examinations in more than 20 subject areas. Advanced Placement programs were noted as some of the fastest growing programs in high schools across the United States, particularly in Florida (College Board, 2008a).

The AP program has been known as the “voluntary program that offers students an opportunity to take one or more college level courses while still in high school” (College Board, 2008a, p. 4). If students earn a certain score on the AP examination, college credit may be awarded by a postsecondary school. The intense rigorous curriculum in AP courses provided AP students with the writing skills, study habits, and critical thinking and reasoning skills to excel in college.

Open Enrollment in Advanced Placement Programs

According to the College Board (2004), the key to expanding an AP program through open enrollment practices has been to educate all stakeholders, recruit students, provide support to students and teachers, provide teacher training and resources, and establish vertical teams who use pre-AP strategies in all classes. The open enrollment policy must embrace the belief that the value of having and participating in an AP program is not only earning college credit, but also the exposure to a rigorous curriculum and critical thinking skills experienced in college level courses. The College Board

expressed the belief that all willing and academically prepared students deserve the opportunity to participate and succeed in AP course experiences as well as to enjoy the benefits associated with AP success. However, these beliefs and practices were a departure from past common educational practices and are considered controversial by some (College Board, 2004).

Student Performance on Advanced Placement Examinations

Advanced Placement courses were touted by the College Board as being designed to expose high achieving and superior ability high school students to college level curriculum. The College Board (2002) expressed the belief that all willing and academically prepared students deserve the opportunity to participate and succeed in AP course experiences and to enjoy the benefits associated with AP success. As Morgan and Ramist (1998) stated in reporting the findings of their study, “that students who receive qualifying grades of 3, 4, and 5 on the AP examinations can directly enroll in upper-level courses and flourish” (p. 10).

In 2008, AP United States History and AP English Language exams were two of the most popular AP courses in the United States based on the number of students taking AP exams for these courses (College Board, 2009). In 2008, there were increasing numbers of high school students in Florida’s public schools enrolling in and earning a grade of 3 or higher on AP examinations. There were not only more students taking AP exams but also more students taking a variety of exams and earning scores of a 3 or higher. The achievement of Florida minority students on AP exams and their

participation in taking AP exams also soared from 2002-2008, particularly in Black and Hispanic student populations.

Luce and Thompson (2005), found a strong correlation between the students who took AP exams and the success of those students in college. In contrast, Geiser and Santelices (2004) conducted a research study that examined the relationship between success on AP examinations and success in college. Their results showed that while there was an impact on college success based on success on AP exams, there was no significant improvement in college success for those students who took the exam but did not pass over the students who took the course but did not take the exam. They recommended further research to examine the validity of AP programs with respect to their relationship as a predictor of college success (Geiser & Santelices).

Purpose of the Study

The purpose of the study was to determine whether or not there was a relationship between principals' reports of practices regarding open enrollment in AP courses and student achievement results on the AP exams. Because of the percentage of school population enrolled in AP courses and the percentage of students scoring a 3, 4, or 5 on AP examinations were anticipated to impact high school grades in Florida, research from this study may provide important information to school leaders. To investigate, the relationships between open enrollment practices shaped by high school principals' decisions and beliefs and the increased enrollment and student performance on AP exams were examined. Examining these practices may allow school districts to make curricular

decisions regarding rigorous curricular opportunities based on the importance of designing high school AP programs that provide equity and access for all students. This type of curricular design may provide rigorous curricular opportunities that in turn meet high school accountability measures. Because of the costs associated with AP courses and examinations, these decisions may also be important when making decisions about curricular offerings in times of financial difficulties and scarce resources.

Additionally, the results of the study may be useful to districts in examining their schools' definitions of open enrollment for AP programs. The findings could also be considered when developing and increasing curricular programs or practices necessary to meet accountability criteria. Finally, this study provided additional research for the body of knowledge that exists regarding the (a) relationship of open enrollment decisions, (b) the practices of high school principals and (c) student performance on AP exams. In Florida beginning in 2009, the data on open enrollment practices, access to rigorous curriculum, and equity in AP programs from the study could show the impact these results may have on school accountability measures as measured by high school grades.

Statement of the Problem

Realizing that school accountability measures and current legislation determine curricular decisions for high schools, school districts must understand and develop a plan to increase equity in and access of rigorous curricular offerings while allocating scarce resources at the high school level (NCLB, 2002). School leaders must have an understanding of the relationship of open enrollment practices on student performance in

AP courses and on AP exams. There must be appropriate practices and procedures put in place and monitored by principals to meet accountability standards and to increase equity in and access to a rigorous curriculum for all students. Balancing the benefits of open enrollment for AP programs, cost effectiveness of AP programs, the allocation of scarce resources, and maintaining course validity and rigor have been controversial issues that secondary and post-secondary educators have faced and will likely continue to do so (College Board, 2004). The study of open enrollment practices and student achievement success was intended to provide data necessary to make important educational decisions, specifically the investigation of if there is a relationship between the reported open enrollment practices of high school principals and student performance on and student enrollment in AP examinations.

Research Questions

The original focus of the study was to investigate if there is a relationship between open enrollment practices if high school principals and student performance and student enrollment in AP examinations. The following research questions were developed:

1. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and overall student performance on AP examinations in five central Florida counties?
2. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and student performance

on the AP English Language and Composition examination in five central Florida counties?

3. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and student performance on the AP United States History examination in five central Florida counties?
4. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of students enrolled in AP courses in five central Florida counties?

Due to changes in Florida data reporting and school accountability measures, school and district level AP English Language and Composition examination results and AP United States History examination results were not available to the public. The data were not available on the Florida Department of Education website after 2008 for unknown reasons. The Florida Department of Education suggested petitioning The College Board for the specific course and school level data. Based on the literature review findings and the nature of the study, the focus of the study was narrowed to examine open enrollment practices, importance placed on AP programs, and access and equity in a AP courses for overall student populations and by ethnic subpopulations such as White, African American, Hispanic, and Asian students and the subsequent participation and achievement results. The dissection of data in this manner matches the Florida high school grading formula as well as the federal Adequate Yearly Progress (AYP) reporting requirements and is useful to schools and districts. Therefore, the research questions were modified to specifically focus on the overall AP course

enrollment and AP examination results rather than AP examination results by subject area and also to examine AP enrollment and performance by ethnicity. The modified research questions included:

1. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and overall student achievement results on AP examinations in five central Florida school districts?
2. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and overall student achievement results of White students on AP examinations in five central Florida school districts?
3. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and overall student achievement results of African American students on AP examinations in five central Florida school districts?
4. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and overall student achievement results of Hispanic students on AP examinations in five central Florida school districts?
5. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and overall student

achievement results of Asian students on AP examinations in five central Florida school districts?

6. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of students enrolled in AP courses in five central Florida school districts?
7. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of White students enrolled in AP courses in five central Florida school districts?
8. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of African American students enrolled in AP courses in five central Florida school districts?
9. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of Hispanic students enrolled in AP courses in five central Florida school districts?
10. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of Asian students enrolled in AP courses in five central Florida school districts?

Definition of Terms

The following definitions are provided to clarify their use in the research study.

Access--Access is the ability or right to gain entrance to a course or program (NCLB, 2002).

Accountability--Accountability is the requirement of holding schools, districts, educators, and students responsible for student achievement results and school improvement efforts (NCLB, 2002).

Advanced Placement--Established by The College Board in 1955, Advanced Placement (AP) is a program designed to provide high school students with the opportunity to take college level courses taught in their high school by their teachers. Students enrolled in AP courses receive high quality educational opportunities and the college experience (College Board, 2002).

Advanced Placement (AP) Exam--Students are able to demonstrate college level proficiency by taking an end of course exam in May of the academic year. If students earn a score of a 3, 4, or 5 on the AP exam, college credit may be awarded by a postsecondary school (College Board, 2008a).

College Board--The College Board is a non-profit membership association focused on connecting students to college success and opportunities through access, equity, and rigorous curriculum (College Board, 2002).

Equity--Equity is a fair and impartial manner in which students are selected for programs or opportunities through equal access (NCLB, 2002).

Florida Comprehensive Assessment Test (FCAT)--“The Florida Comprehensive Assessment Test (FCAT) is part of Florida’s overall plan to increase student achievement by implementing higher standards. The FCAT, administered to students in Grades 3-11, consists of criterion-referenced tests (CRT) in mathematics, reading, science, and writing, which measure student progress toward meeting the Sunshine State Standards (SSS) benchmark” (FDOE, 2009c).

No Child Left Behind Act 2001--This Act was intended to close the achievement gap of all students to insure that no child is left behind. The public law focuses on closing the achievement gap through targeted assistance and accountability (NCLB, 2002).

Open Enrollment--Open enrollment is the process of allowing students to enroll in courses, in particular AP courses, without course prerequisites or requirements (College Board, 2004).

Rigorous Curriculum--Rigor is the goal of helping students understand content that is complex, thought provoking, and personally or emotionally challenging and the curriculum is the means through which rigor is delivered (Strong, Silver, & Perini, 2001).

School Grades--“Schools are assigned a grade based primarily upon student achievement data from the FCAT. School grades communicate to the public how well a school is performing relative to state standards. School grades are calculated based on annual learning gains of each student toward achievement of Sunshine State Standards, the progress of the lowest quartile of students, and the meeting of proficiency standards” (FDOE, 2009e).

Methodology

Research Design

A non-experimental research design was utilized. Data from an online survey were categorized into themed construct groupings to describe the beliefs and practices of high school principals regarding open enrollment in AP courses. Descriptive statistical methods were used to explain the data and characteristics about the population studied.

Population and Sample

The target population consisted of all public high schools and their principals ($N=56$) in 5 central Florida counties that administered AP exams in May 2009 and received a school grade during the 2008-2009 school year. The central Florida school districts which agreed to participate in the study were Brevard, Lake, Orange, Seminole, and Volusia Counties. Appendix A contains a list of the 56 schools from the 5 counties that comprised the population. The results of the study were not identified in the findings by district nor school.

The sample was one of convenience, as responses from an online survey were collected from those principals who were willing to participate in the research study. AP data were collected from public data resources. Survey responses of principals were collected in January 2010.

Instrumentation

The questions on the online AP Course Enrollment Survey were derived from the College Board's equity statement and Florida's school accountability initiative. The survey (see Appendix B) consisted of 24 items. The survey also was used to identify themes based upon each respondent's answers in areas such as a school's open enrollment practices, student access to rigorous curricular programs, equity in rigorous curricular programs, and the principal's beliefs about open enrollment practices. Feedback on the survey (see Appendix B) was obtained through cognitive interviews that were conducted with central Florida school and school district administrators that were not included in the sample. Each cognitive interview participant received a request to participate via email (see Appendix C) and interviews were conducted via a scripted interview (see Appendix D). The entire data set was constructed with data from the 2008-2009 school year, specifically May 2009 AP exam results and 2008-2009 school grades.

Cronbach's alpha was computed as evidence of internal consistency reliability. Exploratory factor analysis was conducted as evidence of construct validity. Feedback gathered during the cognitive interviews provided evidence of content validity.

Data Collection

Once the cognitive interview process was completed and the survey instrument was finalized, the school districts in the selected population were contacted to begin the data collection process. Each district received a request to conduct research in their district via a personal phone call and follow-up letter. All necessary procedures to obtain

research permission for each district were completed. Correspondence related to district permission to conduct research is contained in Appendix E. After receiving permission to conduct research in the school district and obtaining the University of Central Florida's Institutional Review Board (IRB) approval (Appendix F), the online AP Course Enrollment Practices survey was administered to selected high school principals in January 2010.

The data on AP exams, including the number of AP tests taken and the percentage of students scoring at levels 3-5 on AP exams at each public Florida high school, were obtained from the School AP Test Takers and School AP Exams-Scores 3-5 reports (FLDOE, 2008a). The AP English Language test and AP US History test were used in the study because each of these tests has the largest number of students who take these tests consistently. The AP examinations were administered in May 2009, the results from the AP Enrollment Practices survey were collected in January 2010, and the AP examination data were retrieved in January 2010.

Data Analysis

Data validity tests were conducted using SPSS to determine data quality based on construct validity, internal validity, and reliability. Descriptive statistical analysis was performed. Analysis of survey data was conducted to determine statistical significance.

Cronbach's alpha was computed as evidence of internal consistency reliability. Exploratory factor analysis was conducted as evidence of construct validity. Feedback gathered during the cognitive interviews provided evidence of content validity.

The data sources for each research question were the school's AP student achievement database (FDOE, 2008a) and the results of the principals' practices gathered from the AP Enrollment Practices Survey (see Table 1). Statistical analysis generated using multiple regression identified significant factors (independent variables) for each research question based on the specific dependent variable.

Table 1
Research Questions, Data Sources and Statistical Analyses

Research Questions	Data Sources	Statistical Analyses
1. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and overall student achievement results on AP examinations in five central Florida school districts?	AP student achievement database (FDOE) AP Enrollment Practices Survey	Multiple Regression
2. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and overall student achievement results of White students on AP examinations in five central Florida school districts?	AP student achievement database (FDOE) AP Enrollment Practices Survey	Multiple Regression
3. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and overall student achievement results of African American students on AP examinations in five central Florida school districts?	AP student achievement database (FDOE) AP Enrollment Practices Survey	Multiple Regression
4. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and overall student achievement results of Hispanic students on AP examinations in five central Florida school districts?	AP student achievement database (FDOE) AP Enrollment Practices Survey	Multiple Regression
5. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and overall student achievement results of Asian students on AP examinations in five central Florida school districts?	AP student achievement database (FDOE) AP Enrollment Practices Survey	Multiple Regression
6. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of students enrolled in AP courses in five central Florida school districts?	AP student achievement database (FDOE) AP Enrollment Practices Survey	Multiple Regression

7. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of white students enrolled in AP courses in five central Florida school districts?	AP student achievement database (FDOE) AP Enrollment Practices Survey	Multiple Regression
8. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of African American students enrolled in AP courses in five central Florida school districts?	AP student achievement database (FDOE) AP Enrollment Practices Survey	Multiple Regression
9. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of Hispanic students enrolled in AP courses in five central Florida school districts?	AP student achievement database (FDOE) AP Enrollment Practices Survey	Multiple Regression
10. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of Asian students enrolled in AP courses in five central Florida school districts?	AP student achievement database (FDOE) AP Enrollment Practices Survey	Multiple Regression

Delimitations

This study was delimited in the following ways: (a) to public high schools in central Florida that administered AP exams and received school grades during the 2008-2009 school years; and (b) to the principals of those schools who had served as its principal during the 2008-2009 school year. The study was also delimited by the nature of the research being conducted using a web-based survey versus a paper and pencil survey.

Limitations

The results for this study were limited by the accuracy and candor in self-reported data of the principal participants. Because of the failure of some sample respondents to answer with candor, results may be inaccurate and may not have accurately reflected the opinions of all members of the included population. Due to the small sample of five central Florida counties, results may not be generalizable beyond the specific population from which the sample was drawn. Also, the results may not be generalizable to principals or schools that differ from the sample. Principals' reports of practices could have been based on practices in place during the present rather than the previous year when students were enrolled in the courses and took the AP exam. The results also may not be generalizable beyond Florida due to the 2010 emphasis placed on AP courses in Florida. Because of the time frame, the possibility of changing practices of instructional leaders was another limitation.

Assumptions

It was assumed that the high school principals honestly answered the survey and that the practices reported were actual practices in place during the 2008-2009 school year. The practices were assumed to be based upon the fact that principals are instructional leaders who followed up on procedures to ensure that their beliefs were put into practice in their schools. It was also assumed that AP exams can actually measure student performance in AP courses and student knowledge and performance in a rigorous curricular course.

Significance of the Study

Because of the No Child Left Behind Act of 2001 and high stakes accountability, in 2002 educators increased the emphasis placed on student performance and school success (NCLB, 2002). In 2008, Florida legislators and school district administrators turned their attention to school accountability reform measures, and the Florida Department of Education restructured the methods for calculating high school grades effective for the 2009-2010 school year. The Florida high school grading system includes components based on factors such as the percentage of students enrolled in AP courses and the percentage of students scoring a 3, 4, or 5 on AP exams (FLDOE, 2008a). Nationally, school administrators must examine curricular offerings including the impact of open enrollment practices and student achievement success. The study of AP open enrollment practices and student performance are important accountability measures that will determine school grades in Florida and will provide data necessary to make important educational decisions nationally (College Board, 2004). The research being completed was significant to the field of education because of accountability demands and measures put in place and provided data necessary for high school administrators to make important educational decisions based on limited financial resources and critical student needs, especially in Florida.

Organization of the Study

Chapter 1 has provided an overview of the study including a brief introduction to the issues of open enrollment, access, and equity as they relate to Advanced Placement

courses as components of rigorous curricular programs in high schools. The problem and its clarifying components were presented including the research questions along with delimitations, limitations, and assumptions associated with the study.

Chapter 2 integrates the existing theoretical and empirical literature relevant to the problem being studied. Chapter 3 describes the methodological framework for the study including information on the research questions, study population, instrumentation, data collection, and data analysis. Chapter 4 presents the results of the data analysis. Chapter 5 contains a summary of the findings, conclusions, implications for policy and practice, and recommendations for future research.

CHAPTER 2 REVIEW OF THE LITERATURE

Introduction

A thorough analysis was conducted by examining theoretical and empirical research on school accountability, rigorous curricular opportunities for students, and student achievement success. Exhausted searches of multiple educational and psychological research databases, including online and print materials, provided the foundation for the background of the study. The literature for this research study was explored to examine the issue of access and equity to rigorous curricular programs. With respect to access and equity, the concept of open enrollment in rigorous curricular high school programs was examined. The College Board Advanced Placement (AP) program was founded upon the beliefs of excellence and equity in education and has been a popular, rigorous curricular program in which students have had opportunities to take college level classes during their high school years. In reviewing the literature, the researcher sought to identify (a) school accountability and reform movements impacting access and equity to a rigorous curriculum, (b) the need for a rigorous curriculum, (c) the College Board's AP program, (d) open enrollment in AP programs, and (e) student achievement on and relating to AP exams and organized the literature review by these sections.

School Accountability and Reform Movements

According to the United States Department of Education (2005), only 68% of ninth grade students were predicted to graduate from high school in 4 years and only 18% would graduate from college on time. The NCLB legislation countered the data on low student achievement, high school graduation rates, and high school dropout rates with compulsory school accountability initiatives. The purpose of the NCLB legislation was to guarantee that all students graduate from high school with the employability skills and background knowledge necessary to succeed in postsecondary education or career placement opportunities (US Department of Education).

McDaniel (1999) acknowledged that assessment and accountability are the educational concepts that were projected to drive educational changes in the 21st century. McDaniel stated that the nation's current educational system would be transformed into an assessment driven system. Legislation followed which proved his research credible. Because of the No Child Left Behind (NCLB) Act of 2001 and high stakes accountability, educators have examined student academic performance and student success in curricular programs as measured by accountability measures (NCLB, 2002). NCLB has required states to use assessments to measure school accountability. NCLB also has required states to impose sanctions on schools that do not meet specified student performance goals for the entire population of the school, as well as for disaggregated student subgroups based on ethnicity, socioeconomic status, and other factors. Ultimately, NCLB has promised whole scale reform, including assessment driven accountability, for the American educational system (NCLB).

“The cornerstone of current federal educational policy has been the expansion of school accountability based on measured student test performance” (Hanushek & Raymond, 2005, p. 297). These researchers believed that because of the introduction of accountability there has been larger student achievement growth noted than that which would have occurred without accountability requirements. The State of Florida also answered the school accountability reform initiatives with HB 7087, known as the A++ Plan legislation. In 1999, the Florida Department of Education began to issue school grades based upon student performance. Beginning in the 2001-2002 school year, school grades and school accountability in Florida have been measured by the school’s performance on the Florida Comprehensive Assessment Test (FCAT) (FDOE, 2007). In 2008, Florida legislators and school district administrators examined school accountability reform measures because of the changes in the Florida high school grading system (FDOE, 2007). Florida legislators were charged with restructuring the methods for calculating school grades effective for the 2009-2010 school year. At the time of the study (January 2010), Florida school grade components for high schools in 2009-2010 were projected to include FCAT results, as well as enrollment percentages for AP and dual enrollment courses, percentages of students scoring a 3, 4, or 5 on AP exams, and percentages of students scoring a C or higher in dual enrollment courses who are enrolled in dual enrollment courses, and four year graduation rates (FDOE, 2008).

Marzano (2003) explained that the theoretical framework that often directs school accountability and reform movements has typically been based on three principles: (a) school accountability and reform efforts must be tailored to a specific situation and that

reform would often look substantially different from school to school based on a variety of factors; (b) reform must occur through a heavy emphasis on data and identification of possible or existing successful individual student interventions; and (c) change must be addressed over time. Marzano viewed school accountability standards as important concepts for all instructional leaders to understand. This was essential, in his opinion, in order to improve student achievement, to meet the individual student needs as determined by the state and the high stakes assessments, and to motivate schools to improve. School and district educational administrators must understand the individual needs of the school and district, how to dissect and disaggregate data into decision making tools, and how to develop a multi-year strategic plan in order to implement change at their sites (Marzano).

School and district administrators have always had the natural responsibility to increase student achievement. Dating back to *A Nation at Risk* (1983), educators have been charged with the responsibility to continuously increase student achievement and expectations of performance. Because of continued emphasis over time and educational reform legislation, school districts have been required to ensure that educational reform is data driven and focused on continuous improvement.

Carnoy and Loeb (2004) studied the factors associated with a state's implementation of stronger accountability measures and examined whether stronger statewide practices and requirements of accountability actually did achieve the state's affirmed goal of improving student achievement. They used a variety of measures of average student performance at the state level, including National Association of Educational Progress (NAEP) math test scores, 9th-grade retention rates, and high school

graduation rates. In their research, they provided evidence that states which employed stronger accountability systems in the 1990s realized larger gains in student performance on the National Assessment of Education Progress (NAEP) mathematics exam between 1996 and 2000. A positive relationship was clear at both the basic level and the proficient level of achievement for both 8th grade and 4th grade, though the 8th grade results were stronger. This reported positive relationship was apparent for black, white and Hispanic students. Overall, the results showed that “students in high-accountability states averaged significantly greater gains on the NAEP 8th-grade math test than students in states with little or no state measures to improve student performance” (p. 322).

According to Greene and Winters (2003), “Florida’s A+ Program is perhaps the most aggressive and most controversial education reform measure in the country” (p.3). In this statement, Greene and Winters were alluding to Florida’s offering vouchers that could be used at private schools by public school students who attended schools that continually failed the state’s accountability measures. They also explained that the theory behind the A+ Program was that the idea of losing students and the funding for these students to vouchers would motivate low-performing schools and school districts to improve.

Greene and Winters (2003) completed a study on the impacts of accountability measures and addressed the question of whether or not the public can have faith in the results of high-stakes tests. The results of their study showed that there was an impact based on accountability and that

voucher competition in Florida is leading to significant academic improvements in public schools and that public schools currently facing voucher competition or

the prospect of competition made exceptional gains on both the FCAT and the Stanford-9 tests compared to all other Florida public schools and the other subgroups in their analysis. (p. 14)

Greene and Winters (2003) also concluded that the more in danger a school was of having to compete with vouchers, the greater the gains they would make on both the FCAT and Stanford-9 high stakes tests. Because of their research, Greene and Winters stated that Florida's A+ Program was achieving the goal set forth to provide a better education to the Florida students that the school systems has failed previously.

In a study of Florida schools and the effects of the threat of school vouchers and the stigma on low performing schools, Figlio and Rouse (2006) found that high stakes testing was associated with large-scale improvements for schools which were previously rated as an F school by the state of Florida. Their conclusions also suggested that those improvements were limited for the most part to math scores in schools with the threat of voucher allocation. The researchers did show that, though there was a small improvement in reading scores on high stakes tests, there was a much smaller improvement on a nationally norm-referenced test. They explained that these gains could be attributed to students' prior test scores. While there was evidence of an increase in math test scores, the gains appeared to be primarily limited to students in a grade designated as a high-stakes grade.

In contrast to the findings of Greene and Winters (2003), Figlio and Rouse (2006) produced new evidence regarding improvements following the introduction of Florida's A+ Plan by F-rated schools. All indications were that the stigma of receiving a low grade, not the threat of vouchers, was responsible for relative improvements for low-performing

schools. They concluded that “regardless of whether the effects of the A+ Plan on low-performing schools were due to voucher threats or grading stigma, the evidence was significant, particularly in mathematics” (Figlio & Rouse, p. 255). School accountability and reform measures have shown significant relationships to student performance even though researchers have disagreed on which sanctions or requirements have attributed to the relationships.

Florida Senate Bill 1908 required a significant change to the way high schools were graded in Florida beginning with the 2009-2010 school year. In addition to the methods of prior school grading and assessment results in Grades 9, 10, and 11, the law required an equal focus be placed on access to rigorous courses and opportunities for accelerated coursework as well as the performance in the rigorous and accelerated coursework. The law also added college readiness and graduation rates for all students as well as those academically at-risk into the formula (FDOE, 2009f).

The 2009-2010 Florida high school accountability system demanded more rigorous standards and assessments for students; an alignment between high school, college readiness, and high-skill/high-wage employment; and a focus on access, rigor, and readiness. The new high school grading formula for Florida high schools beginning in the 2009-2010 school year included 50% of the accountability points from FCAT components and 50% of the accountability points from the new high school grading components. Prior to 2009-2010 Florida school grades were based solely on FCAT performance indicators. The FCAT components were FCAT Reading and Math performance, Reading and Math learning gains performance, and Reading and Math

learning gains performance of the lowest quartile of students, Writing performance, and Science performance. The new portion of grading components included in the new 50% of points consisted of overall graduation rate, at risk graduation rate, acceleration participation (AP, IB, Dual Enrollment courses), acceleration performance, college readiness in reading performance, college readiness in math performance, and growth and decline of components (FDOE, 2009f).

Equity and Access to a Rigorous Curriculum

The 1999 report, *A Nation Still At Risk* explained that high schools must provide students with a rigorous curriculum that would prepare students for postsecondary educational opportunities or for the workforce. Adelman (2003) found that rigorous high school programs of high quality and high intensity were important variables that impacted students' likelihood and success in earning a postsecondary degree. In Florida, because of research such as Adelman's (2003), emphasis on high school reform and high school accountability has been expanded to include achievement factors other than ninth and tenth grade student performance on FCAT. The Florida Department of Education focused on AP programs as one element of high school accountability reform largely because of goals stated in the No Child Left Behind Act of 2001 and Florida legislators focused on providing students with a relevant and rigorous curriculum (NCLB, 2002). Adelman (1999) stated that a rigorous academic curriculum in high school was a predictor of success in college. According to the College Board (2008a), high schools

offering AP courses as the structured sanctioned curriculum guaranteed rigor equivalent to the college level.

The concern for equitable access to curricular opportunities surfaced because of the standards based reform movement in education. Throughout the United States, there was a concern regarding whether public schools had the ability and resources to offer quality educational opportunities to students. Rose, Sonstelie, Reinhard, and Heng (2003) expressed the belief that schools can answer the concern for equitable access to curriculum by using an open enrollment philosophy for AP courses. AP courses can also serve as a tool to close the achievement gap in high schools.

Mayer (2008) stated that minority students were consistently underrepresented in honors and gifted programs nationwide. Mayer suggested that high-achieving minority students and low-achieving students shared many of the same risk factors, and that because of these risk factors, the continued academic success of high achieving minority students was not guaranteed. Mayer also noted that there was not equity in access to rigorous curricular opportunities. Academic intervention programs designed to help these students gain equity in access were not sufficiently widespread to close the achievement gaps at the high end of the academic spectrum. Mayer (2008) showed that academic programs at Jefferson High School in Portville Unified School District in California could maintain the integrity of rigorous curricular programs without limiting student access. Minority students at Jefferson High School were thriving in an extremely rigorous academic curriculum and preparing to go to college because of the additional support systems built into the program. Mayer concluded that even though schools had great

challenges associated with implementing equity in access to rigorous curricular opportunities, schools needed to pursue these opportunities. This was particularly important to ensuring supportive scaffolds for high achieving minority students that would help them meet the challenges of rigorous academic courses (Mayer, 2008).

Efforts to raise the achievement of low income minority high school students to levels of high achievement has typically focused on helping these students become eligible for college (Gándara & Bial, 2001). This was accomplished by strengthening their academic skills through increasing access to post-secondary preparatory coursework, rigorous honors curriculum, and AP classes. Special early intervention activities such as tutoring, summer academic programs, rigorous curricular interventions, standardized test preparation such as SAT and ACT test prep courses, and peer study groups are purposeful activities that were designed to help disadvantaged students overcome the inequity and access of academic achievement barriers. Gándara and Bial found that there was little evidence of students' improved academic performance based on these interventions alone. They found that students need to be both motivated to attend college and sufficiently prepared to do college-level coursework. Gándara and Bial stated that

Good programs tend to help students maximize their assets, expand their goals, and show evidence of doubling the college-going rate of their participants, but do not appreciably alter their academic achievement. For changes in academic achievement to occur and access to highly selective institutions to be substantially increased, schools would need to adopt the proven strategies that early intervention programs have incorporated. (p. 66)

Research conducted by Kyburg, Hertberg-Davis, and Callahan (2007), showed that there were several key factors important in creating environments that would foster

the increase of academic talent among students of diverse backgrounds. The factors were (a) a consistent and pervasive belief that these students could be successful, (b) instructional and group support, and (c) scaffolding to support and challenge able students. The researchers noted that extracurricular activities, lunchtime discussion meetings, and financially sponsored college visits were examples of the support needed. According to Kyburg et al., schools must understand how to implement high quality successful programs if they are to increase equity and access to rigorous courses and nurture the growth of academic talent among minority groups.

Taliaferro and DeCuir-Gunby (2007) examined the AP opportunity gap in the area of AP course access. They reported that African American students (a) were under-represented in AP courses, (b) had feelings of alienation from peers when they enrolled in AP courses, and (c) were less likely than white students to be encouraged to take AP courses. Taliaferro and Decuir-Gunby believed that the implications from such under-representation had a large impact on the life choices, including decreased operational citizenship of African American students (Taliaferro & Decuir-Gunby).

Black students taking AP courses and exams were the most under-represented of all ethnic groups of students (Taliaferro & Decuir-Gunby, 2007; Whiting & Ford, 2009). This divide indicated an equity and excellence gap with respect to Black students and AP programs. Whiting and Ford concluded that these minority students were also not receiving adequate preparation for college level work nor exposure to a rigorous curriculum. They did note, however, that the under-representation could occur because of

the lack of AP courses and course choices in minority and low income schools (Whiting & Ford).

Archbald and Keleher (2008) addressed the impact of grouping students and expressed their belief that many high schools have continued to organize courses that reflect ability grouping despite the decline in tracking programs. According to these authors, a rigid tracking program “exacerbates racial and class segregation and disadvantages those students most in need of exposure to rigorous curriculum” (p. 27). Researchers showed both the negative impacts of tracking students and the benefits for high achieving students learning in homogeneous classrooms. Archbald and Keleher examined the use of data to measure conditions in high schools and consequences of high school curriculum. Their research was important for high school administrators who wished to plan interventions for subsets of students and to understand how implement the interventions specifically (Archbald & Keleher).

Student Achievement and Open Enrollment in Advanced Placement Courses

The College Board AP program began in the mid-1950s “with two projects financed by the Fund for the Advancement of Education of the Ford Foundation” (Santoli, 2002, p. 23). The AP program has been known as the “voluntary program that offers students an opportunity to take one or more college level courses while still in high school” (College Board, 2008a, p. 4). Students demonstrate college level proficiency in a subject area by taking an end-of-course exam in May of the academic year. If students earn a certain score on the AP exam, college credit may be awarded by a postsecondary

school. At the time of the present study, there were 37 AP examinations in more than 20 subject areas. AP programs were noted as some of the fastest growing programs in high schools across the United States, particularly in Florida (College Board, 2008a).

Many of the nation's colleges and universities have developed a set of procedures for awarding college credit based on performance on AP exams. By earning AP credits, students are able to save money on tuition, earn internships, and pursue advanced curricular opportunities (College Board, 2008a). Each individual college or university determines the score a student must receive in order to earn credit at the institution. Most colleges and universities award college credit for students who earn an AP exam score of three or higher; thus, students may enter their college or university with advanced standing. This advanced standing allows students to supplant college course requirements through the AP exam score (College Board, 2008a).

AP exam grades have been scored a range of 1(low) to 5 (high) (College Board, 2008a). Table 2 presents the five-point scale used by the College Board in grading AP exams, the college grade equivalents, and designated levels of qualification.

Table 2
Advanced Placement Grades, Qualification, and Equivalents

AP Exam Grade	Qualification	College Grade Equivalent
5	Extremely Well Qualified	A
4	Well Qualified	A-, B+, B
3	Qualified	B-, C+, C
2	Possibly Qualified	C-, D
1	No Recommendation	D, F

The College Board (2008b) described AP courses as intense and probing courses in which students were required to engage in critical thinking skills, express their ideas, and take charge of their learning. The intense rigorous curriculum in AP courses provided AP students with the writing skills, study habits, and critical thinking and reasoning skills to excel in college. The College Board explained that taking AP courses could improve students' chances at gaining admission to college as students could demonstrate that they participated in a challenging high school academic program.

Adelman (1999) examined student achievement and found that even if the AP exam was not passed, if an AP course was taken, the students were more likely to score higher on the Scholastic Achievement Test (SAT) or the American College Test (ACT) tests, to be admitted to a four year college or university, or to earn a college degree than were students who had not taken AP courses. Adelman (1999) stated that participation in AP courses in high school also led to a smoother transition for students in college resulting in college academic success, particularly in students' first semesters in college.

Adelman (1999) concluded that students who took AP courses in high school, and regardless of their passing AP exams, would be well prepared for college based on exposure to a rigorous curriculum.

Dougherty, Mellor, and Jian (2006) disagreed with Adelman (1999). They believed that students who took AP courses for the sake of rigorous curricular challenges and did not pass the corresponding AP exam were less likely to be successful in college than those students who passed the AP exams. This, they thought, was particularly applicable to minorities and low socioeconomic groups. Dougherty et al. believed that the students who did not pass the AP exams ultimately did not learn the curricular content of the AP course and thus would not be prepared for college success. As one would expect, Dougherty et al. also questioned the validity of AP programs with open enrollment and expressed the belief that AP courses had been watered down because of an open enrollment philosophy.

The College Board (2008a) advocates for open access to AP courses for all students regardless of background if they have been willing to engage in hard work. For many students, AP courses are considered an academic challenge. Students who enroll in AP courses have frequently proven to be enthusiastic about learning and have displayed a desire to achieve academic success (College Board, 2008a).

The College Board (2004) has encouraged all students to pursue AP courses if they have the individual determination to participate and succeed. The goal of the College Board has been to provide a rigorous curricular experience for students with a variety of skill levels if those students are willing to accept the academic challenge (College Board,

2004). This commitment has led to questions about open enrollment policies which have allowed students to enroll in AP courses without prerequisites and the impact of less talented students on the rigor of the curriculum, The College Board (2004) responded, reinforcing its commitment to rigorous standards, by implementing the AP course audit program.

In 2006 President Bush emphasized the need and desire to increase AP course enrollment particularly among typically underrepresented population such as low socioeconomic groups and minority groups (Cech, 2007). According to Cech, it was because of this governmental “push” that many universities called for the College Board to ensure that their AP courses were not diluted and that these students did not receive subpar curricular instruction in these courses.

The first AP course audit occurred in 2007 and was known as a comprehensive curriculum review aimed at examining the AP program to determine if its rapid growth had diluted the quality of the rigorous curriculum. The audit consisted initially of college professors reviewing individual teacher syllabi and stamping College Board approval if the materials met the standards of the College Board. This review sought to assure college admissions offices that the AP labels were not given to courses that were not AP courses, were not taught to rigorous standards, and were not College Board endorsed (Cech, 2007).

Cech (2007) documented the concerns with the audit process which was challenged on a university professor, Philip M. Sandler. Sandler was concerned that the audit of a syllabus would screen out excellent teachers because they did not document

their syllabi using the proper procedure or an acceptable template. Sandler also believed that the process of auditing a syllabus and not the methods of teaching course content, especially without examining student success, was flawed. Cech stated that Sandler equated this process to that of approving doctors solely on their equipment and not their abilities or success in curing patients.

The AP course audit served to put in place a set of standards for AP courses. Under this system, the College Board approved courses and authorized teachers to teach the courses. This process provided basic assurances that courses are being taught as expected and meeting set standards (Cech, 2007).

The College Board (2004) explained that open enrollment policies for AP courses have not been sufficient to encourage students to pursue academically challenging opportunities or to break the barriers to equity and access to a rigorous curriculum. They have recommended that schools “actively recruit and encourage AP course enrollment and provide students with the support that they need to be successful in the program” (College Board, 2004, p. 1). Administrators, teachers, and counselors have been encouraged to recruit students by using tools such as AP potential reports, student discussion sessions, parent informational meetings, and postsecondary counseling sessions (College Board, 2004).

Some schools have not embraced an open enrollment philosophy for AP courses because of a fear of lowering AP performance at the school. The College Board (2004) explained that schools which have adopted an open enrollment policy have found that the increase in the number of students taking AP courses have resulted in an increase in the

overall AP success rate for the school. If a decrease occurred in student success, it was only a small initial drop in success in the implementation year. The key to expanding an AP program with an open enrollment philosophy, in the opinion of the College Board, has been to educate all stakeholders, recruit students, provide support to students and teachers, provide teacher training and resources, and establish vertical teams who use pre-AP strategies in all classes. The open enrollment policy must embrace the attitude that the value of having and participating in an AP program is not only in earning college credit but also in the exposure to a rigorous curriculum and critical thinking skills experienced in college level courses. The College Board (2004) has cited its belief that all willing and academically prepared students deserve the opportunity to participate and succeed in AP course experiences as well as to enjoy the benefits associated with AP success. However, these beliefs and practices were a departure from past common educational practices and have been considered controversial by some (College Board, 2004).

The guiding philosophy for expanding equity and access to AP lies in the AP equity policy statement. The College Board's (2002) equity statement addresses open access, elimination of barriers and the need for schools to meet the needs of a diverse population of students:

The College Board and the Advanced Placement Program encourage teachers, AP coordinators, and school administrators to make equitable access a guiding principle for their AP programs. The College Board is committed to the principle that all students deserve the opportunity to participate in rigorous and academically challenging courses and programs. All students who are willing to accept the challenge of a rigorous academic curriculum should be considered for admission to AP courses. The Board encourages the elimination of barriers that restrict access to AP courses for students from ethnic, racial, and socioeconomic groups that have been traditionally underrepresented in the AP program. Schools

should make every effort to ensure that their AP classes reflect the diversity of their student population. (p. 1)

Student Achievement on Advanced Placement Exams

A strong correlation has been found between the students who took an AP exams and the success of those students in college (Luce & Thompson, 2005). The results of their study indicated that students who took an AP course and an AP exam but who did not score a 3 or higher on the AP exam had a significantly higher rate of college completion than did students who took AP courses but did not take the AP end of course exam. In contrast, Geiser and Santelices (2004) conducted a research study that examined the relationship between success on AP examinations and success in college. Their results found that while there was a relationship on college success based on success on AP exams, there was no significant improvement in college success for those students who took the AP exam but did not score a 3, 4, or 5 when compared to the students who took the course but did not take the exam. They recommended further research to examine the validity of AP programs with respect to their relationship as a predictor of college success (Geiser & Santelices).

Willingham and Morris (1986) claimed that the level of success students would have in college could not be determined by AP course enrollment. From their research, Willingham and Morris found that student achievement, as measured by AP test scores alone, could not be linked as a valid indicator of college achievement success. These researchers concluded that there were many other variables or factors that influenced

student success such a student background, type of secondary school attended, parent involvement, and emphasis their education placed on college preparation.

St. Jarre (2008) reported that many high schools were graduating students who were not creative thinkers but had learned to play the game of school well. Some 21st century students, labeled as bright students and admitted to universities with high grade point averages and strong standardized test scores, were not well prepared for college. St. Jarre's explanation for this problem was that these successful high school students learn to please teachers and follow rubrics instead of being courageous critical thinkers. His belief was that universities can teach students who are thinkers and, therefore, secondary schools should focus on developing these thinkers rather than training students to regurgitate facts.

Thompson and Rust (2007) followed up on AP students in college and examined their college success. Their findings did not show that AP students had higher college grade point averages than their non-AP high achieving peers in college. The students in the study did note that they enjoyed their high school AP courses more than their regular education courses. Thompson and Rust's study used a population that consisted of only high achieving students, and this impacted or delimited the results. They also concluded that there were a number of factors that influenced college success for all students.

Because AP courses have been touted by the College Board as being designed to expose high achieving and superior ability high school students to college level curriculum, Klopfenstein and Thomas (2005) examined the claims about the AP advantage and AP student academic success in college. The research study focused on

whether students with AP experience were better prepared for college than those without AP experiences. Klopfenstein and Thomas stated that the “research from the College Board and ETS is fundamentally flawed because it fails to account for the nature of the typical AP student, who is bright and motivated and likely to experience positive college outcomes even in the absence of AP experience” (p. 2).

Klopfenstein and Thomas (2005) conducted a research study, the purpose of which was to justify the funding and emphasis on AP experiences and their relationship to early college outcomes. They also examined the need for expanding AP participation efforts toward under-represented minorities and low socioeconomic students. Their study was important because of the emphasis that the state and federal governments have placed on expanding AP programs and AP course enrollment. Large amounts of governmental money and resources have been allocated to AP programs and expansion projects. Klopfenstein and Thomas found that the level of courses that students took in high school, AP or regular, were strong indicators of the extent to which students were academically prepared to be successful in college. They found that family traits, e.g., ability to pay, influence of family educational expectations, greatly impacted college success. They also determined that the type of high school program in which students were enrolled greatly impacted college success. Ultimately, Klopfenstein and Thomas found that AP students were no more likely to be successful in college, enroll in year two of college, or have a higher grade point average than non-AP students. They concluded that students’ college performance success depended on the background skills they had, the family environment, and the college environment in which they were enrolled.

Klopfenstein and Thomas suggested that their results could be impacted by the rapidly growing AP programs and possible decreasing AP program quality (2005).

According to Tai (2008), “turning to Advanced Placement as a means of achieving educational equity is an approach similar to that taken by proponents of affirmative action” (p. 42). Tai also believed that AP exam success was a “means of gauging our effectiveness as educators” (p. 43). He stated that AP course exams should be used to examine what schools need to improve on with respect to curriculum. With \$122 million being earmark for AP programs and program expansion by the federal government, Tai believed that it was important for state and local governments to examine programs for success.

Morgan and Ramist (1998) earlier examined the academic success of AP students in college. From their study, these researchers found that for most students with AP exam grades of 4 or 5 did very well in the initial college coursework after being placed out of the subject specific introductory course. As one would assume, students with AP exam scores of 3 averaged lower course grades than did the students with AP exam scores of 4 or 5. Also in the majority of the college courses, AP students

received average course grades better than 3.00 and more often than not earned course grade averages higher than students who took the introductory courses. This is even more impressive when one considers that the AP students were taking their first course in the department and were compared to students who have already experienced at least one course at the college in the subject area. (p.10)

The College Board (2004) has expressed the belief that all willing and academically prepared students deserve the opportunity to participate and succeed in AP course experiences and to enjoy the benefits associated with AP success. As Morgan and

Ramist (1998) stated in reporting the findings of their study, “ their research and several prior studies found that students who receive qualifying grades of 3, 4, and 5 on the AP Exams can directly enroll in upper-level courses and flourish” (p. 10).

In 2008, The College Board administered 278,379 AP United States History exams and 242,990 AP English Language exams. These two AP courses had the largest number of AP students taking AP exams during the May 2008 examinations (College Board, 2009). The student grade level distributions on the 2008 AP United States History exam indicated that approximately 87% of the students taking the exam were in the 11th grade; 55% were female and 45% were male students. The 2008 AP United States History exam grade distributions were 22.4% of the students scored a 1 on the exam, 26.8% of the students scored a 2 on the exam, 21.9% of the students scored a 3 on the exam, 18.9% of the students scored a 4 on the exam, and 10.1% of the students scored a 5 on the exam (College Board).

The student grade level distributions on the 2008 AP English Language exam indicated that approximately 85% of the students taking the exam were in the eleventh grade. A total of 63% were female and 37% were male students. The 2008 AP English Language exam grade distributions were 11.9% of the students scored a 1 on the exam, 31.4% of the students scored a 2 on the exam, 31.4% of the students scored a 3 on the exam, 17.2% of the students scored a 4 on the exam, and 8% of the students scored a 5 on the exam (College Board, 2009).

Advanced Placement (AP) in the State of Florida

Because of federal mandates and the reauthorization of the No Child Left Behind Act of 2001, schools were charged with offering more rigorous coursework. In Florida, courses were leveled and rigorous courses including honors and AP courses were designated as level 3 courses.

Conger, Long, and Iatarola (2009) tracked cohorts of public high school students in Florida by using statewide data and examining the factors included in the differences among those students who enrolled in advanced courses. In particular, they examined race, poverty, and gender disparities in advanced course taking. Conger et al. (2009) stated that there were “higher rates of advanced course-taking among whites, females, and non-poor students, and particularly high rates of advanced course-taking for Asian students” (p. 572). When Conger et al. (2009) controlled for pre-high school background characteristics, they found that black and Hispanic students in Florida were more likely than similar white students to take advanced studies. They noted that black and Hispanic students in the study often attended magnet schools which increased their chances of taking advanced courses.

Florida focused on increasing college preparedness for public high school students and reducing access and equity disparities in advanced course-taking. Strategies included : (a) The Florida A+ Plan, (b) the class size reduction 2002 amendment, (c) the A++ Plan increased graduation rates, (d) increasing school accountability, and (e) building a partnership with the College Board to use AP courses as the vehicle to increase rigorous curricular opportunities. Through the AP partnership, Florida focused on and

was successful in its attempts at decreasing demographic disparities and increasing college readiness among public high school students (Conger et al., 2009).

Increasing numbers of high school students in Florida's public schools have been enrolled in and earned a grade of 3 or higher in AP courses. There were not only more students taking AP exams but also more students taking a variety of exams and earning scores of a 3 or higher. Florida had the greatest one-year increase, for the second year in a row, from 2006 to 2007 in the number of students taking AP exams. Florida also had the second greatest increase in 2006 to 2007 in the number of students scoring a 3, 4, or 5 on their AP exams when compared to the nation. In 2008, Florida recorded for the fourth year in a row the greatest one-year increase in AP participation among public school students when compared to all other states. In 2008, Florida had the greatest increase in the nation of students taking AP exams and the second greatest increase in students passing the AP exam with a grade of 3 or higher (FLDOE, 2009b)

The achievement of Florida minority students on AP exams and their participation in taking AP exams also soared, particularly in Black and Hispanic student populations. Florida consistently had the greatest number of Black students taking AP exams and scoring a 3, 4, or 5 on the exam when compared to all other states; and Hispanic students showed the greatest increase in the number of students scoring a 3, 4, or 5 on the AP exam when compared to all other states (College Board, 2008c).

From 2002 to 2007, the number of students in the senior cohort taking an AP exam in Florida public schools increased 74.4 %. The College Board stated that the number of students in the senior cohort taking an AP exam in Florida public schools

increased 9.4 % from 2006 to 2007. Of the students graduating in 2007, 38% of students took at least one AP Exam during high school compared to the 24.9% nationally. The AP participation rate in Florida was reported at 13.1 percentage points higher than the national AP participation rate (College Board, 2008c).

The College Board (2008c) stated that 20.3 % of Florida public high school graduates in 2007 graduated with one or more successful AP experiences as compared to 15.2 % of the 2007 graduating seniors nationally. With these statistics, Florida ranked fourth in the nation in the number of graduating seniors earning a 3, 4, or 5 on at least one AP exam taken during their high school career (College Board, 2008c).

The 2007 Florida high school graduates outscored other students nationally in percentage of students scoring a 3, 4, or 5 on an AP exam during high school by 5.1%. During 2007, Florida students outscored the students nationwide in all AP subjects. In Florida, the three most popular AP courses, as measured by course enrollment and the number of students taking the end of course exams, were reported as English Language and Composition, English Literature and Composition, and United States History (College Board, 2008c).

The increase in AP programs in Florida was documented by the increases in number of AP exam takers and in the percentage of AP exams taken relative to the overall number of students in grades 10-12. Specifically since 1999, the percentage of students in grades 10-12 taking AP exams increased from 9% to 23%, and the number of students taking exams has risen from 15% to 41%. The number of students taking AP exams also increased for all ethnic subgroups. On average, students in Florida public

schools took more exams per student than students in public schools across the nation. With the increase in AP exam takers in Florida, the total number of successful exams from the state of Florida increased by 13% in 2009. In 2008-2009, Florida Black exam takers showed the largest increase in exam scores with a grade of 3-5, from 4,401 in 2008 to 5,327 in 2009, as evidenced by an increased percentage of 21% (FLDOE, 2009b).

In Florida there were more female AP exam takers than males with a 56% female to 48% male ratio. Also the number of AP exam takers noted in the percentage of students in grades 10-12 taking AP exams was 27% while male exam takers comprised only 20% of the grade 10-12 population. However, females in Florida took a smaller number of exams per person, averaging 1.75 exams per student, whereas males averaged 1.81 exams per student. Interestingly, in 2009, the percentages of successful exam takers scoring a grade of 3-5 were 40% for females and 46% for males (FLDOE, 2009b).

Summary

School accountability and reform legislation demanded that America's high schools address the low student achievement performance of high school students. Legislation also demanded that a rigorous curriculum must be implemented that produces students ready for the workforce or postsecondary educational opportunities. The standards based educational initiatives forced educational leaders to examine curricular practices and programs (U.S. Department of Education, 2005).

Because of the No Child Left Behind (NCLB) Act of 2001 and high stakes accountability, educators examined student achievement and student success (NCLB,

2002). NCLB mandated accountability testing for public school students. The NCLB legislation responded to the data on low student achievement, high school graduation rates, and high school dropout rates with mandated school accountability initiatives. In 1999, the Florida Department of Education began to issue school grades based upon student achievement success. Since the 2001-2002 school year, school grades and school accountability in Florida were measured by a school's success on the Florida Comprehensive Assessment Test (FCAT) (FDOE, 2007).

The Advanced Placement program was developed in 1951 as a program for students to become engaged in a rigorous curriculum and to take college level course while still in high school. The College Board Advanced Placement (AP) program was founded upon the beliefs of excellence and equity in education and has been a popular, rigorous curricular program in which high school students have had the opportunity to take college level courses while still enrolled in high school. Based on their performance on an end-of-course exam, students have earned college credit. Students benefited from AP courses because they were exposed to a high quality curriculum and taught critical reasoning skills (College Board, 2008b).

An open enrollment philosophy for AP courses allowed schools to increase enrollment in AP courses and to provide access to rigorous curricular opportunities. By adopting the philosophy explained by The College Board in its AP equity statement, schools were able to respond to the NCLB's and Florida school accountability initiatives' demands to close the achievement gap of special populations and specific demographic subgroups (College Board, 2004).

Previous research on student achievement in AP courses indicated that there was a strong correlation between success of students on AP exams and success of those students in college. At the time of this research study, increasing numbers of students were participating in AP courses in high school and scoring a 3 or above on the end-of-course AP exam. These students were able to earn college credit for their success in a rigorous curriculum in high school (College Board, 2009).

The College Board encouraged all students to pursue AP courses if they had the individual determination to participate and succeed. Some schools have not embraced an open enrollment philosophy for AP courses because they feared lowering AP performance at the school. To guarantee that the courses maintain their rigorous standards, the College Board implemented a course review and approval process called the AP Course Audit. The College Board (2004) also explained that schools who adopted an open enrollment policy found that the increase in the number of students taking AP courses resulted in an increase in the overall AP success rate for the school. The College Board and the Advanced Placement Program encourage teachers, AP coordinators, and school administrators to make equitable access a course of action for their AP programs.

Florida had substantial increases in the number of students taking AP exams and in the number of students scoring a 3, 4, or 5 on AP exams when compared to the nation from 2006 to 2009. The number of students taking AP exams also increased for all ethnic subgroups. The achievement of Florida's Black and Hispanic students on AP exams and their participation in taking AP exams dramatically increased. Florida students also outscored other students nationwide in all AP subjects, and Florida graduating seniors

outscored students nationally in percentage of students scoring a 3, 4, or 5 on an AP exam and in the percentage increase in the number of students taking AP exams. On average, students in Florida public schools took more AP exams per student than have AP exam takers in schools across the nation (College Board, 2008c).

In this chapter, the researcher reviewed literature and research indicating that there was a substantial research and literature base of support for the present study in regard to factors affecting student achievement on AP exams. Further investigation of open enrollment practices and policies on equity and access to rigorous curriculum was intended to provide school administrators with the tools to make decisions regarding their AP programs and to extend the research base on this topic. Chapter 3 contains the methodology that was used in conducting the research study.

CHAPTER 3 METHODOLOGY

Introduction

Chapter 3 focuses the methodology which was used to conduct the research for the present study. The goal of the study was to test the research questions to determine if there is a relationship between high school practices as shaped by the principal's decisions regarding open enrollment in AP courses and student achievement results based upon the school's Advanced Placement data and the school principal's reported practices regarding AP programs at their schools. The methodology and procedures used to test the research questions were presented in this chapter. The chapter is organized in five sections. The research design explaining the type of research to be conducted is included in section one. The study population is described in section two. Sections three and four outline the methods of data collection and the instrumentation used in the research study. Finally, a detailed explanation of the data analysis to be conducted is provided in section five.

Statement of the Problem

Realizing that school accountability measures and current legislation determine curricular decisions for high schools, school districts must understand and develop a plan to increase equity in and access of rigorous curricular offerings while allocating scarce resources at the high school level (NCLB, 2002). School leaders must have an understanding of the relationship of open enrollment practices on student performance in

AP courses and on AP exams. There must be appropriate practices and procedures put in place and monitored by principals to meet accountability standards and to increase equity in and access to a rigorous curriculum for all students. Balancing the benefits of open enrollment for AP programs, cost effectiveness of AP programs, the allocation of scarce resources, and maintaining course validity and rigor have been controversial issues that secondary and post-secondary educators have faced and will likely continue to do so (College Board, 2004). The study of open enrollment practices and student achievement success was intended to provide data necessary to make important educational decisions, specifically the investigation of if there is a relationship between the reported open enrollment practices of high school principals and student performance on and student enrollment in AP examinations.

Research Questions

1. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and overall student achievement results on AP examinations in five central Florida school districts?
2. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and overall student achievement results of White students on AP examinations in five central Florida school districts?

3. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and overall student achievement results of African American students on AP examinations in five central Florida school districts?
4. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and overall student achievement results of Hispanic students on AP examinations in five central Florida school districts?
5. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and overall student achievement results of Asian students on AP examinations in five central Florida school districts?
6. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of students enrolled in AP courses in five central Florida school districts?
7. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of White students enrolled in AP courses in five central Florida school districts?
8. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of African American students enrolled in AP courses in five central Florida school districts?

9. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of Hispanic students enrolled in AP courses in five central Florida school districts?
10. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of Asian students enrolled in AP courses in five central Florida school districts?

Research Design

A non-experimental research design was utilized because the research was conducted to examine student performance that had already occurred. The data from an online survey were categorized into themed constructs groupings to describe the beliefs and practices of high school principals regarding open enrollment in AP courses. The statistical results were grouped into three variable categories. The categories used were: (a) access to and equity in a rigorous curricular program, (b) open enrollment in AP programs, and (c) the importance of AP programs. Descriptive statistical methods including means, standard deviations, and bivariate correlations were used to explain the data and characteristics of the population.

Population and Sample

The target population consisted of all public high schools and their principals ($N=56$) in 5 central Florida counties that administered AP exams in May 2009 and

received a school grade during the 2008-2009 school year. The central Florida counties with schools to be examined were Brevard, Lake, Orange, Seminole, and Volusia Counties. Appendix A contains a listing of the 56 schools from the 5 counties that comprised the population.

A convenience sample was used as responses from an online survey were collected from those principals who were willing to participate in the research study. The convenience sample was drawn from 56 schools in 5 different Florida counties. AP data were collected from public data resources. Survey responses of principals were collected during the 2009-2010 school year.

Instrumentation

The questions on the AP Course Enrollment Survey were derived from the College Board's equity statement and Florida's school accountability initiative. The survey (see Appendix B) consisted of 24 items. The survey was also used to identify themes based upon each respondent's answers in areas such as (a) a school's open enrollment practices, (b) access for students to rigorous curricular programs, (c) equity in rigorous curricular programs, and (d) the principal's beliefs about open enrollment practices. The themed answers were analyzed with achievement data to examine possible relationships of principal practices and student achievement success.

The Advanced Placement Course Enrollment survey consisted of multiple choice and open-ended response items. The first item, which asked if the respondent served as the principal of that school during the previous year, was a screening question used to

determine eligibility. The next question required respondents to enter a principal access code and by entering the access code the respondents provided their informed consent. There were 14 multiple choice questions, all on a 4-point Likert-type scale (1 = strongly agree, 2 = agree, 3 = disagree, and 4 = strongly disagree). This was followed by four free response questions which elicited information as to definition of open enrollment, requirements for enrollment in AP courses, recruiting tools and practices used in targeting students for AP classes, and strategies used to recruit traditionally underrepresented students into AP courses. Finally, four questions were used to gather demographic information. Excluding the screening question to determine eligibility and the access code question to provide informed consent, there were a total of 18 items on the AP Course Enrollment Survey and four demographic questions. Table 3 identifies AP Course Enrollment Practices subscales and the corresponding survey items:

Table 3
Advanced Placement Course Enrollment Survey: Factors and Items

Survey Constructs	Survey Items
1. Access	5, 10, 14
2. Equity	6, 7
3. Open Enrollment	8, 9, 11, 13
4. Importance of Advanced Placement Programs	3, 4, 12, 15, 16

Specifically, the AP Course Enrollment Survey questions 3 - 16 were questions that provided the variables used to create the factors for the independent variables. These

questions used a 4-point Likert-type scale, ranging from 1 to 4 (1= strongly agree, 2 = agree, 3 = disagree, and 4 = strongly disagree) for each item. Factors were created by summing the responses for the respective items for that factor based on survey questions 3 – 16. Survey questions 17 -20 provided free response information (definition of open enrollment, requirements of AP course enrollment, recruiting practices for AP courses, recruiting practices for AP courses for students in specifically underrepresented populations). The AP Course Enrollment Survey questions 22 – 24 (number of years as principal of the current school, ethnicity, and gender) provided information about the professional and personal background of the survey respondents.

Reliability and Validity

The AP Course Enrollment Practices Survey (see Appendix B) was examined through a cognitive interview process using school and school district administrators such as an assistant superintendent, principals, assistant principals, coordinators of student services, director of professional development, and a school assessment specialist in the central Florida area that were not included in the sample population. These participants were selected from a variety of educational levels. Each cognitive interview participant received a request to participate by email (see Appendix C). Cognitive interviews for content validity were conducted using a scripted interview (see Appendix D). The cognitive interview process consisted of approximately three rounds of testing using seven participants in each round for a total of 21 cognitive interview participants.

Participants in the cognitive interview process provided their informed consent prior to participation.

The cognitive interviews provided information regarding the clarity and content of the survey and its items and provided one form of evidence for content validity. The basis for the cognitive interview process was to evaluate the sources of response error in the survey instrument. The cognitive interview process focused on the survey questions and examined the processes that participants used in answering the survey questions. The researcher listened and observed during the cognitive interview process. The interviews were conducted in the participant's office which was a comfortable private environment. The process also allowed the examination of what the respondent believed the survey question to be asking, the comfort level of the respondent when answering each question, and the willingness for the respondent to answer the question. Each respondent was encouraged to talk through his/her thinking processes as each read and responded to the questions. The cognitive interview participants provided feedback on the wording and any questions that were unclear. The participants also provided feedback on the appearance of the survey including survey colors, design, font, layout, and navigational graphics and features. Finally the participants provided feedback regarding their preferences about surveys including their preference for paper and pencil versus online formats and other likes and dislikes about the AP Course Enrollment Survey. The results from the cognitive interviews provided an understanding of any possible structural defects with the survey, adjust survey features and wording, and to redesign the survey. Ultimately, the cognitive interview process was used to as one form of evidence for

content validity of the survey items as well as the length of time needed for the respondents to complete the survey.

Data validity tests were conducted using SPSS to determine data quality based on construct validity, internal validity, and reliability. Cronbach's alpha was computed as evidence of internal consistency reliability. Exploratory factor analysis was conducted as evidence of construct validity. Feedback gathered during the cognitive interviews provided evidence of content validity. Descriptive statistical analysis was performed. The means, standard deviations, and bivariate correlations were examined. Analysis of survey data was conducted using an alpha level of .05 to determine statistical significance.

Data Collection

Upon completion of the cognitive interview process and finalization of the survey instrument, the school districts in the selected population were contacted to begin the research process. Each district contact in the selected central Florida counties received a request to conduct research in their district via a personal phone call and follow-up letter. All necessary procedures to obtain research permission for each district were completed. Correspondence related to district permission to conduct research is contained in Appendix E. After receiving written permission to conduct research in the school district and following successful validation of the survey and reliability testing, the online AP Course Enrollment Practices Survey was administered to selected high school principals in January 2010.

School Data Collection

The data on AP exams, including the number of AP tests taken and the percentage of students scoring at levels 3-5 on AP exams at each public Florida high school in the population, were obtained from a Florida Department of Education website (FLDOE, 2008a). The dataset was populated with information on AP data retrieved from the evaluation and reporting page from the School AP Test Takers and School AP Exams-Scores 3-5 reports (FLDOE, 2008a). The AP English Language test and AP US History test were used in the study because each of these tests has the largest number of students who take these tests consistently.

Data to be used in the analysis were analyzed using SPSS version 16. The dataset for each district included the total number of AP exams taken at each high school, the percentage of students enrolled in AP courses at each high school, the total percentage of students scoring at levels 3-5 on the AP exams taken at each high school, the percentage of students taking AP exams scoring 3-5 on the United States History AP exam, the percentage of students taking AP exams scoring 3-5 on the English Language and Composition AP exam, and the overall percentage of students taking AP exams scoring 3-5 on these AP exams. The entire data set was constructed with data from the 2008-2009 school year, specifically May 2009 AP exam results.

Survey Data Collection

The AP Course Enrollment Survey was administered online in January 2010. It was used to collect data regarding the beliefs and practices of high school principals

regarding AP course enrollment. The survey data were collected through an Internet survey service known as SurveyMonkey[®]. Prior to receiving an email regarding the research study, each principal received a pre-notice contact letter that provided an overview of the research study, information regarding the upcoming delivery of the survey link via email, and an appeal to participate in the research study (Appendix G). Because of practices in place in Seminole County, principals in Seminole county received a letter with the survey link instead of an email. Through the SurveyMonkey[®] service, a Likert-type survey was delivered via email or letter to principals within the survey population. The email or letter included introductory information, instructions, an access code, and informed consent information (Appendix H). Each school was guaranteed anonymity by being assured that their responses would be kept confidential. From the study population, there were 56 high schools examined. There were three schools who did not meet the criteria of having the same principal as the principal in the year in which the data was collected or the school did not offer AP courses therefore they were excluded from the study (N=53). The principals of each school who had not completed the survey were contacted three additional times as follow up before the survey collection period was closed.

Data Analysis

Data collected from the principals who completed the AP Course Enrollment Practices Survey were merged with the school AP data file. The principals' responses to the AP Course Enrollment Practices Survey were separated subscales of (a) access and

equity, (b) open enrollment, and (c) the importance of AP programs and were computed as defined previously. Answers to the free response questions were also recorded in the data set.

The multiple choice and open ended responses from the survey analysis were used to identify themes and levels of principal beliefs and practices regarding open enrollment in AP courses. The multiple linear regression sought to predict results on the basis of the independent variables of access and equity, open enrollment, and importance of program. The data were analyzed in relation to statistical data compiled.

Research Question 1 sought to analyze to what extent, if any, is there a relationship between the principal's report of practices regarding open enrollment in AP courses and 2009 student achievement results on overall AP exams in five central Florida counties. This question was analyzed using a multiple regression statistical test. A multiple linear regression was conducted to determine the extent to which the dependent variable, the percentage of students scoring a 3, 4, or 5 on AP examinations, could be predicted by the independent variables, the three subscales of principal practices of (a) access and equity, (b) open enrollment, and (c) importance.

Research Question 2 sought to analyze to what extent, if any, is there a relationship between the principal's report of practices regarding open enrollment in AP courses and 2009 white student achievement results on AP exams in five central Florida counties. This question was analyzed using a multiple regression statistical test. A multiple linear regression was conducted to determine the extent to which the dependent variable, the percentage of white students scoring a 3, 4, or 5 on AP examinations, could

be predicted by the independent variables, the three subscales of principal practices of (a) access and equity, (b) open enrollment, and (c) importance.

Research Question 3 sought to analyze to what extent, if any, is there a relationship between the principal's report of practices regarding open enrollment in AP courses and 2009 African American student achievement results on AP exams in five central Florida counties. This question was analyzed using a multiple regression statistical test. A multiple linear regression was conducted to determine the extent to which the dependent variable, the percentage of African American students scoring a 3, 4, or 5 on AP examinations, could be predicted by the independent variables, the three subscales of principal practices of (a) access and equity, (b) open enrollment, and (c) importance.

Research Question 4 sought to analyze to what extent, if any, is there a relationship between the principal's report of practices regarding open enrollment in AP courses and 2009 Hispanic student achievement results on overall AP exams in five central Florida counties. This question was analyzed using a multiple regression statistical test. A multiple linear regression was conducted to determine the extent to which the dependent variable, the percentage of Hispanic students scoring a 3, 4, or 5 on AP examinations, could be predicted by the independent variables, the three subscales of principal practices of (a) access and equity, (b) open enrollment, and (c) importance.

Research Question 5 sought to analyze to what extent, if any, is there a relationship between the principal's report of practices regarding open enrollment in AP courses and 2009 Asian student achievement results on overall AP exams in five central

Florida counties. This question was analyzed using a multiple regression statistical test. A multiple linear regression was conducted to determine the extent to which the dependent variable, the percentage of Asian students scoring a 3, 4, or 5 on AP examinations, could be predicted by the independent variables, the three subscales of principal practices of (a) access and equity, (b) open enrollment, and (c) importance.

Research Question 6 sought to analyze to what extent, if any, is there a relationship between the principal's report of practices regarding open enrollment in AP courses and the 2009 percentage of overall students at the high school taking AP examinations in five central Florida counties. This question was analyzed using a multiple regression statistical test. A multiple linear regression was conducted to determine the extent to which the dependent variable, the percentage of students taking AP examinations at the high school, could be predicted by the independent variables, the three subscales of principal practices of (a) access and equity, (b) open enrollment, and (c) importance.

Research Question 7 sought to analyze to what extent, if any, is there a relationship between the principal's report of practices regarding open enrollment in AP courses and the 2009 percentage of white students at the high school taking AP examinations in five central Florida counties. This question was analyzed using a multiple regression statistical test. A multiple linear regression was conducted to determine the extent to which the dependent variable, the percentage of white students taking AP examinations at the high school, could be predicted by the independent

variables, the three subscales of principal practices of (a) access and equity, (b) open enrollment, and (c) importance.

Research Question 8 sought to analyze to what extent, if any, is there a relationship between the principal's report of practices regarding open enrollment in AP courses and the 2009 percentage of African American students at the high school taking AP examinations in five central Florida counties. This question was analyzed using a multiple regression statistical test. A multiple linear regression was conducted to determine the extent to which the dependent variable, the percentage of African American students taking AP examinations at the high school, could be predicted by the independent variables, the three subscales of principal practices of (a) access and equity, (b) open enrollment, and (c) importance.

Research Question 9 sought to analyze to what extent, if any, is there a relationship between the principal's report of practices regarding open enrollment in AP courses and the 2009 percentage of Hispanic students at the high school taking AP examinations in five central Florida counties. This question was analyzed using a multiple regression statistical test. A multiple linear regression was conducted to determine the extent to which the dependent variable, the percentage of Hispanic students taking AP examinations at the high school, could be predicted by the independent variables, the three subscales of principal practices of (a) access and equity, (b) open enrollment, and (c) importance.

Research Question 10 sought to analyze to what extent, if any, is there a relationship between the principal's report of practices regarding open enrollment in AP

courses and the 2009 percentage of Asian students at the high school taking AP examinations in five central Florida counties. This question was analyzed using a multiple regression statistical test. A multiple linear regression was conducted to determine the extent to which the dependent variable, the percentage of Asian students taking AP examinations at the high school, could be predicted by the independent variables, the three subscales of principal practices of (a) access and equity, (b) open enrollment, and (c) importance.

The survey questions were coded and three factors were created. The survey factors were access/equity to rigorous curriculum, open enrollment in AP courses, and the importance of AP programs. These factors were represented in the multiple linear regression as the independent variables. Cronbach's alpha was run to determine the reliability level of these factors. To test for normality assumptions, skewness and kurtosis statistics were obtained. Statistical outliers were determined graphically and an outlier in one data category was removed to bring the kurtosis into the normal range.

Composite scores were created for each survey item based upon the 4-point Likert scale of the survey in which the scale goes from 1 to 4. Contradictory to logic the smaller the score represents a positive response. The composite scores were coded into the factor categories for the study. The data for each question were analyzed using SPSS.

Summary

This chapter has detailed the methodology and procedures used to conduct the study. The instrumentation used to conduct the study has been detailed, and the data

collection and analysis techniques have been described. Chapter 4 presents a summary of the analysis of the data for the four research questions used to guide this study.

CHAPTER 4 ANALYSIS OF THE DATA

Introduction

This study investigated the relationship between principals' reports of practices regarding open enrollment in AP courses and student AP examination performance. The results of the study will contribute to the existing body of research on high school principals' practices regarding open enrollment in AP courses, equity and access to rigorous curricular programs using AP courses, and student enrollment and achievement in AP courses. This chapter contains a description of the modifications made to the research questions, a description of the setting, a review of the reliability and validity analysis of the survey instrument and factor creation, an overview of the research population and the descriptive statistics, and a thorough analysis of each research question. The data explained were gathered from the principals' responses to the 2010 AP Course Enrollment Survey and the school data from 2009 AP course enrollment and 2009 AP examination results.

Research Questions

After the literature and available data were examined in Chapter 1, the research questions were modified and included:

1. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and overall student

achievement results on AP examinations in five central Florida school districts?

2. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and overall student achievement results of white students on AP examinations in five central Florida school districts?
3. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and overall student achievement results of African American students on AP examinations in five central Florida school districts?
4. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and overall student achievement results of Hispanic students on AP examinations in five central Florida school districts?
5. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and overall student achievement results of Asian students on AP examinations in five central Florida school districts?
6. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of students enrolled in AP courses in five central Florida school districts?

7. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of white students enrolled in AP courses in five central Florida school districts?
8. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of African American students enrolled in AP courses in five central Florida school districts?
9. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of Hispanic students enrolled in AP courses in five central Florida school districts?
10. To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of Asian students enrolled in AP courses in five central Florida school districts?

Description of the Setting

School Districts

The population for this study included all public high schools and their principals ($N=56$) in five central Florida school districts that administered AP exams in May 2009 and received a Florida Department of Education assigned school grade during the 2008-

2009 school year. The central Florida school districts which agreed to participate in the study were Brevard, Lake, Orange, Seminole, and Volusia Counties.

Brevard County Schools, during 2009, was a unique school district that consisted of a geographical area that stretched approximately 75 miles on the east coast of Florida. In 2009, there were 86 public schools, 8 charter schools, and 17 special centers in the 1,300 square mile school district. During the 2007-2008 school year, Brevard county had 74,371 students of which 69.7 % were white, 14.7 % were African American, 8.1 % were Hispanic, and 2.1 % were Asian (FLDOE, 2009d). In 2009, Brevard county had approximately 73,000 students and 9,500 school board employees (Brevard County Public Schools, 2010).

Lake County Schools, during 2009, was a school district that consisted of a geographical area of 1,156 square miles in central Florida located west of Orange and Seminole counties. During the 2007-2008 school year, Lake county had 40,710 students of which 62.2 % were white, 15.8 % were African American, 17.0 % were Hispanic, and 2.2 % were Asian (FLDOE, 2009d). In 2009, Lake County Schools served approximately 41,000 students and 5,500 school board employees. In 2009, there were 40 public schools and 17 charter schools in Lake county (Lake County Public Schools, 2010).

Orange County Public Schools (OCPS), during 2009, was the public school district that consisted of a metropolitan geographical area of 1,004 square miles that served Orange County, Florida which is the Orlando area. During the 2007-2008 school year, Orange county had 174,136 students of which 34.1 % were white, 27.4 % were African American, 31.2 % were Hispanic, and 4.3 % were Asian (FLDOE, 2009d). As of

2009, OCPS had approximately 180,000 students and was noted as the 11th largest school district in the United States in 2007 based on a the March 2009 report. In 2009, OCPS had 178 public schools in which 125 were elementary schools, 34 were middle schools, and 19 were high schools. The district also had adult education, special education, and alternative education facilities (Orange County Public Schools, 2010).

Seminole county, during 2009, was located in central Florida north of Orlando that consisted of a geographical area of 354 square miles. During the 2007-2008 school year, Seminole county had 65,355 students of which 58.5 % were white, 13.7 % were African American, 18.0 % were Hispanic, and 3.7 % were Asian (FLDOE, 2009d). In 2009, Seminole County Schools had approximately 65,000 students. They also employed 4,300 classroom teachers, 400 administrators, and 2,900 support staff members (Seminole County Public Schools, 2010).

During the 2007-2008 school year, Volusia county had 64,570 students of which 63.9 % were white, 14.5 % were African American, 15.6 % were Hispanic, and 1.5 % were Asian (FLDOE, 2009d). In 2009, Volusia County Schools that consisted of a geographical area of 1,432 square miles, served approximately 63,000 students, and had approximately 8,300 employees. As of 2009, Volusia County Schools served 16 cities on the eastern coast of Florida. During the 2009-2010 school year, Volusia County Schools had 46 elementary schools, 12 middle schools, 8 high schools, and 7 alternative schools. Because of its size, the district was noted as the 57th largest school district in the United States in 2009 (Volusia County Public Schools, 2010).

Schools

The target population consisted of all public high schools and their principals ($N=56$) in five central Florida counties that administered AP exams in May 2009 and received a school grade during the 2008-2009 school year. In Brevard County 15 high schools were asked to participate in the study, in Lake County 7 high schools were asked to participate in the study, in Orange County 19 high schools were asked to participate in the study, in Seminole County 9 high schools were asked to participate in the study, and in Volusia County 8 high schools were asked to participate in the study. Appendix A contains a listing of the 56 schools from the 5 counties that comprised the population.

Response Rate

There were 56 principals invited to participate. Of those invited, three were excluded from the research study. One principal was excluded from the research study because his school did not offer AP courses. The other two principals were excluded from the research study because they indicated that they were not the principal at the current school during the prior year when the AP courses and examinations were taken. Of the remaining 53 high schools, principals from 33 of the high schools completed the online survey and entered their principal access code in order for data matching to occur. Additionally, one principal completed the survey but did not include the principal access code and therefore was excluded from the study. As a result, the completed surveys yielded a 64% ($n=34$) response rate from principals in the population but only 62%

($n=33$) of the surveys were used in the research study for data analysis because of matching criteria.

Sample

Of the respondents used in the data analysis, 24 (75%) were male, 8 (25%) were female, and 1 declined to answer. Also 32 (97%) of these respondents were white and 1 (3%) was black. Tables 4-6 provide descriptive statistics on percentage of students passing and percentage of students enrolled in AP courses based on respondents' ethnicity. As seen in Table 4, the mean for the overall group population percentage of students passing AP examinations was 49.16%, for white students the mean was 50.93%, for African American students the mean was 26.03%, for Hispanic students the mean was 47.76%, and for Asian students the mean was 46.28%. Table 4 also depicts the standard deviation and the range for the overall group population and for each ethnic group individually.

Table 4
Descriptive Statistics for Percentages of Students Passing Advanced Placement Exams by Respondents' Ethnicity (N = 30)

Group	<i>M</i>	<i>SD</i>	Range
Overall	49.16	16.79	68.60
White	50.93	16.93	76.70
African-American	26.03	19.86	57.40
Hispanic	47.76	19.17	79.20
Asian	46.28	25.02	83.30

As seen in Table 5, the mean for the overall group population percentage of students enrolled in AP examinations was 29.61%, for white students the mean was 30.55%, for African American students the mean was 16.82%, for Hispanic students the mean was 29.92%, and for Asian students the mean was 57.15%. Table 5 also depicts the standard deviation and the range for the overall group population and for each ethnic group individually.

Table 5
Descriptive Statistics for Percentages of Students Enrolled in Advanced Placement Examinations by Respondents' Ethnicity (N = 30)

Group	<i>M</i>	<i>SD</i>	Range
Overall	29.61	14.46	61.80
White	30.55	13.85	58.30
African-American	16.82	11.69	44.10
Hispanic	29.92	19.89	91.60
Asian	57.15	22.16	77.30

As seen in Table 6, the mean for the Principals' AP attitudinal factors was 13.67 for access and equity practices, 8.30 for open enrollment practices, and 14.73 for importance placed on the AP program practices. Table 6 also depicts the standard deviation and the range for each attitudinal factor.

Table 6
Descriptive Statistics for Principals' Advanced Placement Attitudinal Factors (N = 30)

Factor	<i>M</i>	<i>SD</i>	Range
Access Practices	13.67	1.54	5.00
Open Enrollment Practices	8.30	1.34	5.00
Importance of AP Program	14.73	0.87	3.00

The following frequency tables indicated the frequency distributions for each survey question separated by factors. Tables 7-10 represent the frequency distributions for access and equity. As displayed in Table 7, 19 respondents or 63.3% of principal respondents disagreed with the statement that guidance counselors are more likely to encourage students toward a more challenging curriculum if the students are from a family with high socioeconomic status which indicated that there appeared to be practices that promoted access and equity to a rigorous curriculum.

Table 7
Frequency Distribution for Q10: Guidance Counselor Encouragement of Challenging Curriculum for Economically Advantaged Students (N = 30)

Response	Frequency	Percentage
Strongly Agree	--	0.0
Agree	5	16.7
Disagree	19	63.3
Strongly Disagree	6	20.0

As shown in Table 8, 18 respondents or 60% strongly agreed and 11 respondents or 36.7% agreed for a total of 96.7% of respondents, indicating that the number of AP courses met the student demand for courses. This also indicated that there appeared to be practices that promoted access and equity to a rigorous curriculum.

Table 8
Frequency distribution for Q14: Number of Advanced Placement Courses Meets Student Demand (N = 30)

Response	Frequency	Percentage
Strongly Disagree	--	0.0
Disagree	1	3.3
Agree	11	36.7
Strongly Agree	18	60.0

Table 9 shows that 12 respondents or 40% strongly agreed and 16 respondents or 53.3% agreed for a total of 93.3% of respondents, indicating that all teachers at the school were familiar with the AP program and courses offered. This also indicated that there appeared to be practices that promoted access and equity to a rigorous curriculum.

Table 9
Frequency Distribution for Q6: Teacher Familiarity With Advanced Placement Courses (N = 30)

Response	Frequency	Percentage
Strongly Disagree	--	0.0
Disagree	2	6.7
Agree	16	53.3
Strongly Agree	12	40.0

As displayed in Table 10, 22 respondents or 73.3%, strongly agreed and eight respondents or 26.7% agreed for a total of 100% of respondents. This indicated that all students were provided with AP course enrollment information and also indicated that there appeared to be practices that promoted access and equity to a rigorous curriculum.

Table 10
Frequency Distribution for Q7: All Students Provided With Advanced Placement Enrollment Information (N = 30)

Response	Frequency	Percentage
Strongly Disagree	--	0.0
Disagree	--	0.0
Agree	8	26.7
Strongly Agree	22	73.3

The frequency distributions for open enrollment are presented in Tables 11–13. Table 11 shows that five respondents or 16.7% strongly disagreed and 17 respondents or 56.7% disagreed while eight respondents or 26.7% agreed that in order to be able to take an AP course, students must qualify for the program by achieving a certain score on an achievement test. This also indicated that there appeared to be practices that promoted open enrollment in a rigorous curriculum in most schools, but there were mixed responses.

Table 11
Frequency Distribution for Q8: Advanced Placement Qualification Contingent on Achievement Score (N = 30)

Response	Frequency	Percentage
Strongly Agree	--	0.0
Agree	8	26.7
Disagree	17	56.7
Strongly Disagree	5	16.7

As shown in Table 12, 17 respondents or 56.7% disagreed and 13 respondents or 43.3% agreed that ability grouping was an important practice. This also indicated that there appeared to be practices that promoted open enrollment in a rigorous curriculum in some schools but there were mixed responses.

Table 12
Frequency Distribution for Q9: Ability Grouping Students by Skill Level as Important Practice for Advanced Placement Identification (N = 30)

Response	Frequency	Percentage
Strongly Agree	--	0.0
Agree	13	43.3
Disagree	17	56.7
Strongly Disagree	--	0.0

As shown in Table 13, four respondents or 13.3% strongly disagreed, 17 respondents or 56.7% disagreed, and nine respondents or 30% agreed that assignment to AP courses was based on entry requirements. This indicated that there appeared to be practices that promoted open enrollment in a rigorous curriculum in some schools, but there were mixed responses.

Table 13
Frequency Distribution for Q13: Assignment of Students to Advanced Placement Based On Entry Requirements (N = 30)

Response	Frequency	Percentage
Strongly Agree	--	0.0
Agree	9	30.0
Disagree	17	56.7
Strongly Disagree	4	13.3

Tables 14-17 display importance frequency distributions. As shown in Table 14, all 30 respondents or 100% of responding principals strongly agreed that AP courses were an important part of the school’s academic program. This indicated that there appeared to be an importance placed on rigorous curriculum programs.

Table 14

Frequency Distribution for Q3: Advanced Placement Courses as Important Part of Academic Program (N = 30)

Response	Frequency	Percentage
Strongly Disagree	--	0.0
Disagree	--	0.0
Agree	--	0.0
Strongly Agree	30	100.0

As displayed in Table 15, 26 respondents or 86.7% of principal respondents strongly agreed and four respondents or 13.3% agreed that students in AP classes performed better in college than those students who did not take AP courses. This indicated that there appeared to be an importance placed on rigorous curriculum programs.

Table 15

Frequency Distribution for Q4: Students in Advanced Placement Classes Perform Better in College (N = 30)

Response	Frequency	Percentage
Strongly Disagree	--	0.0
Disagree	--	0.0
Agree	4	13.3
Strongly Agree	26	86.7

Table 16 shows that six respondents or 20% of principal respondents strongly disagreed and 19 respondents or 63.3.% disagreed, but five respondents or 16.7% agreed that AP course accessibility diminished the rigor of the AP course curriculum. This indicated that there appeared to be an importance placed on, and a belief in, the rigorous curriculum programs.

Table 16
Frequency Distribution for Q12: Advanced Placement Course Accessibility Diminishes Rigor of Curriculum (N = 30)

Response	Frequency	Percentage
Strongly Agree	--	0.0
Agree	5	16.7
Disagree	19	63.3
Strongly Disagree	6	20.0

As shown in Table 17, 25 respondents or 83.3% of principal respondents strongly agreed and five respondents or 16.7% agreed that students who want to pursue rigorous curricular courses should take AP courses. This indicated that there appeared to be an importance placed on rigorous curriculum programs.

Table 17

Frequency Distribution for Q16: Students Who Want to Pursue Rigorous Curriculum Should Take Advanced Placement Courses (N = 30)

Response	Frequency	Percentage
Strongly Disagree	--	0.0
Disagree	--	0.0
Agree	5	16.7
Strongly Agree	25	83.3

Reliability and Validity

Validity

The survey instrument (Appendix B) was examined through cognitive interviews that were conducted with central Florida school and school district administrators that were not included in the sample. Based on the cognitive interview process, the participants liked the blue color scheme better than the green color scheme for the survey color and contrast. Five participants specifically stated that the blue color scheme was easier to read and one participant stated that the blue color scheme seemed more peaceful. The blue color scheme was selected for the survey.

The font and font size were examined and the participants stated that the font and size were easy to read on screen and also on paper if the participant chose to print the survey. The font size and the Arial font were kept.

The participants acknowledged that the navigation was easy for an online survey and one participant noted that she liked the fact that she could go back to a previous question if she desired. The participants stated that the questions were straight forward and easy to understand. When examining the amount of time it would take to complete the survey, all participants found that the completion of the survey would take less than 10 minutes. One participant suggested that the survey state that there were only 24 questions but then decided that the less than 10 minute statement was more appealing for enticing completion of the survey. One participant suggested a completion progress bar to be displayed on each page and the progress bar was added to the survey.

Question 20 asked, “Please list strategies used at your school for recruiting traditionally underrepresented populations of students for enrollment in AP course.” Three participants asked what the definition of traditionally underrepresented populations was and the definition was added by including examples in parentheses. The question was changed to read as, “Please list strategies used at your school for recruiting traditionally underrepresented populations (ethnicity, gender, poverty, language) of students for enrollment in AP courses.”

Question 23 originally asked, “What is your race?” Six participants stated that they preferred the use of the word ethnicity instead of race. The question was changed to read as “What is your ethnicity?”

Two participants asked why there were not neutral options like they had observed on other surveys. A 4-point Likert scale was chosen to avoid neutral answers. All participants stated that they liked the free response area so they could elaborate on their

practices. All participants agreed that they would prefer to complete the survey online instead of completing a paper and pencil survey that they would have to return via mail.

The cognitive interview process clearly indicated that the overall survey was easily understood and accurately asked the questions as it was designed. All participants indicated that there were no questions that they were uncomfortable answering. The results from the cognitive interviews provided an understanding of any possible structural defects with the survey, adjust survey features and wording, and to properly redesign the survey. Ultimately, the cognitive interview process was used as one form of evidence for content validity of the survey items as well as to determine the length of time needed for the respondents to complete the survey. Although exploratory factor analysis would have been appropriate for providing evidence of construct validity, the sample size was not sufficient for conducting the analysis.

Reliability

The AP Course Enrollment Survey was designed to assess the open enrollment practices and beliefs in place, the level of commitment to access and equity in rigorous curricular programs, and the importance of AP programs based on the principal's report of practices and beliefs at the high school. The survey instrument was created using three factors that were tested for reliability.

Table 18 contains the results of the final composition of the factors that were used for this study after reliability analysis were generated using Cronbach's alpha. Prior to generating reliability evidence, five negatively worded items were reverse coded to

ensure that the highest value for a given item reflected the most positive manifestation of that factor. As evidence of internal consistency reliability, Cronbach's alpha was generated for the three subscales of the AP Course Enrollment Survey. The first subscale, Access/Equity, initially consisted of 5 items and had an internal consistency of .39 based on Cronbach's alpha. After the removal of item 5 ("The population of my school's AP courses reflect the students' socioeconomic diversity of the school"), Cronbach's alpha increased to .56. Thus the Access/Equity subscale used in further analysis consisted of only 4 items.

The second subscale, Open Enrollment, initially consisted of 4 items and had an internal consistency of .31 based on Cronbach's alpha. After the removal of item 11 ("A student should have high interest in a subject in order to be recommended for an AP class in that subject"), Cronbach's alpha increased to .58. Thus the Open Enrollment subscale used in further analysis consisted of only 3 items.

The third subscale, Importance, initially consisted of 5 items and had an internal consistency of .27 based on Cronbach's alpha. After the removal of item 15 ("Our school policy requires all students who take AP courses to take the AP exam"), Cronbach's alpha increased to .42. Thus the Importance subscale used in further analysis consisted of only four items. Note that none of the coefficients were exceptionally high as preferably they should have been above .7 but they were used regardless due to the investigative nature of this survey and relatively small sample size.

Table 18
Factor Creation and Reliability for Survey Variables

Factor	Items	Cronbach's Alpha
Access/Equity	Guidance counselors are more likely to encourage students toward a challenging curriculum if students are from high socioeconomic status (Q10) ^a	.56
	Number of AP courses at my HS adequately meets student demand (Q14)	
	All teachers at school are familiar with AP course offerings (Q6)	
	All students in my school are provided with information about how to enroll in an AP course (Q7)	
Open Enrollment	Qualifying for enrollment in AP courses is contingent on attaining a certain score on an achievement test (Q8) ^a	.58
	Ability grouping students by skill level is an important practice at my school for identifying AP students (Q9) ^a	
	Assignment of students to AP courses is based upon specific entry requirements (Q13) ^a	
Importance	AP courses are an important part of school's academic program (Q3)	.42
	Students who take AP courses perform better in college (Q4)	
	Making AP courses accessible to all students diminishes rigor of AP course curriculum (Q12) ^a	
	As school principal I believe a student who wants to pursue a rigorous curriculum should take AP courses (Q16)	

^a Item was reverse-coded.

General Assumptions

Prior to running the analysis, each factor was examined for the presence of normality. To test for normality assumptions, a variety of statistics were obtained. During the analysis, further examination of boxplots showed that a statistical outlier was present. The possibilities of outliers were determined graphically and verified using the $1.5 \times \text{IQR}$ formula, where IQR represents the interquartile range, or distance between the 25th and 75th percentiles. Based on the IQR outlier bounds, the outlier from any variable were removed to bring the statistics into the normal range.

After the removal of the outlier, normality was a reasonable assumption. In the process of creating factors, only observations where all respondents answered the given items could be included. Furthermore, when running the correlation where each of these factors served as an independent variable, it was necessary for all of the predictors to not have a missing value. Therefore, since three of the observations featured a missing value for one or more of the variables, they had to be excluded. Because of these factors, the population was adjusted ($N=30$). Upon completion of reliability testing and review of surveys to ensure that they met the inclusion criteria, all factors were determined to be acceptable and the analysis proceeded.

Analysis of Research Questions

Following are the results of the data analysis. Presented are the results of the analysis for each research question.

Research Question 1

To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and overall student achievement results on AP examinations in five central Florida counties?

A multiple linear regression analysis was conducted to examine the relationship between the percentage of students from a school who passed the AP examination (dependent variable) and three independent variables describing principal's attitudes toward the school's AP program: (a) access and equity practices, (b) open enrollment practices, and (c) a rating of importance of the AP program. The goal was to determine if the AP examination passing percentage could be predicted by these three attitudinal variables. The schools' percentages of students scoring a 3, 4, 5, on AP examinations were gathered from the Florida Department of Education website. Principals' reports of practices were obtained from self-report on the AP Course Enrollment Survey.

Testing Assumptions

Prior to analyzing the multiple linear regression results, assumptions were checked to ensure the appropriateness of the regression. Initially, Cook's distance, centered leverage values, and scatterplots did not suggest clear outliers. Scatterplots comparing the dependent variable to each independent variable indicated rough linear relationships existed. Studentized residuals were also compared to unstandardized predicted values via scatterplots; all values fell within the approximate range of -2 to 2. Therefore, there was sufficient indication that the linearity assumption was met.

Unstandardized residuals were reviewed for normality. Evidence suggested that this assumption was met, as indicated by skewness and kurtosis statistics (-.25 and -.32, respectively). A Shapiro-Wilk's test also suggested normality ($W = .97$, $df = 30$, $p = .42$). The histogram and Q-Q plots also did not turn up any evidence of non-normality, nor did the boxplot, which did not indicate any outliers.

Studentized residuals were plotted against each independent variable and indicated that the assumption of independence was acceptable. Scatterplots of studentized residuals to unstandardized predicted Y values as well as studentized residuals to case numbers suggested the possibility of independence assumption violation because of a slight pattern, but this may have been due to the small sample size. Scatterplots of studentized residuals to unstandardized predicted values did not suggest violations of homogeneity of variance, as they were fairly even in nature.

Multicollinearity was the final assumption tested. The tolerance values were greater than .10 (.94 and 1.0) with variable inflation factors of less than 10 (1.06 and 1). There were, however, multiple eigenvalues close to zero (.021, .007, .002) and one that was above zero (3.971). One condition index was less than 15 (13.835), one was between 15 and 30 (23.589), and one was above 30 (49.783). Despite this possible violation of multicollinearity, the variance proportions for the factors with high condition indices were checked. These values measure how much of the variability in a regression coefficient can be associated with a component. No factor had two or more regression coefficients highly associated with a component with a high condition index (greater than 0.5), so the multicollinearity issue was deemed acceptable for the nature of this study.

Regression Results

A multiple linear regression test using the three factor categories as independent variables to predict the dependent variable of AP examination pass rate was conducted. Collectively, access practices, open enrollment practices, and perceived importance of the AP program are good predictors of students who pass the AP examinations, $F(3, 26) = 6.56, p = .002$. However, only access/equity was a statistically significant predictor in explaining the percentage of students passing the AP examination. Table 19 contains the parameter estimates for this model. The correlation matrix in Table 20 represents all possible correlation coefficients between the set of variables.

The regression equation is AP Examination Pass Percentage = $-42.81 + (7.12)(\text{Access/Equity Practices}) - (0.78)(\text{Open Enrollment Practices}) + (.08)(\text{Importance of AP program})$. The independent variable, access and equity, had a positive relationship to the dependent variable, AP examination pass percentage. Principals' perceptions about access and equity positively predicted AP examination pass percentage. The accuracy of predicting AP examination pass percentage was strong, as the multiple correlation coefficient was .66. Approximately 43% ($R^2 = .43$) of the variance in AP examination pass rates was accounted for by the regression model.

Table 19
Multiple Regression Analysis for Overall Advanced Placement Pass Rate (N = 30)

Variable	<i>B</i>	<i>SE B</i>	β	<i>p</i>
Constant	-42.81	46.79		
Access/Equity	7.12	1.66	.65	.01
Open Enrollment	-0.78	1.85	-.06	.68
Importance	0.08	2.95	—	.98

Note. $F = 6.56$. $R^2 = .43$.

Table 20
Correlation Matrix for Overall Advanced Placement Pass Rate Analysis (N = 30)

Item	1	2	3	4
1. Percentage Passing	—			
2. Access Practices	.65**	—		
3. Open Enrollment Practices	-.06	.01	—	
4. Importance of AP Program	.16	.24	-.02	—

* $p < .05$. ** $p < .01$.

Research Question 2

To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and overall student achievement results of students by ethnicity on AP examinations in five central Florida counties?

A multiple linear regression analysis was conducted to examine the relationship between the percentage of white students from a school who passed the AP examination

(dependent variable) and three independent variables describing principal's attitudes toward the school's AP program: 1) access and equity practices, 2) open enrollment practices, and 3) a rating of importance of the AP program. The goal was to determine if the white student AP examination passing percentage could be predicted by these three attitudinal variables. The schools' percentages of white students scoring a 3, 4, 5, on AP examinations were gathered from the Florida Department of Education website. Principals' reports of practices were obtained from self-report on the AP Course Enrollment Survey.

Testing Assumptions

Prior to analyzing the multiple linear regression results, assumptions were checked to ensure the appropriateness of the regression. Initially, Cook's distance, centered leverage values, and scatterplots did not suggest clear outliers. Scatterplots comparing the dependent variable to each independent variable indicated rough linear relationships existed. Studentized residuals were also compared to unstandardized predicted values via scatterplots; all values fell within the approximate range of -2 to 2. Therefore, there was sufficient indication that the linearity assumption was met.

Unstandardized residuals were reviewed for normality. Evidence suggested that this assumption was met, as indicated by skewness and kurtosis statistics (-.41 and .09, respectively). A Shapiro-Wilk's test also suggested normality ($W = .972$, $df = 30$, $p = .59$). The histogram and Q-Q plots also did not turn up any evidence of non-normality, nor did the boxplot, which did not indicate any outliers.

Studentized residuals were plotted against each independent variable and indicated that the assumption of independence was acceptable. Scatterplots of studentized residuals to unstandardized predicted Y values as well as studentized residuals to case numbers suggested the possibility of independence assumption violation because of a slight pattern, but this may have been due to the small sample size. Scatterplots of studentized residuals to unstandardized predicted values did not suggest violations of homogeneity of variance, as they were fairly even in nature.

Multicollinearity was the final assumption tested. The tolerance values were greater than .10 (.94 and 1.0) with variable inflation factors of less than 10 (1.06 and 1). There were, however, multiple eigenvalues close to zero (.021, .007, .002) and one that was above zero (3.971). One condition index was less than 15 (13.835), one was between 15 and 30 (23.589), and one was above 30 (49.783). Despite this possible violation of multicollinearity, the variance proportions for the factors with high condition indices were checked. These values measure how much of the variability in a regression coefficient can be associated with a component. No factor had two or more regression coefficients highly associated with a component with a high condition index (greater than 0.5), so the multicollinearity issue was deemed acceptable for the nature of this study.

Regression Results

A multiple linear regression test using the three factor categories as independent variables to predict the dependent variable of the white student AP examination pass rate was conducted. Collectively, access practices, open enrollment practices, and perceived

importance of the AP program are good predictors of white students who pass the AP examinations, $F(3, 26) = 4.787, p = .009$. However, only access/equity was a statistically significant predictor in explaining the percentage of white students passing the AP examination. Table 21 contains the parameter estimates for this model. The correlation matrix in Table 22 represents all possible correlation coefficients between the set of variables.

The regression equation for the white student group is AP Examination Pass Percentage = $-45.61 + (6.37)(\text{Access/Equity Practices}) - (0.69)(\text{Open Enrollment Practices}) + (1.03)(\text{Importance of AP program})$. The independent variable, access and equity, had a positive relationship to the dependent variable, AP examination pass percentage. Principal's perceptions about access and equity positively predicted AP examination pass percentage. The accuracy of predicting AP examination pass percentage for white students was strong, as the multiple correlation coefficient was .60. Approximately 36% ($R^2 = .36$) of the variance in AP examination pass rates was accounted for by the regression model.

Table 21
Multiple Regression Analysis for White-Only Advanced Placement Pass Rate (N = 30)

Variable	<i>B</i>	<i>SE B</i>	β	<i>p</i>
Constant	-45.61	50.21		
Access/Equity	6.37	1.78	.58	.01
Open Enrollment	-0.69	1.99	-.06	.73
Importance	1.03	3.16	.05	.74

Note. $F = 4.79$. $R^2 = .36$.

Table 22
Correlation Matrix for White Student Advanced Placement Pass Rate Analysis (N = 30)

Item	1	2	3	4
1. Percentage Passing	—			
2. Access Practices	.59**	—		
3. Open Enrollment Practices	-.06	.01	—	
4. Importance of AP Program	.19	.24	-.02	—

* $p < .05$. ** $p < .01$.

Research Question 3

To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and overall student achievement results of African American students on AP examinations in five central Florida counties?

A multiple linear regression analysis was conducted to examine the relationship between the percentage of African American students from a school who passed the AP examination (dependent variable) and three independent variables describing principal's attitudes toward the school's AP program: (a) access and equity practices, (b) open enrollment practices, and (c) a rating of importance of the AP program. The goal was to determine if the African American student AP examination passing percentage could be predicted by these three attitudinal variables. The schools' percentages of African American students scoring a 3, 4, 5, on AP examinations were gathered from the Florida Department of Education website. Principals' reports of practices were obtained from self-report on the AP Course Enrollment Survey.

Testing Assumptions

Prior to analyzing the multiple linear regression results, assumptions were checked to ensure the appropriateness of the regression. Initially, Cook's distance, centered leverage values, and scatterplots did not suggest clear outliers. Scatterplots comparing the dependent variable to each independent variable indicated rough linear relationships existed. Studentized residuals were also compared to unstandardized

predicted values via scatterplots; all values fell within the approximate range of -2 to 2. Therefore, there was sufficient indication that the linearity assumption was met.

Unstandardized residuals were reviewed for normality. Evidence suggested that this assumption was met, as indicated by skewness and kurtosis statistics (-.41 and .09, respectively). A Shapiro-Wilk's test also suggested normality ($W = .972$, $df = 30$, $p = .59$). The histogram and Q-Q plots also did not turn up any evidence of non-normality, nor did the boxplot, which did not indicate any outliers.

Studentized residuals were plotted against each independent variable and indicated that the assumption of independence was acceptable. Scatterplots of studentized residuals to unstandardized predicted Y values as well as studentized residuals to case numbers suggested the possibility of independence assumption violation because of a slight pattern, but this may have been due to the small sample size. Scatterplots of studentized residuals to unstandardized predicted values did not suggest violations of homogeneity of variance, as they were fairly even in nature.

Multicollinearity was the final assumption tested. The tolerance values were greater than .10 (.94 and 1.0) with variable inflation factors of less than 10 (1.06 and 1). There were, however, multiple eigenvalues close to zero (.021, .007, .002) and one that was above zero (3.971). Despite this possible violation of multicollinearity, the variance proportions for the factors with high condition indices were checked. These values measure how much of the variability in a regression coefficient can be associated with a component. No factor had two or more regression coefficients highly associated with a

component with a high condition index (greater than 0.5), so the multicollinearity issue was deemed acceptable for the nature of this study.

Regression Results

A multiple linear regression test using the three factor categories as independent variables to predict the dependent variable of the African American student AP examination pass rate was conducted. Collectively, access practices, open enrollment practices, and perceived importance of the AP program are not good predictors of African American students who pass the AP examinations, $F(3, 26) = .828, p = .49$. There are no statistically significant predictors in explaining the percentage of African American students passing the AP examination. Table 23 contains the parameter estimates for this model. The correlation matrix in Table 24 represents all possible correlation coefficients between the set of variables.

The regression equation for the African American student group is AP Examination Pass Percentage = $-38.16 + (3.67)(\text{Access/Equity Practices}) - (0.29)(\text{Open Enrollment Practices}) + (0.84)(\text{Importance of AP program})$. The independent variables did not have a relationship to the dependent variable, AP examination pass percentage. Principal's perceptions did not predict AP examination pass percentage. The accuracy of predicting AP examination pass percentage for African American students was not strong, as the multiple correlation coefficient was .30. Approximately 9% ($R^2 = .09$) of the variance in AP examination pass rates was accounted for by the regression model.

Table 23

Multiple Regression Analysis for African-American-Only Advanced Placement Pass Rate (N = 30)

Variable	<i>B</i>	<i>SE B</i>	β	<i>p</i>
Constant	-38.16	70.11		
Access/Equity	3.67	2.49	.28	.15
Open Enrollment	0.20	2.77	.01	.94
Importance	0.84	4.42	.04	.85

Note. $F = 0.83$. $R^2 = .09$.

Table 24

Correlation Matrix for African-American Student Advanced Placement Pass Rate Analysis (N = 30)

Item	1	2	3	4
1. Percentage Passing	—			
2. Access Practices	.29	—		
3. Open Enrollment Practices	.01	.01	—	
4. Importance of AP Program	.11	.24	-.02	—

* $p < .05$. ** $p < .01$.

Research Question 4

To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and overall student achievement results of Hispanic students on AP examinations in five central Florida counties?

A multiple linear regression analysis was conducted to examine the relationship between the percentage of Hispanic students from a school who passed the AP examination (dependent variable) and three independent variables describing principal's attitudes toward the school's AP program: (a) access and equity practices, (b) open enrollment practices, and (c) a rating of importance of the AP program. The goal was to determine if the Hispanic student AP examination passing percentage could be predicted by these three attitudinal variables. The schools' percentages of Hispanic students scoring a 3, 4, 5, on AP examinations were gathered from the Florida Department of Education website. Principals' reports of practices were obtained from self-report on the AP Course Enrollment Survey.

Testing Assumptions

Prior to analyzing the multiple linear regression results, assumptions were checked to ensure the appropriateness of the regression. Initially, Cook's distance, centered leverage values, and scatterplots did not suggest clear outliers. Scatterplots comparing the dependent variable to each independent variable indicated rough linear relationships existed. Studentized residuals were also compared to unstandardized

predicted values via scatterplots; all values fell within the approximate range of -2 to 2. Therefore, there was sufficient indication that the linearity assumption was met.

Unstandardized residuals were reviewed for normality. Evidence suggested that this assumption was met, as indicated by skewness and kurtosis statistics (.43 and -.37, respectively). A Shapiro-Wilk's test also suggested normality ($W = .941$, $df = 29$, $p = .11$). The histogram and Q-Q plots also did not turn up any evidence of non-normality, nor did the boxplot, which did not indicate any outliers.

Studentized residuals were plotted against each independent variable and indicated that the assumption of independence was acceptable. Scatterplots of studentized residuals to unstandardized predicted Y values as well as studentized residuals to case numbers suggested the possibility of independence assumption violation because of a slight pattern, but this may have been due to the small sample size. Scatterplots of studentized residuals to unstandardized predicted values did not suggest violations of homogeneity of variance, as they were fairly even in nature.

Multicollinearity was the final assumption tested. The tolerance values were greater than .10 (.94 and 1.0) with variable inflation factors of less than 10 (1.07 and 1). There were, however, multiple eigenvalues close to zero (.021, .007, .002) and one that was above zero (3.970). One condition index was less than 15 (13.737), one was between 15 and 30 (23.714), and one was above 30 (49.040). Despite this possible violation of multicollinearity, the variance proportions for the factors with high condition indices were checked. These values measure how much of the variability in a regression coefficient can be associated with a component. No factor had two or more regression

coefficients highly associated with a component with a high condition index (greater than 0.5), so the multicollinearity issue was deemed acceptable for the nature of this study.

Regression Results

A multiple linear regression test using the three factor categories as independent variables to predict the dependent variable of the Hispanic student AP examination pass rate was conducted. Collectively, access practices, open enrollment practices, and perceived importance of the AP program are good predictors of Hispanic students who pass the AP examinations, $F(3, 25) = 10.38, p < .001$. However, only access/equity was a statistically significant predictor in explaining the percentage of Hispanic students passing the AP examination. Table 25 contains the parameter estimates for this model. The correlation matrix in Table 26 represents all possible correlation coefficients between the set of variables.

The regression equation for the Hispanic student group is AP Examination Pass Percentage = $54.56 + (8.44)(\text{Access/Equity Practices}) - (.44)(\text{Open Enrollment Practices}) + (0.56)(\text{Importance of AP program})$. The independent variable, access and equity, had a positive relationship to the dependent variable, AP examination pass percentage. Principal's perceptions about access and equity positively predicted AP examination pass percentage. The accuracy of predicting AP examination pass percentage for Hispanic students was strong, as the multiple correlation coefficient was .75. Approximately 56% ($R^2 = .56$) of the variance in AP examination pass rates was accounted for by the regression model.

Table 25

Multiple Regression Analysis for Hispanic-Only Advanced Placement Pass Rate (N = 29)

Variable	<i>B</i>	<i>SE B</i>	β	<i>p</i>
Constant	-54.56	42.53		
Access/Equity	8.44	1.55	.75	.01
Open Enrollment	-0.44	1.69	-.03	.80
Importance	-0.56	2.70	-.03	.83

Note. $F = 10.38$. $R^2 = .56$.

Table 26

Correlation Matrix for Hispanic Student Advanced Placement Pass Rate Analysis (N = 29)

Item	1	2	3	4
1. Percentage Passing	—			
2. Access Practices	.74**	—		
3. Open Enrollment Practices	-.02	.02	—	
4. Importance of AP Program	.17	.26	-.02	—

* $p < .05$. ** $p < .01$.

Research Question 5

To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and overall student achievement results of Asian students on AP examinations in five central Florida counties?

A multiple linear regression analysis was conducted to examine the relationship between the percentage of Asian students from a school who passed the AP examination (dependent variable) and three independent variables describing principal's attitudes toward the school's AP program: (a) access and equity practices, (b) open enrollment practices, and (c) a rating of importance of the AP program. The goal was to determine if the Asian student AP examination passing percentage could be predicted by these three attitudinal variables. The schools' percentages of Asian students scoring a 3, 4, 5, on AP examinations were gathered from the Florida Department of Education website. Principals' reports of practices were obtained from self-report on the AP Course Enrollment Survey.

Testing Assumptions

Prior to analyzing the multiple linear regression results, assumptions were checked to ensure the appropriateness of the regression. Initially, Cook's distance, centered leverage values, and scatterplots did not suggest clear outliers. Scatterplots comparing the dependent variable to each independent variable indicated rough linear relationships existed. Studentized residuals were also compared to unstandardized

predicted values via scatterplots; all values fell within the approximate range of -2 to 2. Therefore, there was sufficient indication that the linearity assumption was met.

Unstandardized residuals were reviewed for normality. Evidence suggested that this assumption was met, as indicated by skewness and kurtosis statistics (.08 and -1.24, respectively). A Shapiro-Wilk's test also suggested normality ($W = .945$, $df = 30$, $p = .13$). The histogram and Q-Q plots also did not turn up any evidence of non-normality, nor did the boxplot, which did not indicate any outliers.

Studentized residuals were plotted against each independent variable and indicated that the assumption of independence was acceptable. Scatterplots of studentized residuals to unstandardized predicted Y values as well as studentized residuals to case numbers suggested the possibility of independence assumption violation because of a slight pattern, but this may have been due to the small sample size. Scatterplots of studentized residuals to unstandardized predicted values did not suggest violations of homogeneity of variance, as they were fairly even in nature.

Multicollinearity was the final assumption tested. The tolerance values were greater than .10 (.94 and 1.0) with variable inflation factors of less than 10 (1.06 and 1). There were, however, multiple eigenvalues close to zero (.021, .007, .002) and one that was above zero (3.971). One condition index was less than 15 (13.835), one was between 15 and 30 (23.589), and one was above 30 (49.783). Despite this possible violation of multicollinearity, the variance proportions for the factors with high condition indices were checked. These values measure how much of the variability in a regression coefficient can be associated with a component. No factor had two or more regression

coefficients highly associated with a component with a high condition index (greater than 0.5), so the multicollinearity issue was deemed acceptable for the nature of this study.

Regression Results

A multiple linear regression test using the three factor categories as independent variables to predict the dependent variable of the Asian student AP examination pass rate was conducted. Collectively, access practices, open enrollment practices, and perceived importance of the AP program are good predictors of Asian students who pass the AP examinations, $F(3, 26) = 5.320, p = .005$. However, only access/equity was a statistically significant predictor in explaining the percentage of Asian students passing the AP examination. Table 27 contains the parameter estimates for this model. The correlation matrix in Table 28 represents all possible correlation coefficients between the set of variables.

The regression equation for the Asian student group is AP Examination Pass Percentage = $19.29 + (9.97)(\text{Access/Equity Practices}) - (2.64)(\text{Open Enrollment Practices}) + (6.28)(\text{Importance of AP program})$. The independent variable, access and equity, had a positive relationship to the dependent variable, AP examination pass percentage. Principal's perceptions about access and equity positively predicted AP examination pass percentage. The accuracy of predicting AP examination pass percentage for Asian students was strong, as the multiple correlation coefficient was .62. Approximately 38% ($R^2 = .38$) of the variance in AP examination pass rates was accounted for by the regression model.

Table 27
Multiple Regression Analysis for Asian-Only Advanced Placement Pass Rate (N = 30)

Variable	<i>B</i>	<i>SE B</i>	β	<i>p</i>
Constant	-19.29	72.76		
Access/Equity	9.97	2.59	.61	.01
Open Enrollment	2.64	2.88	.14	.37
Importance	-6.28	4.58	-.22	.18

Note. $F = 5.32$. $R^2 = .38$.

Table 28
Correlation Matrix for Asian Student Advanced Placement Pass Rate Analysis (N = 30)

Item	1	2	3	4
1. Percentage Passing	—			
2. Access Practices	.56**	—		
3. Open Enrollment Practices	.15	.01	—	
4. Importance of AP Program	-.07	.24	-.02	—

* $p < .05$. ** $p < .01$.

Summary of Research Questions 2-5

Based on the regression model there were significant findings for the variables noted. In predicting the school's percentage of white, Hispanic, and Asian populations passing the AP examinations, only the principal's perception of access/equity was a statistically significant factor. There were no statistically significant predictors of a

school's percentage of African American students passing the AP examinations. Neither the principal's perception of open enrollment nor the importance placed on the AP program contributed to the model results.

For Research Question 1, access and equity was a positive predictor, open enrollment was a negative predictor, and importance was a positive predictor however only access and equity were significant predictors. For Research Question 2, access and equity was a positive predictor, open enrollment was a negative predictor, and importance was a positive predictor however only access and equity were significant predictors. For Research Question 3, access and equity was a positive predictor, open enrollment was a positive predictor, and importance was a positive predictor however none of the factors were significant predictors. For Research Question 4, access and equity was a positive predictor, open enrollment was a negative predictor, and importance was a negative predictor however only access and equity were significant predictors. For Research Question 5, access and equity was a positive predictor, open enrollment was a positive predictor, and importance was a negative predictor however only access and equity were significant predictors.

Research Question 6

To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of students enrolled in AP courses in five central Florida counties?

A multiple linear regression analysis was conducted to examine the relationship between the percentage of students from a school who took an AP examination

(dependent variable) and three independent variables describing principal's attitudes toward the school's AP program: (a) access and equity practices, (b) open enrollment practices, and (c) a rating of importance of the AP program. The goal was to determine if the enrollment percentage could be predicted by these three attitudinal variables. The schools' percentages of students who took an AP examination were gathered from the Florida Department of Education website. Principals' reports of practices were obtained from self-report on the AP Course Enrollment Survey.

Testing Assumptions

Prior to analyzing the multiple linear regression results, assumptions were checked to ensure the appropriateness of the regression. Initially, Cook's distance, centered leverage values, and scatterplots did not suggest clear outliers. Scatterplots comparing the dependent variable to each independent variable indicated rough linear relationships existed. Studentized residuals were also compared to unstandardized predicted values via scatterplots; all values fell within the approximate range of -2 to 2. There was one observation between 2 and 3 but there were no other indicators of concern. Therefore, there was sufficient indication that the linearity assumption was met.

Unstandardized residuals were reviewed for normality. Evidence suggested that this assumption was met, as indicated by skewness and kurtosis statistics (.814 and 1.08, respectively). A Shapiro-Wilk's test also suggested normality ($W = .953$, $df = 30$, $p = .20$). The histogram and Q-Q plots showed one possible outlier but other than the one

outlier did not show up any evidence of non-normality, nor did the boxplot, which did not indicate any outliers.

Studentized residuals were plotted against each independent variable and indicated that the assumption of independence was acceptable. Scatterplots of studentized residuals to unstandardized predicted Y values as well as studentized residuals to case numbers suggested the possibility of independence assumption violation because of a slight pattern, but this evidence was excused due to the small sample size. Scatterplots of studentized residuals to unstandardized predicted values did not suggest violations of homogeneity of variance, as they were fairly even in nature.

Multicollinearity was the final assumption tested. The tolerance values were greater than .10 (.94 and 1.0) with variable inflation factors of less than 10 (1.06 and 1). There were, however, multiple eigenvalues close to zero (.021, .007, .002) and one that was above zero (3.971). One condition index was less than 15 (13.835), one was between 15 and 30 (23.589), and one was above 30 (49.783). Despite this possible violation of multicollinearity, the variance proportions for the factors with high condition indices were checked. These values measure how much of the variability in a regression coefficient can be associated with a component. No factor had two or more regression coefficients highly associated with a component with a high condition index (greater than 0.5), so the multicollinearity issue was deemed acceptable for the nature of this study.

Regression Results

A multiple linear regression test using the three factor categories as independent variables to predict the dependent variable of the student AP enrollment percentage was conducted. Collectively, access practices, open enrollment practices, and perceived importance of the AP program are good predictors of enrollment in AP courses and examinations, $F(3, 26) = 4.952, p = .008$. However, only open enrollment and importance were statistically significant predictors in explaining the percentage of students taking an AP examination. Table 29 contains the parameter estimates for this model. The correlation matrix in Table 30 represents all possible correlation coefficients between the set of variables.

The regression equation is AP Enrollment Percentage = $71.92 + (2.81)(\text{Access/Equity Practices}) + (3.80)(\text{Open Enrollment Practices}) + (7.62)(\text{Importance of AP program})$. The independent variables, open enrollment and importance, had a positive relationship to the dependent variable, percentage of AP examinations enrollment rate. Principal's perception about open enrollment and importance positively predicted AP examination enrollment rate. The accuracy of predicting AP enrollment percentage was strong, as the multiple correlation coefficient was .60. Approximately 36% ($R^2 = .36$) of the variance in AP enrollment rates was accounted for by the regression model.

Table 29

Multiple Regression Analysis for Overall Advanced Placement Enrollment Rate (N = 30)

Variable	<i>B</i>	<i>SE B</i>	β	<i>p</i>
Constant	71.91	42.62		
Access/Equity	2.81	1.52	.30	.08
Open Enrollment	3.80	1.69	.35*	.03
Importance	7.62	2.68	-.46**	.01

Note. $F = 4.95$. $R^2 = .36$. * $p < .05$. ** $p < .01$.

Table 30

Correlation Matrix for Overall Advanced Placement Enrollment Rate Analysis (N = 30)

Item	1	2	3	4
1. Percentage Passing	—			
2. Access Practices	.19	—		
3. Open Enrollment Practices	.36*	.01	—	
4. Importance of AP Program	-.39*	.24	-.02	—

* $p < .05$. ** $p < .01$.

Research Question 7

To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of white students enrolled in AP courses in five central Florida counties?

A multiple linear regression analysis was conducted to examine the relationship between the percentage of white students from a school who took an AP examination (dependent variable) and three independent variables describing principal's attitudes toward the school's AP program: (a) access and equity practices, (b) open enrollment practices, and (c) a rating of importance of the AP program. The goal was to determine if the enrollment percentage of white students could be predicted by these three attitudinal variables. The schools' percentages of white students who took an AP examination were gathered from the Florida Department of Education website. Principals' reports of practices were obtained from self-report on the AP Course Enrollment Survey.

Testing Assumptions

Prior to analyzing the multiple linear regression results, assumptions were checked to ensure the appropriateness of the regression. Initially, Cook's distance, centered leverage values, and scatterplots did not suggest clear outliers. Scatterplots comparing the dependent variable to each independent variable indicated rough linear relationships existed. Studentized residuals were also compared to unstandardized predicted values via scatterplots; all values fell within the approximate range of -2 to 2.

There was one observation between 2 and 3 but there were no other indicators of concern. Therefore, there was sufficient indication that the linearity assumption was met.

Unstandardized residuals were reviewed for normality. Evidence suggested that this assumption was met, as indicated by skewness and kurtosis statistics (.294 and .143, respectively). A Shapiro-Wilk's test also suggested normality ($W = .971$, $df = 30$, $p = .57$). The histogram and Q-Q plots showed one possible outlier but other than the one outlier did not show up any evidence of non-normality, nor did the boxplot, which did not indicate any outliers.

Studentized residuals were plotted against each independent variable and indicated that the assumption of independence was acceptable. Scatterplots of studentized residuals to unstandardized predicted Y values as well as studentized residuals to case numbers suggested the possibility of independence assumption violation because of a slight pattern, but this evidence was excused due to the small sample size. Scatterplots of studentized residuals to unstandardized predicted values did not suggest violations of homogeneity of variance, as they were fairly even in nature.

Multicollinearity was the final assumption tested. The tolerance values were greater than .10 (.94 and 1.0) with variable inflation factors of less than 10 (1.06 and 1). There were, however, multiple eigenvalues close to zero (.021, .007, .002) and one that was above zero (3.971). One condition index was less than 15 (13.835), one was between 15 and 30 (23.589), and one was above 30 (49.783). Despite this possible violation of multicollinearity, the variance proportions for the factors with high condition indices were checked. These values measure how much of the variability in a regression

coefficient can be associated with a component. No factor had two or more regression coefficients highly associated with a component with a high condition index (greater than 0.5), so the multicollinearity issue was deemed acceptable for the nature of this study.

Regression Results

A multiple linear regression test using the three factor categories as independent variables to predict the dependent variable of the white student AP enrollment percentage was conducted. Collectively, access practices, open enrollment practices, and perceived importance of the AP program are good predictors of enrollment in AP courses and examinations, $F(3, 26) = 4.670, p = .010$. All factors, access/equity, open enrollment, and importance were statistically significant predictors in explaining the percentage of students taking an AP examination. Table 31 contains the parameter estimates for this model. The correlation matrix in Table 32 represents all possible correlation coefficients between the set of variables.

The regression equation is AP Enrollment Percentage = $56.66 + (3.36)(\text{Access/Equity Practices}) + (3.30)(\text{Open Enrollment Practices}) - (6.75)(\text{Importance of AP program})$. The independent variables, access and equity and open enrollment, had a positive relationship to the dependent variable, percentage of AP examinations enrollment rate. The independent variable, importance, had a negative relationship to the dependent variable, percentage of AP examinations enrollment rate. Principal's perception about access and equity and about open enrollment positively predicted AP examination enrollment rate while importance was a negative predictor of AP

examination enrollment rate. The accuracy of predicting AP enrollment percentage for white students was strong, as the multiple correlation coefficient was .59. Approximately 35% ($R^2 = .35$) of the variance in AP enrollment rates was accounted for by the regression model.

Table 31
Multiple Regression Analysis for White-Only Advanced Placement Enrollment Rate (N = 30)

Variable	<i>B</i>	<i>SE B</i>	β	<i>p</i>
Constant	56.66	41.27		
Access/Equity	3.36	1.47	.37	.03
Open Enrollment	3.31	1.63	.32	.05
Importance	-6.75	2.60	-.42	.01

Note. $F = 4.67$. $R^2 = .35$. * $p < .05$. ** $p < .01$.

Table 32

Correlation Matrix for White Student Advanced Placement Enrollment Rate Analysis (N = 30)

Item	1	2	3	4
1. Percentage Passing	—			
2. Access Practices	.27	—		
3. Open Enrollment Practices	.33*	.01	—	
4. Importance of AP Program	-.34*	.24	-.02	—

* $p < .05$. ** $p < .01$.

Research Question 8

To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of African American students enrolled in AP courses in five central Florida counties?

A multiple linear regression analysis was conducted to examine the relationship between the percentage of African American students from a school who took an AP examination (dependent variable) and three independent variables describing principal's attitudes toward the school's AP program: (a) access and equity practices, (b) open enrollment practices, and (c) a rating of importance of the AP program. The goal was to determine if the enrollment percentage of African American students could be predicted by these three attitudinal variables. The schools' percentages of African American students who took an AP examination were gathered from the Florida Department of Education website. Principals' reports of practices were obtained from self-report on the AP Course Enrollment Survey.

Testing Assumptions

Prior to analyzing the multiple linear regression results, assumptions were checked to ensure the appropriateness of the regression. Initially, Cook's distance, centered leverage values, and scatterplots did not suggest clear outliers. Scatterplots comparing the dependent variable to each independent variable indicated rough linear relationships existed. Studentized residuals were also compared to unstandardized predicted values via scatterplots; all values fell within the approximate range of -2 to 2. Therefore, there was sufficient indication that the linearity assumption was met.

Unstandardized residuals were reviewed for normality. Evidence suggested that this assumption was met, as indicated by skewness and kurtosis statistics (.96 and .319, respectively). A Shapiro-Wilk's test also suggested normality ($W = .910$, $df = 29$, $p = .02$). The histogram and Q-Q plots showed a slight curvature away from the line but otherwise no evidence of non-normality.

Studentized residuals were plotted against each independent variable and indicated that the assumption of independence was acceptable. Scatterplots of studentized residuals to unstandardized predicted Y values as well as studentized residuals to case numbers suggested the possibility of independence assumption violation because of a slight pattern, but this evidence was excused due to the small sample size. Scatterplots of studentized residuals to unstandardized predicted values did not suggest violations of homogeneity of variance, as they were fairly even in nature.

Multicollinearity was the final assumption tested. The tolerance values were greater than .10 (.94 and 1.0) with variable inflation factors of less than 10 (1.06 and 1).

There were, however, multiple eigenvalues close to zero (.021, .007, .002) and one that was above zero (3.971). One condition index was less than 15 (13.605), one was between 15 and 30 (23.199), and one was above 30 (49.062). Despite this possible violation of multicollinearity, the variance proportions for the factors with high condition indices were checked. These values measure how much of the variability in a regression coefficient can be associated with a component. No factor had two or more regression coefficients highly associated with a component with a high condition index (greater than 0.5), so the multicollinearity issue was deemed acceptable for the nature of this study.

Regression Results

A multiple linear regression test using the three factor categories as independent variables to predict the dependent variable of the African American student AP enrollment percentage was conducted. Collectively, access practices, open enrollment practices, and perceived importance of the AP program are good predictors of African American enrollment in AP courses and examinations, $F(3, 25) = 3.862, p = .021$. However, only importance was a statistically significant predictor in explaining the percentage of African American students taking an AP examination. Table 33 contains the parameter estimates for this model. The correlation matrix in Table 34 represents all possible correlation coefficients between the set of variables.

The regression equation is AP Enrollment Percentage = $91.15 + (.47)(\text{Access/Equity Practices}) + (1.51)(\text{Open Enrollment Practices}) - (6.40)(\text{Importance of AP program})$. The independent variable, importance, had a negative relationship to the

dependent variable, percentage of AP examinations enrollment rate. Principal's perception about importance was a negative predictor of AP examination enrollment rate. The accuracy of predicting AP enrollment percentage for African American students was strong, as the multiple correlation coefficient was .56. Approximately 32% ($R^2 = .32$) of the variance in AP enrollment rates was accounted for by the regression model.

Table 33
Multiple Regression Analysis for African-American-Only Advanced Placement Enrollment Rate (N = 29)

Variable	<i>B</i>	<i>SE B</i>	β	<i>p</i>
Constant	91.15	32.39		
Access/Equity	0.47	1.15	.07	.68
Open Enrollment	1.51	1.28	.20	.25
Importance	-6.40	2.04	-.54	.01

Note. $F = 3.86$. $R^2 = .31$.

Table 34

Correlation Matrix for African-American Student Advanced Placement Enrollment Rate Analysis (N = 29)

Item	1	2	3	4
1. Percentage Passing	—			
2. Access Practices	-.06	—		
3. Open Enrollment Practices	.21	-.01	—	
4. Importance of AP Program	-.52**	.24	-.02	—

* $p < .05$. ** $p < .01$.

Research Question 9

To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of Hispanic students enrolled in AP courses in five central Florida counties?

A multiple linear regression analysis was conducted to examine the relationship between the percentage of Hispanic students from a school who took an AP examination (dependent variable) and three independent variables describing principal's attitudes toward the school's AP program: (a) access and equity practices, (b) open enrollment practices, and (c) a rating of importance of the AP program. The goal was to determine if the enrollment percentage of Hispanic students could be predicted by these three attitudinal variables. The schools' percentages of Hispanic students who took an AP examination were gathered from the Florida Department of Education website. Principals' reports of practices were obtained from self-reports on the AP Course Enrollment Survey.

Testing Assumptions

Prior to analyzing the multiple linear regression results, assumptions were checked to ensure the appropriateness of the regression. Initially, Cook's distance, centered leverage values, and scatterplots did not suggest clear outliers. Scatterplots comparing the dependent variable to each independent variable indicated rough linear relationships existed. Studentized residuals were also compared to unstandardized predicted values via scatterplots; all values fell within the approximate range of -2 to 2. Therefore, there was sufficient indication that the linearity assumption was met.

Unstandardized residuals were reviewed for normality. Evidence suggested that this assumption was met, as indicated by skewness and kurtosis statistics (.733 and -.024, respectively). A Shapiro-Wilk's test also suggested normality ($W = .940$, $df = 27$, $p = .12$). The histogram and Q-Q plots also did not turn up any evidence of non-normality, nor did the boxplot, which did not indicate any outliers.

Studentized residuals were plotted against each independent variable and indicated that the assumption of independence had a slight pattern with the open enrollment variable but was acceptable. Scatterplots of studentized residuals to unstandardized predicted Y values as well as studentized residuals to case numbers suggested the possibility of independence assumption violation because of a slight pattern, but this evidence was excused due to the small sample size. Scatterplots of studentized residuals to unstandardized predicted values did not suggest violations of homogeneity of variance, as they were fairly even in nature.

Multicollinearity was the final assumption tested. The tolerance values were greater than .10 (.87 and .98) with variable inflation factors of less than 10 (1.15 and 1.02). There were, however, multiple eigenvalues close to zero (.022, .006, .002) and one that was above zero (3.970). One condition index was less than 15 (13.425), one was between 15 and 30 (25.171), and one was above 30 (50.614). Despite this possible violation of multicollinearity, the variance proportions for the factors with high condition indices were checked. These values measure how much of the variability in a regression coefficient can be associated with a component. No factor had two or more regression coefficients highly associated with a component with a high condition index (greater than 0.5), so the multicollinearity issue was deemed acceptable for the nature of this study.

Regression Results

A multiple linear regression test using the three factor categories as independent variables to predict the dependent variable of the Hispanic student AP enrollment percentage was conducted. Collectively, access practices, open enrollment practices, and perceived importance of the AP program are good predictors of enrollment in AP courses and examinations, $F(3, 23) = 3.092, p = .047$. However, only importance was statistically significant predictor in explaining the percentage of students taking an AP examination. Table 35 contains the parameter estimates for this model. The correlation matrix in Table 36 represents all possible correlation coefficients between the set of variables.

The regression equation is AP Enrollment Percentage = 69.05 + (2.13)(Access/Equity Practices) +(1.68)(Open Enrollment Practices) - (5.91)Importance of AP program). The independent variable, importance, had a negative relationship to the dependent variable, percentage of AP examinations enrollment rate. Principal’s perception about importance was a negative predictor of AP examination enrollment rate. The accuracy of predicting AP enrollment percentage for Hispanic students was strong, as the multiple correlation coefficient was .54. Approximately 29% ($R^2 = .29$) of the variance in AP enrollment rates was accounted for by the regression model.

Table 35
Multiple Regression Analysis for Hispanic-Only Advanced Placement Enrollment Rate (N = 27)

Variable	<i>B</i>	<i>SE B</i>	β	<i>p</i>
Constant	69.05	31.12		
Access/Equity	2.13	1.16	.35	.08
Open Enrollment	1.68	1.27	.24	.20
Importance	-5.91	2.15	-.52	.01

Note. $F = 3.09$. $R^2 = .29$.

Table 36
Correlation Matrix for Hispanic Student Advanced Placement Enrollment Rate Analysis
 (N = 27)

Item	1	2	3	4
1. Percentage Passing	—			
2. Access Practices	.15	—		
3. Open Enrollment Practices	.16	-.09	—	
4. Importance of AP Program	-.38*	.35*	.09	—

* $p < .05$. ** $p < .01$.

Research Question 10

To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of Asian students enrolled in AP courses in five central Florida counties?

A multiple linear regression analysis was conducted to examine the relationship between the percentage of Asian students from a school who took an AP examination (dependent variable) and three independent variables describing principal's attitudes toward the school's AP program: (a) access and equity practices, (b) open enrollment practices, and (c) a rating of importance of the AP program. The goal was to determine if the enrollment percentage of Asian students could be predicted by these three attitudinal variables. The schools' percentages of Asian students who took an AP examination were gathered from the Florida Department of Education website. Principals' reports of practices were obtained from self-report on the AP Course Enrollment Survey.

Testing Assumptions

Prior to analyzing the multiple linear regression results, assumptions were checked to ensure the appropriateness of the regression. Initially, Cook's distance, centered leverage values, and scatterplots did not suggest clear outliers. Scatterplots comparing the dependent variable to each independent variable indicated rough linear relationships existed. Studentized residuals were also compared to unstandardized predicted values via scatterplots; all values fell within the approximate range of -2 to 2. Therefore, there was sufficient indication that the linearity assumption was met.

Unstandardized residuals were reviewed for normality. Evidence suggested that this assumption was met, as indicated by skewness and kurtosis statistics (-.024 and -.637, respectively). A Shapiro-Wilk's test also suggested normality ($W = .973$, $df = 28$, $p = .65$). The histogram and Q-Q plots also did not turn up any evidence of non-normality, nor did the boxplot, which did not indicate any outliers.

Studentized residuals were plotted against each independent variable and indicated that the assumption of independence was acceptable. Scatterplots of studentized residuals to unstandardized predicted Y values as well as studentized residuals to case numbers suggested the possibility of independence assumption violation because of a slight pattern, but this evidence was excused due to the small sample size. Scatterplots of studentized residuals to unstandardized predicted values did not suggest violations of homogeneity of variance, as they were fairly even in nature.

Multicollinearity was the final assumption tested. The tolerance values were greater than .10 (.92 and 1.0) with variable inflation factors of less than 10 (1.09 and 1).

There were, however, multiple eigenvalues close to zero (.022, .006, .002) and one that was above zero (3.970). One condition index was less than 15 (13.466), one was between 15 and 30 (24.598), and one was above 30 (48.199). Despite this possible violation of multicollinearity, the variance proportions for the factors with high condition indices were checked. These values measure how much of the variability in a regression coefficient can be associated with a component. No factor had two or more regression coefficients highly associated with a component with a high condition index (greater than 0.5), so the multicollinearity issue was deemed acceptable for the nature of this study.

Regression Results

A multiple linear regression test using the three factor categories as independent variables to predict the dependent variable of the Asian student AP enrollment percentage was conducted. Collectively, access practices, open enrollment practices, and perceived importance of the AP program are good predictors of enrollment in AP courses and examinations, $F(3, 24) = 4.678, p = .010$. However, only open enrollment and importance were statistically significant predictors in explaining the percentage of students taking an AP examination. Table 37 contains the parameter estimates for this model. The correlation matrix in Table 38 represents all possible correlation coefficients between the set of variables.

The regression equation is AP Enrollment Percentage = 142.81 + (1.14)(Access/Equity Practices) + (5.72)(Open Enrollment Practices) - (10.33)(Importance of AP program). The independent variable, open enrollment, had a

positive relationship to the dependent variable, percentage of AP examinations enrollment rate. The independent variable, importance, had a negative relationship to the dependent variable, percentage of AP examinations enrollment rate. Principal's perception about open enrollment positively predicted AP examination enrollment rate while importance was a negative predictor. The accuracy of predicting AP enrollment percentage for Asian students was strong, as the multiple correlation coefficient was .61. Approximately 37% ($R^2 = .37$) of the variance in AP enrollment rates was accounted for by the regression model.

Table 37
Multiple Regression Analysis for Asian-Only Advanced Placement Enrollment Rate (N = 28)

Variable	<i>B</i>	<i>SE B</i>	β	<i>p</i>
Constant	142.81	58.21		
Access/Equity	1.14	2.19	.09	.61
Open Enrollment	5.72	2.33	.40	.02
Importance	-10.33	3.67	-.47	.01

Note. $F = 4.68$. $R^2 = .37$.

Table 38

Correlation Matrix for Asian Student Advanced Placement Enrollment Rate Analysis (N = 28)

Item	1	2	3	4
1. Percentage Passing	—			
2. Access Practices	-.07	—		
3. Open Enrollment Practices	.40*	-.07	—	
4. Importance of AP Program	-.46**	.28	-.01	—

* $p < .05$. ** $p < .01$.

Summary of Research Questions 7-10

Based in the regression model, there were significant findings for the variables noted. Importance was a significant predictor of the percentage of students taking an AP examination at the high school for all student populations. Open enrollment was a significant predictor of the percentage of students taking an AP examination at the high school for overall populations as well as white and Asian subpopulations. Access/Equity was only a significant predictor of the percentage of students taking an AP examination at the high school for White students. Importance was the main cause of the model significance.

For Research Question 6, access and equity was a positive predictor, open enrollment was a positive predictor, and importance was a positive predictor however only open enrollment and importance were significant predictors. For Research Question 7, access and equity was a positive predictor, open enrollment was a positive predictor,

and importance was a negative predictor however only access and equity and importance were significant predictors. For Research Question 8, access and equity was a positive predictor, open enrollment was a positive predictor, and importance was a negative predictor however only importance was a significant predictor. For Research Question 9, access and equity was a positive predictor, open enrollment was a positive predictor, and importance was a negative predictor however only importance was a significant predictor. For Research Question 10, access and equity was a positive predictor, open enrollment was a positive predictor, and importance was a negative predictor however only importance was a significant predictor.

Summary

The analysis of data and the data collected from the AP Course Enrollment Survey compared to student achievement results and course enrollment data obtained from the Florida Department of Education were presented in this chapter. The analysis was guided by 10 research questions designed to determine what, if any, relationships existed among the identified variables. This chapter presented a description of the modifications made to the research questions, a description of the setting, a review of the reliability and validity analysis of the survey instrument and factor creation, an overview of the research population and the descriptive statistics, and a thorough analysis of each research question. A summary of these results and a discussion of the research findings including implications for future research can be found in the next chapter. Chapter 5

contains the research summary, the conclusions drawn from the research, and the recommendations of future research.

CHAPTER 5 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

In the previous chapter, data and analysis were reported. Upon completion of the compilation of data and the analysis and reporting of the results, the results were examined to determine whether or not there was a relationship between principals' reports of practices regarding open enrollment in AP courses and the percentage of students passing the AP examination with a score of 3, 4, 5 and the school's enrollment percentages in AP courses. Chapter 5 includes the summary of the results of the study, the conclusions drawn from the research, and the recommendations of future research. The conclusions and implications for research are synthesized from the analysis of the data and the theoretical and empirical research on the subject of access and equity in rigorous curricular programs and open enrollment philosophies for AP programs. The recommendations for further research provide insight for future researchers.

Purpose of the Study

Because school accountability measures and current legislation often mandated curricular decisions for high schools, school districts had to understand and develop a plan to increase equity in and access to rigorous curricular offerings while allocating scarce resources at the high school level. School leaders had to have an understanding of the relationship of open enrollment practices on student enrollment and performance in AP courses and on AP exams. There had to be appropriate practices and procedures put

in place and monitored by principals to meet accountability standards as well as to increase equity in and access to a rigorous curriculum for all students. Balancing the benefits of open enrollment for AP programs, cost effectiveness of AP programs, the allocation of scarce resources, and maintaining course validity and rigor are issues that secondary educators face and must continue to study (College Board, 2004). This study of open enrollment practices and student achievement success was intended to provide data necessary for educational leader to make important educational decisions.

Because of the percentage of school population enrolled in AP courses and the percentage of students scoring a 3, 4, or 5 on AP examinations were anticipated to impact high school grades in Florida beginning in 2010, research from this study provided important information to school leaders regarding the implementation of curricular offerings and enrollment practices. To investigate, relationships were examined between open enrollment practices shaped by high school principals' decisions and beliefs and the increased enrollment and student performance on AP exams.

Research Design, Population, and Instrumentation

A non-experimental research design was utilized. Data from an online survey were categorized into themed construct groupings including a school's open enrollment practices, student access to rigorous curricular programs and equity in rigorous curricular programs, and the principal's beliefs about the importance of AP programs open enrollment practices. The target population consisted of all public high schools and their principals ($N=56$) in 5 central Florida counties that administered AP exams in May 2009

and received a school grade during the 2008-2009 school year. The central Florida school districts which agreed to participate in the study were Brevard, Lake, Orange, Seminole, and Volusia counties. Survey responses of principals were collected in January 2010. The sample was one of convenience, as responses from an online survey were collected from those principals who were willing to participate in the research study. AP data were collected from public data resources. The design of the online AP Course Enrollment Survey was derived from the College Board's equity statement and Florida's school accountability initiative. The survey (Appendix B) consisted of 24 items. The survey instrument (Appendix B) was examined through cognitive interviews that were conducted with central Florida school and school district administrators that were not included in the sample and interviews determined construct validity via a scripted interview (Appendix D). The entire data set was constructed with data from the 2008-2009 school year, specifically May 2009 AP exam results and 2008-2009 school grades.

Cronbach's alpha was computed as evidence of internal consistency reliability. Feedback gathered during the cognitive interviews provided evidence of content validity. Although exploratory factor analysis would have been appropriate for providing evidence of construct validity, the sample size was not sufficient for conducting the analysis.

Summary and Discussion of Findings

The study was guided by 10 research questions. The following section provides the summary, analysis, and discussion of the findings for each of the questions.

Research Question 1

To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and overall student achievement results on AP examinations in five central Florida school districts?

Research Question 1 sought to determine if there was a relationship between the principals' report of practices regarding open enrollment in AP courses and the subsequent student achievement results for the overall school success on AP examinations as reported in data percentages for each high school in the study. The participating school ($N=30$) completed the AP Course Enrollment Survey which was matched with the overall school success on AP examination percentages obtained from the public reports from the Florida Department of Education.

The AP examination pass rate was designated by the percentage of students earning a grade of 3, 4, or 5 on the AP examination. The AP course Enrollment Survey examined 3 factors as independent variables that could impact the AP examination pass rate based upon principals' practices. A multiple linear regression was run using these 3 factors.

Based on the results for determining if there was a relationship between the principals' reports of practices regarding open enrollment in AP courses and overall student achievement results on AP examinations, the regression model was significant. Although the results of the study suggested a good model fit, only access and equity was a statistically significant factor in predicting student achievement on AP examinations. As principals' increased the emphasis that they placed on access and equity in AP courses, when holding all other variables constant, the school had an increased chance of

increasing AP examination rate percentages. This theory supported the access and equity policies and information provided by The College Board (College Board, 2004). They stated that schools and school leaders must encourage students to pursue academically challenging opportunities or to break the barriers to equity and access to a rigorous curriculum. The College Board also recommended that schools engage in a process to actively recruit and encourage AP course enrollment as they increased access and equity in AP programs as it will benefit the students academically and also the school in rate increases of AP examination performance (College Board, 2004).

The results of Research Question 1 showed that for open enrollment, when other variables or factors are held constant, the regression results were not significant. Previous research however suggested various factors that related to and provided procedures to overcome the decreases in AP examination scores when implementing open enrollment practices. Some schools have not embraced an open enrollment philosophy for AP courses because of a fear of lowering AP performance at the school. The College Board (2004) explained that schools which have adopted an open enrollment policy have found that the increase in the number of students taking AP courses have eventually resulted in an increase in the overall AP success rate for the school and sometimes the increase is substantial. The College Board (2004) also explained that if a decrease in overall examination pass rate occurred relative to student success, there was only a small initial drop in success in the implementation year and then the success rate began to rise. Several studies support the findings of this research study regarding access and equity in open enrollment practices of rigorous curricular programs and its relationship to student

achievement (Gandara & Bial, 2001; Kyburg et al., 2007; Mayer, 2008; and Rose et al., 2003). The findings are in contrast to other studies because the data indicate that there should be equitable access granted to open enrollment in rigorous curricular programs (Cech, 2007; Dougherty et al., 2006; Klopfenstein & Thomas, 2005; and St. Jarre, 2008).

The key to expanding an AP program with an open enrollment philosophy, in the opinion of the College Board, was to educate all stakeholders, recruit students, provide support to students and teachers, provide teacher training and resources, and establish vertical teams who use pre-AP strategies in all classes. They explained that the open enrollment policy must embrace the attitude that the value of having and participating in an AP program is not only in earning college credit but also in the exposure to a rigorous curriculum and critical thinking skills experienced in college level courses (College Board, 2004).

Research Question 2

To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and overall student achievement results of white students on AP examinations in five central Florida school districts?

Research Question 2 sought to determine if there was a relationship between the principals' report of practices regarding open enrollment in AP courses and the subsequent student achievement results for white students on AP examinations as reported in data percentages for each high school in the study. The participating schools ($N=30$) completed the AP Course Enrollment Survey which was matched with success of

white students on AP examination percentages obtained from the public reports from the Florida Department of Education.

The AP examination pass rate was designated by the percentage of students earning a grade of 3, 4, or 5 on the AP examination. The AP course Enrollment Survey examined 3 factors as independent variables that could impact the AP examination pass rate based upon principals' practices. A multiple linear regression was run using these 3 factors. Based on the results for determining if there was a relationship between the principals' reports of practices regarding open enrollment in AP courses and white student achievement results on AP examinations, the regression model was significant which indicated that the model was a good predictor of the AP examination pass rate for white students. Although the results of the study suggested a good model fit, only access/equity was a statistically significant factor in predicting student achievement on AP examinations. Principal's perceptions about access and equity positively predicted student achievement on AP examinations.

When examining the data from the 5 school districts in the study, white students were the largest ethnic populations of students who were taking AP courses. Because of this, the results for AP examination performance for white students were similar to that for the overall population. When examining the access and equity factor, the importance factor, and the open enrollment practices factor, it was important to look to the previous literature and research on how to correctly implement expansion and implementation of AP programs. The guiding philosophy for expanding equity and access to AP was found in the AP equity policy statement. The College Board's (2002) equity statement

addressed open access, elimination of barriers and the need for schools to meet the needs of a diverse population of students specifically the underrepresented populations examined in this study. The College Board equity statement stated that:

The College Board and the Advanced Placement Program encourage teachers, AP coordinators, and school administrators to make equitable access a guiding principle for their AP programs. The College Board is committed to the principle that all students deserve the opportunity to participate in rigorous and academically challenging courses and programs. All students who are willing to accept the challenge of a rigorous academic curriculum should be considered for admission to AP courses. The Board encourages the elimination of barriers that restrict access to AP courses for students from ethnic, racial, and socioeconomic groups that have been traditionally underrepresented in the AP program. Schools should make every effort to ensure that their AP classes reflect the diversity of their student population. (p. 1)

As explained in NCLB, school and district administrators have always had the inherent responsibility to increase student achievement (NCLB, 2002).

Research Question 3

To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and overall student achievement results of African American students on AP examinations in five central Florida school districts?

Research Question 3 sought to determine if there was a relationship between the principals' report of practices regarding open enrollment in AP courses and the subsequent student achievement results for African American students on AP examinations as reported in data percentages for each high school in the study. The participating school ($N=30$) completed the AP Course Enrollment Survey which was matched with success of African American students on AP examination percentages obtained from the public reports from the Florida Department of Education.

The AP examination pass rate was designated by the percentage of students earning a grade of 3, 4, or 5 on the AP examination. The AP Course Enrollment Survey examined 3 factors as independent variables that could impact the AP examination pass rate based upon principals' practices. A multiple linear regression was run using these 3 factors. Based on the results for determining if there was a relationship between the principals' reports of practices regarding open enrollment in AP courses and African American student achievement results on AP examinations, the regression model was not significant which indicated that the model was not a good predictor of the AP examination pass rate for African American students. Throughout the study population, the number of African American students who took AP courses was very low, yielding small percentages. With smaller populations and percentages, results can vary easily based on the number of participants in the population.

School and district educational leaders, teachers, and counselors have been encouraged to recruit students, specifically underrepresented populations by using tools such as AP potential reports, student discussion sessions, parent informational meetings, and postsecondary counseling sessions (College Board, 2004). Research conducted by Kyburg, Hertberg-Davis, and Callahan (2007), showed that there were several key factors important in creating environments that would support the growth of academic talent among students of different background such as (a) a consistent and pervasive belief that these students could be successful, (b) instructional and group support, and (c) scaffolding to support and challenge able students. These practices coupled with extracurricular activities, lunchtime discussion meetings, and financially supported college visits were

practices of support that were needed specifically with underrepresented populations. According to Kyburg et al., schools must understand how to implement rigorous curricular programs, such as AP, if the schools were to increase equity and access to rigorous courses and nurture the growth of academic talent specifically among minority groups. Mayer (2008) noted that there was not equity in access to rigorous curricular opportunities in many schools and that academic intervention programs that most schools designed to help minority students gain equity in access were not widespread enough to close the achievement gap.

Research Question 4

To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and overall student achievement results of Hispanic students on AP examinations in five central Florida school districts?

Research Question 4 sought to determine if there was a relationship between the principals' report of practices regarding open enrollment in AP courses and the subsequent student achievement results for Hispanic students on AP examinations as reported in data percentages for each high school in the study. The participating schools ($N=30$) completed the AP Course Enrollment Survey which was matched with success of Hispanic students on AP examination percentages obtained from the public reports from the Florida Department of Education.

The AP examination pass rate was designated by the percentage of students earning a grade of 3, 4, or 5 on the AP examination. The AP course Enrollment Survey examined 3 factors as independent variables that could impact the AP examination pass

rate based upon principals' practices. A multiple linear regression was run using these 3 factors. Based on the results for determining if there was a relationship between the principals' reports of practices regarding open enrollment in AP courses and Hispanic student achievement results on AP examinations, the regression model was significant which indicated that the model was a good predictor of the AP examination pass rate for Hispanic students. Throughout the study population, the number of Hispanic students who took AP courses was lower than other populations and sometimes yielded small percentages of the population. Nevertheless, in Florida, Hispanic student populations are larger than most ethnic subgroups. With smaller populations, results can vary easily. Although the results of the study suggested a good model fit, only access/equity was a statistically significant factor in predicting student achievement on AP examinations. Principal's perceptions about access and equity positively predicted student achievement on AP examinations.

Contradicting these results was a study by Rose, Sonstelie, Reinhard, and Heng (2003) that expressed the belief that schools can answer the concern for equitable access to curriculum by using an open enrollment philosophy for AP courses. These researchers believed that AP courses can serve as a tool to close the achievement gap in high schools. Interestingly previous research stated that some schools have not embraced an open enrollment philosophy for AP courses and properly implemented open enrollment practices because of a fear of lowering AP performance at the school. For example, Mayer (2008) noted that there was not equity in access to rigorous curricular opportunities in many schools and that academic intervention programs designed to help

minority students gain equity in access were not sufficiently widespread to close the achievement gaps at the high end of the academic spectrum. Mayer concluded that even though schools had great challenges associated with implementing equity in access to rigorous curricular opportunities, schools needed to pursue these opportunities by ensuring supportive scaffolds for high achieving minority students that would help them meet the challenges of rigorous academic courses (Mayer, 2008).

Research Question 5

To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and overall student achievement results of Asian students on AP examinations in five central Florida school districts?

Research Question 5 sought to determine if there was a relationship between the principals' report of practices regarding open enrollment in AP courses and the subsequent student achievement results for Asian students on AP examinations as reported in data percentages for each high school in the study. The participating schools ($N=30$) completed the AP Course Enrollment Survey which was matched with success of Asian students on AP examination percentages obtained from the public reports from the Florida Department of Education.

The AP examination pass rate was designated by the percentage of students earning a grade of 3, 4, or 5 on the AP examination. The AP course Enrollment Survey examined 3 factors as independent variables that could impact the AP examination pass rate based upon principals' practices. A multiple linear regression was run using these 3 factors. Based on the results for determining if there was a relationship between the

principals' reports of practices regarding open enrollment in AP courses and Asian student achievement results on AP examinations, the regression model was significant which indicated that the model was a good predictor of the AP examination pass rate for Asian students. Although the results of the study suggested a good model fit, only access/equity was a statistically significant factor in predicting student achievement on AP examinations. The Florida Department of Education disaggregated student data by ethnicity and Asian student populations were placed in a minority category based on population size even though their results may not typically mirror those of minority populations (FLDOE, 2009d). Throughout the study population, the number of Asian students who took AP courses was very low yielding small percentages. With smaller populations, results can vary easily.

As noted in Research Question 4, Mayer (2008) stated that there was not equity in access to rigorous curricular opportunities in many schools and that academic intervention programs designed to help minority students gain equity in access were not sufficiently widespread to close the achievement gaps at the high end of the academic spectrum. Mayer also stated that minority students were consistently underrepresented in honors and gifted programs nationally. Mayer suggested that high-achieving minority students and low-achieving students shared many of the same risk factors, and that because of these risk factors, the continued academic success of high achieving minority students was not guaranteed. It is noted that Asian students are not usually considered minorities in terms of academic performance but are considered a minority due to small population size. It is important for educational leaders to understand minority

populations, academic risk factors for special populations, special AYP subpopulations, and the need for rigorous curricular structures that include scaffolding for success for these students (Mayer, 2008).

Research Question 6

To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of students enrolled in AP courses in five central Florida school districts?

Research Question 6 sought to reveal if there was a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of 10th – 12th grade students enrolled in AP courses in the high school. The participating schools ($N=30$) completed the AP Course Enrollment Survey which was matched the overall percentage of students who took AP examinations at the school. The research question examined all AP courses offered at the school and all AP examinations taken by students. A multiple linear regression was run using these 3 factors categories as independent variables (access/equity to AP programs, open enrollment practices, and importance placed on the AP program) to predict the percentage of 10th – 12th grade students enrolled in AP courses in the high school.

Based on the results for determining if there was a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of 10th – 12th grade students enrolled in AP courses in the high school, the research indicated that the regression model was significant and therefore the model was a good predictor of the AP course enrollment rate. Although the results of the study

suggested a good model fit, open enrollment and importance were statistically significant factors in predicting enrollment in AP examinations.

Schools should examine these results to analyze the benefits of creating opportunities for increased access and enrollment in rigorous curricular programs, particularly AP programs, for all students. As stated in the research by Adelman (1999) even if the AP exam was not passed, if an AP course was taken, students were more likely to score higher on the Scholastic Achievement Test (SAT) or the American College Test (ACT) tests, to be admitted to a four year college or university, or to earn a college degree than were students who had not taken AP courses. He stated that participation in AP courses in high school also led to a smoother transition for students in college resulting in college academic success and that students who took AP courses in high school, and regardless of their passing AP exams, would be well prepared for college based on exposure to a rigorous curriculum (Adelman, 1999).

Also, the College Board (2004) encouraged all students to pursue AP courses because of their goal to provide a rigorous curricular experience for students with a variety of skill levels if those students are willing to accept the academic challenge. This commitment led to questions about open enrollment policies which allowed students to enroll in AP courses without prerequisites and questions about the impact of less talented students on the rigor of the curriculum. Based on the College Board's research and information, an open enrollment philosophy for AP courses will increase enrollment in AP courses and will provide access to rigorous curricular opportunities (College Board, 2004).

Klopfenstein and Thomas (2005) conducted a research study, in which the purpose was to justify the funding and emphasis on AP experiences for all students and to examine their relationship to early college outcomes. Their research examined the need for expanding AP participation efforts toward under-represented minorities and low socioeconomic students. The study was important because of the emphasis that state and federal governments have placed on expanding AP programs and AP course enrollment even though these programs were expensive to operate. Klopfenstein and Thomas found that the level of courses that students took in high school, AP or regular, were strong indicators of the extent to which students were academically prepared to be successful in college.

Research Question 7

To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of white students enrolled in AP courses in five central Florida school districts?

Research Question 7 sought to reveal if there was a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of 10th – 12th grade white students enrolled in AP courses in the high school. The participating schools ($N=30$) completed the AP Course Enrollment Survey which was matched the overall percentage of white students who took AP examinations at the school. The research question examined all AP courses offered at the school and all AP examinations taken by white students. A multiple linear regression was generated using these 3 factors categories as independent variables (access/equity to AP programs, open

enrollment practices, and importance placed on the AP program) to predict the percentage of 10th – 12th grade white students enrolled in AP courses in the high school.

The results of the study suggested a good model fit and all factors (access and equity, open enrollment, and importance) were statistically significant factors in predicting white student achievement on AP examinations. Principal's perception about access and equity and about open enrollment positively predicted AP examination enrollment rate while importance was a negative predictor of AP examination enrollment rate.

When examining the data from the 5 school districts in the study, the majority of the ethnic breakdown showed that white students were the largest populations of students who were taking AP courses. Because of this, the results for AP examination performance for white students were similar to that for the overall population. When examining the access and equity factor, the importance factor, and the open enrollment practices factor, it was important to look to the previous literature and research on how to correctly implement expansion and implementation of AP programs.

Conger et al. (2009) tracked cohorts of public high school students in Florida by using statewide data and examined the factors included in the differences among those students who enrolled in advanced courses. In particular, they examined race, poverty, and gender differences in advanced course taking and found that there were more evidence of advanced course-taking among whites, females, and non-poor students, including high rates of advanced course-taking for Asian students. Conger et al. noted that black and Hispanic students in the study often attended magnet schools which

increased their chances of taking advanced courses. These factors influencing ethnic subpopulations must be taken into consideration when examining results.

Research Question 8

To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of African American students enrolled in AP courses in five central Florida school districts?

Research Question 8 sought to reveal if there was a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of 10th – 12th grade African American students enrolled in AP courses in the high school. The participating schools ($N=30$) completed the AP Course Enrollment Survey which was matched the overall percentage of African American students who took AP examinations at the school. The research question examined all AP courses offered at the school and all AP examinations taken by African American students. A multiple linear regression was generated using these 3 factors categories as independent variables (access/equity to AP programs, open enrollment practices, and importance placed on the AP program) to predict the percentage of 10th – 12th grade African American students enrolled in AP courses in the high school.

Based on the results for determining if there was a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of 10th – 12th grade African American students enrolled in AP courses in the high school, the research indicated that the regression model was significant. Throughout the study population, the number of African American students who took AP courses was

very low yielding small percentages based on the number of participants in the population. With smaller populations, percentage results can vary easily. Although the results of the study suggested a good model fit, only importance was a statistically significant factor in predicting African American student achievement on AP examinations.

Taliaferro and DeCuir-Gunby (2007) examined the AP opportunity gap in the area of AP course access and they reported that African American students (a) were under-represented in AP courses, (b) had feelings of alienation from peers when they enrolled in AP courses, and (c) were less likely than white students to be encouraged to take AP courses. These researchers believed that the implications from such under-representation had a large impact on the life choices, including decreased operational citizenship of African American students (Taliaferro & Decuir-Gunby). Other researchers also found that Black students taking AP courses and examinations were the most under-represented of all ethnic groups of students (Archbald & Keleher, 2008; Gandara & Bial, 2001; Whiting & Ford, 2009). These findings were also present in Florida African American AP student populations as evidenced by percentages in this study. This divide indicated an equity and excellence gap with respect to African American students and AP programs. Whiting and Ford concluded that minority students were also not receiving adequate preparation for college level work nor exposure to a rigorous curriculum.

Research Question 9

To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of Hispanic students enrolled in AP courses in five central Florida school districts?

Research Question 9 sought to reveal if there was a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of 10th – 12th grade Hispanic students enrolled in AP courses in the high school. The participating schools ($N=30$) completed the AP Course Enrollment Survey which was matched the overall percentage of Hispanic students who took AP examinations at the school. The research question examined all AP courses offered at the school and all AP examinations taken by Hispanic students. A multiple linear regression was run using these 3 factors categories as independent variables (access/equity to AP programs, open enrollment practices, and importance placed on the AP program) to predict the percentage of 10th – 12th grade Hispanic students enrolled in AP courses in the high school.

Based on the results for determining if there was a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of 10th – 12th grade Hispanic students enrolled in AP courses in the high school, the research indicated that the regression model was significant and therefore the model was a good predictor of the Hispanic student AP course enrollment rate. Although the results of the study suggested a good model fit, only importance was a statistically significant factor in predicting Hispanic student achievement on AP examinations.

AP course enrollment and access to rigorous curricular programs were concerns for minority students. Mayer (2008) noted that historically in public schools there were not equity in or access to rigorous curricular opportunities and that a school needed academic intervention programs designed to help these students gain equity in and access to these programs in order to close the achievement gaps. Mayer examined the academic programs at Jefferson High School in Portville Unified School District in California and showed that schools could maintain the integrity of rigorous curricular programs without limiting student access. Mayer's research supported this research study's findings as he showed that increased access to and equity in enrollment of AP courses impacted student achievement.

Research Question 10

To what extent, if any, is there a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of Asian students enrolled in AP courses in five central Florida school districts?

Research Question 10 sought to reveal if there was a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of 10th – 12th grade Asian students enrolled in AP courses in the high school. The participating school ($N=30$) completed the AP Course Enrollment Survey which was matched the overall percentage of Asian students who took AP examinations at the school. The research question examined all AP courses offered at the school and all AP examinations taken by Asian students. A multiple linear regression was run using these 3 factors categories as independent variables (access/equity to AP programs, open

enrollment practices, and importance placed on the AP program) to predict the percentage of 10th – 12th grade Asian students enrolled in AP courses in the high school.

Based on the results for determining if there was a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of 10th – 12th grade Asian students enrolled in AP courses in the high school, the research indicated that the regression model was significant. Although the results of the study suggested a good model fit, open enrollment and importance were statistically significant factors in predicting Asian student achievement on AP examinations.

Conger, Long, and Iatarola (2009) tracked cohorts of public high school students in Florida using statewide data and examined the factors included in the differences among those students who enrolled in advanced courses. They examined race, poverty, and gender differences in advanced course taking and found that there was more evidence of advanced course-taking among whites, females, and non-poor students, including high rates of advanced course-taking for Asian students. As with African American students, Asian students in Florida make up a small percentage of ethnic subgroups and these small numbers can easily impact results when examining percentages. These factors influencing ethnic subpopulations must be taken into consideration when results are examined.

Conclusions

The findings of this study expanded the work of the previous researchers in the area of principals' practices in open enrollment in AP courses and access to and equity in

rigorous curricular programs. The results of this study suggest that as principal perceptions of access and equity in AP programs increase, the percentage of students passing the AP examination and the percentage of students taking AP examinations also increased. Also when the importance principals placed on AP programs increased, there typically was a positive impact on student performance percentages yet there was a negative relationship to AP examination enrollment. The investigation also revealed and was supported by research that the open enrollment practices of a school principal may be related to a decrease in successful student performance percentages. However, open enrollment practices may relate to student enrollment in AP courses over time.

When examining to what extent, if any, was there a relationship between the principals' reports of practices regarding open enrollment in AP courses and overall student achievement results on AP examinations in five central Florida counties, there were significant predictors based upon the regression model. In predicting the school's percentage of white, Hispanic, and Asian populations passing the AP examinations, only the principal's perception of access and equity was a statistically significant factor. There were no statistically significant predictors of a school's percentage of African American students passing the AP examinations. Neither principal's perception of open enrollment nor importance contributed to the model results regarding open enrollment in AP courses and overall student achievement results on AP examinations.

When examining to what extent, if any, was there a relationship between the principals' reports of practices regarding open enrollment in AP courses and the percentage of students enrolled in AP courses in five central Florida counties, there were

significant predictors based upon the regression model. In predicting the school's percentage of students taking AP examinations, only the principal's perception of importance was significant for overall and for all student populations. Open enrollment was significant for the overall populations as well as white and Asian subpopulations. Access/Equity was only significant for white students. Thus, importance was the main cause of the model significance regarding open enrollment in AP courses and the percentage of students enrolled in AP courses.

This research study and the existing body of research suggested that open enrollment in AP programs should be increased in order to increase access and equity in rigorous curricular programs (College Board, 2004). The College Board explained that schools which have adopted an open enrollment policy have found that the increase in the number of students taking AP courses have resulted in an increase in the overall AP success rate for the school and if a decrease occurred in student success, it was only a small initial drop in success in the implementation year. In the opinion of the College Board and based on the results of this study, the key to expanding an AP program with an open enrollment philosophy is to educate all stakeholders, recruit students, provide support to students and teachers, provide teacher training and resources, and establish vertical teams who use pre-AP strategies in all classes (College Board, 2004).

Educational leaders and stakeholders should believe and explain in their open enrollment policy that the value of having and participating in an AP program is not only in earning college credit but also the exposure to a rigorous curriculum and critical thinking skills experienced in college level courses. The guiding philosophy for

expanding equity and access to AP was outlined in the AP equity policy statement. However, these beliefs and practices were a departure from past common educational practices and were considered controversial by some (College Board, 2004).

Implications for Practice

Educational leaders have the inherent responsibility to increase student achievement in schools. Dating back to *A Nation at Risk* (1983), educators have been charged with the responsibility to continuously increase student achievement and prepare students for postsecondary educational opportunities or for the workforce. There are expectations of student performance and school districts have been required to ensure that educational reform is data driven and focused on continuous improvement. Because of the No Child Left Behind (NCLB) Act of 2001 and high stakes accountability, educators have examined student academic performance and student success in curricular programs as measured by accountability measures (NCLB, 2002). Rose, Sonstelie, Reinhard, and Heng (2003) provided research findings to show that schools can answer the concern for equitable access to curriculum by using an open enrollment philosophy for AP courses. They also explained that AP courses can also serve as a tool to close the achievement gap between ethnic subpopulations in high schools.

Educational reform in 2010 and the findings of this study have far-reaching implications for a variety of educators in the United States educational system. The findings of this study provided important implications for school district leaders, school based administrators, guidance counselors and teachers, and parents and students to

understand their role in increasing student performance through access to and equity in AP examinations and course enrollment, open enrollment in AP courses, and the importance placed on AP programs as evidenced by practices in place at the schools. Educational leaders and stakeholders will find this knowledge useful.

School district leaders must understand current research and practices that impact student performance. These leaders must focus on the allocation of resources to appropriate programs and conduct program evaluations in order to properly allocate scarce resources. Rigorous curricular programs, such as AP, are expensive to operate but can impact school accountability as well as student performance in secondary and post-secondary schools (NCLB, 2002). Based upon 2009-2010 school grading and accountability changes, Florida school district leaders must implement programs that show that students are college ready, implement curricular opportunities to meet new school grading criteria, and meet the individual student needs and the needs of special populations for AYP purposes (FDOE, 2008). Educational reform research and the results of this study supported the need for such programs.

School based administrators must understand current research and the direction of educational reform in order to prepare curricular programs for students. These leaders must hire highly qualified teachers, train teachers, purchase resources, build diverse course schedules that meet the differentiated instructional needs of all levels of students, and design course offerings to meet the individual needs of all students. School accountability impacts high school administrators in numerous ways, specifically in 2010 in Florida through school grades, AYP, and school recognition funding. Research

presented on school accountability and reform (NCLB mandates, AYP, FDOE school grades) explained the urgency of these issues for school based administrators. Archbald and Keleher (2008) examined the use of data to measure conditions in high schools and consequences of high school curriculum. Their research and the findings of this study are important for District and high school administrators to understand if they plan to establish interventions for subsets of students and to wish to understand how implement the interventions successfully for AYP subgroups, specifically noted subpopulations such as economically disadvantaged.

It is important for guidance counselors and teachers to understand the importance of a philosophy of equity in and access to a rigorous curriculum for all students. The school faculty must develop a philosophy and articulate specific practices to recruit and retain all students in rigorous curricular programs. All staff should actively recruit students into these programs and understand the benefits of the programs. Schools must no longer have gate keepers to rigorous academic opportunities. Research from this study and the past literature supported the development of and importance of such a philosophy where there were no gate keepers and there was open and equitable access to rigorous curricular opportunities.

School leaders have the responsibility to be sure parents and students understand the educational opportunities available for students and the benefits of the programs available. There must be strategies to engage parents in informational sessions and to encourage them to take advantage of opportunities available through the school system to obtain a rigorous quality education. If a student has the drive and individual

determination to take rigorous course, parents and students must have access and a manner to seek these opportunities out if they are not openly shared with them. Research presented in this study outlined the benefits of parents and students self advocating for rigorous curricular opportunities.

As the research presented in the literature review stated that students are greatly impacted in a variety of way by exposure to a rigorous curriculum. The students must have access to and there must be equity in rigorous curricular programs like AP programs. The study showed that access and equity were important factors for student performance and student enrollment in AP course. There were also important findings within the study and the literature regarding open enrollment practices at schools. Depending on the emphasis that schools placed on AP programs, enrollment in AP examinations is impacted. Stakeholders must evaluate the benefits of open enrollment in AP programs and rigorous curricular opportunities, such as AP programs, for all the benefits, not just for college credit.

Because school accountability measures and current legislation greatly determine curricular decisions for high schools, school district leaders need understanding to develop a plan to increase equity in and access to rigorous curricular offerings while allocating scarce resources at the high school level. Professional development to assist school leaders in the understanding the relationship of open enrollment practices on student performance in AP courses and on AP exams is valuable. Appropriate practices and procedures should be put in place and monitored by principals to meet accountability standards and to increase equity in and access to a rigorous curriculum for all students in

order to improve learning. Balancing the benefits of open enrollment for AP programs, cost effectiveness of AP programs, the allocation of scarce resources, and maintaining course validity and rigor are important issues (College Board, 2004).

Recommendations for Future Research

The goal of this study was to examine open enrollment practices and student achievement performance and to provide data necessary to make important educational decisions. Following are recommendations for future research:

1. Individual courses and student success could be examined to determine which courses more students should be encouraged to take.
2. This study could be repeated examining gender and its relationship to enrollment and performance in AP programs.
3. In a few years in Florida after the new high school grading criteria has been in place and new curricular programs have been established, this study could be repeated.
4. This study could be repeated to examine the procedures for allocating resources to AP programs and the subsequent student enrollment and performance rates.
5. The study could be repeated using a larger population of schools in Florida.
6. Trend data for the same research questions over a 5 year period of time could be examined.

7. The study could be repeated disaggregating student AP examination success and AP examination enrollment by student grade level, socioeconomic status, and free and reduced lunch populations.
8. Student course grades as an additional variable could be examined and the study could be repeated.
9. The study could be repeated on a national level instead of in Florida as there is an increased emphasis on AP programs in Florida.
10. The study could be repeated in another state instead of in Florida because of the increased emphasis on AP programs in Florida.
11. AP teacher and guidance counselor attitudes toward open enrollment practices instead of principal's perceptions could be examined as these groups are noted as potential gate keepers in the literature and using the same independent and dependent variables.

APPENDIX A
HIGH SCHOOLS SURVEYED

High Schools Surveyed in the 5 Central Florida Counties

County Name	School Name
Brevard County <i>n</i> = 15	Astronaut High School Bayside High School Cocoa Beach Junior/Senior High School Cocoa High School Eau Gallie High School Edgewood Junior Senior High School Melbourne Senior High School Merritt Island High School Palm Bay Senior High School Rockledge Senior High School Satellite Senior High School Space Coast Junior/Senior High School Titusville High School Viera High School Westshore Junior/Senior High School
Lake County <i>n</i> = 7	East Ridge High School Eustis High School Leesburg High School Mt. Dora High School South Lake High School Tavares High School Umatilla High School
Orange County <i>n</i> = 17	Apopka High Boone High Colonial High Cypress Creek High Dr. Phillips High School Edgewater High School Evans High School Freedom High School Jones High School Oak Ridge High School Ocoee High School Olympia High School Timber Creek High School University High School Wekiva High School West Orange High School Winter Park High School

High Schools Surveyed in the 5 Central Florida counties (continued).

County Name	School Name
Seminole County <i>n</i> = 9	Crooms Academy of Information Technology
	Hagerty High School
	Lake Brantley High School
	Lake Howell High School
	Lake Mary High School
	Lyman High School
	Oviedo High School
	Seminole High School
	Winter Springs High School
Volusia County <i>n</i> = 8	Atlantic High School
	Deland High School
	Deltona High School
	Mainland High School
	New Smyrna Beach High School
	Pine Ridge High School
	Seabreeze High School
	Spruce Creek High School

APPENDIX B
ADVANCED PLACEMENT COURSE ENROLLMENT SURVEY

Advanced Placement Course Enrollment Survey

Thank you for your willingness to complete this survey on High School Advanced Placement (AP) course enrollment practices. The research being conducted is based on high school practices shaped by the school principal's decisions regarding Advanced Placement programs and the recruitment and enrollment processes for AP programs.

The majority of survey questions are only applicable to those school principals who were the principal of that school during the previous school year. I appreciate your time and willingness to participate in the research study. It should take you less than 10 minutes to complete the survey.

Please answer the following survey based upon your decisions as a high school principal and your school's AP enrollment practices.

1. Please enter your principal access code provided.

By entering this access code, you are providing your consent to participate in the research study as explain in your email. You may exit this survey at anytime and withdraw freely from the research study participation without consequence.

Continued

2. Were you the principal at your current high school during the previous school year?

- Yes
 No

3. Advanced Placement (AP) courses are an important part of my school's academic program.

- Strongly Agree
 Agree
 Disagree
 Strongly Disagree

Advanced Placement Course Enrollment Survey

4. Students who take AP courses perform better in college than students who do not.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

Continued

5. The population of my school's AP courses reflect the student socioeconomic diversity of the school.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

6. All teachers at my school are familiar with AP course offerings.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

Continued

7. All students in my school are provided with information about how to enroll in an AP course.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

Advanced Placement Course Enrollment Survey

8. Qualifying for enrollment in AP courses is contingent on attaining a certain score on an achievement test.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

Continued

9. Ability grouping students by skill level is an important practice at my school in identifying students who possess skills appropriate for AP courses.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

10. Guidance counselors are more likely to encourage students toward a challenging curriculum if the students are from a family with high socioeconomic status.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

Continued

11. A student should have high interest in a subject in order to be recommended for an AP class in that subject.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

Advanced Placement Course Enrollment Survey

12. Making AP courses accessible to all students diminishes the rigor of the AP course curriculum.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

Continued

13. Assignment of students to AP courses is based upon specific entrance requirements.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

14. The number of AP courses at my high school adequately meets the student demand for AP courses.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

Continued

15. Our school policy requires all students who take AP courses to take the AP exam.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

Advanced Placement Course Enrollment Survey

16. As the school principal, I believe a student who wants to pursue a rigorous curriculum should take AP courses.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

Continued

17. Please provide your definition of open enrollment for AP courses.

18. At your school, what are the requirements for enrollment in an AP course?

Continued

19. At your school, what are the recruitment tools and practices used in targeting students for AP courses?

20. Please list strategies used at your school for recruiting traditionally underrepresented populations (ethnicity, gender, poverty, and language) of students for enrollment in AP courses.

Continued

Advanced Placement Course Enrollment Survey

21. How many different AP courses does your school offer?

- 0 - 4
- 5 - 8
- 9 - 12
- More than 12

22. Please indicate the number of years that you have served as principal of your current school.

- 1 - 3
- 4 - 6
- 7 - 9
- 10 or more

Demographic Information

For demographic purposes only, please answer the following questions.

23. What is your ethnicity?

- White
- Black
- Hispanic
- Asian
- American Indian
- Multi-Racial

Other (please specify)

24. What is your gender?

- Male
- Female

Once again, I appreciate your willingness to complete the survey. Your responses are very important and will contribute to the field of research on High School AP Course Enrollment Practices.

Thank you for your time and have a great school year.

APPENDIX C
COGNITIVE INTERVIEW PARTICIPATION REQUEST EMAIL

Dear :

As part of my dissertation research, I developed an online survey to collect data on the Advanced Placement (AP) course enrollment procedures in Florida public high schools. In the dissertation study, a population that includes high school principals of schools with AP programs that also received school grades is invited to complete the dissertation survey. Before administering the survey, I need to conduct cognitive interviews using the online survey in order to obtain feedback. I would like for you to be part of the cognitive interview process due to your experience in educational leadership in Florida.

The online survey has 24 questions and should take you less than 10 minutes to complete. As you complete the survey, I would like to sit with you and ask you questions about the survey using a script of questions. One question from my script will ask the amount of time it took for you to answer the survey while others will ask you about the clarity, wording, visual representations, and any information you would like to share. In order to participate in the cognitive interview process, you must read the following information regarding participating in the research study and provide your consent to participate.

The cognitive interview process and survey completion is completely voluntary. You may choose not to participate or not to answer any specific questions. You may skip any questions you are not comfortable answering. You can decline to participate in this survey without any repercussions. There are no anticipated professional or financial risks. Do not take this survey if you are under the age of 18. The survey is confidential. To help ensure the confidentiality of your identity, you will be assigned a numeric access code. This access code, as well as all the information gathered through the use of the survey instrument for the cognitive interview process and the cognitive interviews, will be held confidential and discarded upon completion of the research study. The published research will not contain any participant names. By clicking on the survey link, entering the access code, and answering the survey, you will provide your informed consent. The survey can be accessed at the following link:

<http://www.surveymonkey.com/s/6KRHXCW>

The access code is *912*. The cognitive interview process needs to be completed by *October 30, 2009*. To set an appointment to complete the interview, I will call your office and schedule a time that is convenient for you. I value and appreciate your input. Thank you in advance for your time and assistance with the research. Please feel free to contact me at BradshawLa@tampabay.rr.com if you have any questions. My faculty advisor, Dr. Rosemarye Taylor, may be contacted at (407) 823-1469 or by email rtaylor@mail.ucf.edu.

Sincerely,

Leigh Ann Bradshaw
Principal, Citrus High School
Doctoral Candidate, University of Central Florida

APPENDIX D
SURVEY: COGNITIVE INTERVIEW SCRIPT

Cognitive Interview Script

A. Introduction

Thank you for assisting me with the survey. The reason I am asking you to help me is that I am conducting research on the practices of high school principals regarding decisions about Advanced Placement (AP) programs and specifically the practices on recruitment and enrollment of students in AP programs. The survey will be delivered to each principal participant through an email. The email will have a direct link to the survey on which the principal can click and gain access to the survey. Prior to receiving the email regarding the survey, each principal will be contacted by me with a pre-notice letter and by a member of his or her school district staff.

Today, I am going to ask you to complete the online Advanced Placement Course Enrollment Survey that is being evaluated for use in future doctoral research. After you have completed the survey, I will ask you some additional questions to obtain specific impressions from you about the survey. Your reactions during the survey, the questions that you may have during the survey, and the follow up information that you provide will assist in revising the survey so that it is easy to complete and will be accurate.

B. Explain Procedure

I am going to ask you to click on the survey link in an email message provided on the screen of a computer. I would like for you to complete the survey as if you were completing it in your own personal environment. I will ask that you read the questions aloud as you take the survey and vocalize any thoughts that go through your mind as you are thinking about your answers. I am interested in knowing what you are thinking and feeling as you complete the survey.

C. Data Collection from Respondent

Possible prompt:

Tell me what you are thinking as you answer the questions.

Record all comments, behaviors, and noted problems during survey completion.

Ask about themes and questions for each theme. Verify the questions provide responses for each theme.

D. Debriefing

What did you think about the color and contrast of the survey?

Instructions?

Size of the font?

Navigational graphics?

Additional features?

Were the question prompts easy or difficult to understand?

Was there anything that was confusing?

Did you like the appearance of the survey?

What else did you like or dislike about the survey?

Would you complete this survey online?

Would you prefer to complete this survey online or in a paper pencil mode in which you mailed the responses to the researcher in a self addressed stamped envelope?

APPENDIX E
DISTRICT PERMISSION TO CONDUCT RESEARCH CORRESPONDENCE

Date

Name, Title

Address

City State Zip

Topic: Practices of High School Principals Regarding Open Enrollment in Advanced Placement Courses and Student Achievement Results

Dear :

It was a pleasure speaking with you last week. Thank you for taking the time to consider participation in my study by the high school principals in your school district. I am a high school principal in Citrus County, Florida and very interested in the research being conducted because of the changes in school grades and school accountability initiatives. This study will examine the practices of high school principals regarding open enrollment in Advanced Placement courses at their high school and subsequent student achievement results. The research proposal is attached.

The study is confidential. To help ensure the confidentiality of each respondent, each principal will be assigned a random numeric access code. This principal access code, as well as all the information gathered through the use of the survey instrument, will be held confidential and discarded upon completion of the research study. School identifiers will only be used for the purpose of entering responses into a database in order to keep each school's responses together. The published research will not contain any school or principal names, other than to note that all participating schools were located in five central Florida counties. Additionally, surveys will be administered in an electronic format to ensure the confidential nature of the participants' responses. There are no anticipated risks or benefits for the principals who choose to participate in this study. Upon completion of this study, you and the principals will have the opportunity to receive a copy of the published results.

If you have any questions about this study on the practices of high school principals regarding open enrollment in Advanced Placement (AP) courses at their high school and student achievement results, please feel free contact me. My faculty advisor, Dr. Rosemarye Taylor, may be contacted at (407) 823-1469 or by email at rtaylor@mail.ucf.edu. After reviewing the components of my study, please consider allowing high school principals in your district to participate. Granting permission to participate simply requires that you provide a return email permission to me at BradshawLa@tampabay.rr.com or a fax permission to Leigh Ann Bradshaw at 352-726-3180. By granting permission, you are consenting to allow participation of your district's high school principals to complete the survey instrument should they choose to do so. You and the high school principals are free to withdraw the consent to participate at anytime without consequence.

Thank you for your time. I am genuinely grateful for your participation. Your time and effort is greatly appreciated and will ultimately assist educational professionals in understanding the impacts of open enrollment in AP courses.

Sincerely,

Leigh Ann Bradshaw
Principal, Citrus High School
Doctoral Candidate, University of Central Florida
7715 East Allen Drive
Inverness, FL 34450
(352) 302-9833

School Board of Brevard County
2700 Judge Fran Jamieson Way Viera, FL 32940-6699
Dr. Brian Binggeli, Superintendent



December 7, 2009

Dear Ms. Bradshaw,

Thank you for your application to conduct research in the Brevard Public Schools. This letter is official verification that your application has been accepted and approved through the Office of Accountability, Testing, & Evaluation. However, approval from this office does not obligate the principal of the schools you have selected to participate in the proposed research. Please contact the principals of the impacted schools in order to obtain their approval. Upon the completion of your research, submit your findings to our office. If we can be of further assistance, do not hesitate to contact our office.

Sincerely,

Sylvia Mijuskovic

Sylvia Mijuskovic, Resource Teacher
Office of Accountability, Testing, and Evaluation

Office of Accountability, Testing & Evaluation
Phone: (321) 633-1000 FAX: (321) 633-3465



An "A" School District
Leading our Children to Success

201 West Burleigh Boulevard · Tavares · FL 32778-2496
(352) 253-6500 · Fax: (352) 343-0198 · www.lake.k12.fl.us

Superintendent:
Susan Moxley, Ed. D.

School Board Members:
District 1
Larry Metz
District 2
Rosanne Brandenburg
District 3
Cindy Barrow
District 4
Debbie Stivender
District 5
Kyleen Fischer

November 30, 2009

Ms. Leigh Ann Bradshaw
7715 East Allen Drive
Inverness, Florida 34450

Dear Ms. Bradshaw:

The letter serves as written approval to proceed with the requested research study entitled, Practices of High School Principals Regarding Open Enrollment in Advanced Placement Courses and Student Achievement Results. Per information submitted in your request, it is understood the following protocols will be followed:

1. This research will be conducted as a part of a Doctoral Degree program at the University of Central Florida under the direction of the Dissertation Chair, Dr. Rosemarye Taylor.
2. Surveys will be sent to high school principals in Lake County.
3. Principal participation in the survey is voluntary.
4. The confidentiality of all participants will be maintained at all times.

It is also requested that you provide a copy of the study results to this office. Should you have additional questions, please do not hesitate to contact me at 352-253-6793.

Best wishes for a successful study as you complete your doctoral degree. I commend you for an excellent submission for our district review. It has been a pleasure working with you.

Yours truly,

Kathleen Farner Thomas, Ph.D.
Director of Planning, Evaluation and Accountability

C: Dr. Susan Moxley, Superintendent
Ms. Aurelia Cole, Chief of School Administration and School Safety
Ms. Nancy Velez, Chief Academic Officer
High School Principals

"Equal Opportunity in Education and Employment"

Submit this form and a copy of your proposal to: Accountability, Research, and Assessment P.O. Box 271 Orlando, FL 32802-0271	Orange County Public Schools RESEARCH REQUEST FORM	Your research proposal should include: Project Title; Purpose and Research Problem; Instruments; Procedures and Proposed Data Analysis								
Requester's Name <u>Leigh Ann Bradshaw</u>		Date <u>11/30/09</u>								
Address: Home <u>7715 East Allen Drive, Inverness, FL 34450</u>		Phone <u>352-302-9833</u>								
Business <u>600 W. Highland Blvd., Inverness, FL 34452</u>		Phone <u>352-726-2241</u> 1								
Project Director or Advisor <u>Dr. Rosemarye Taylor</u>		Phone <u>407-823-1469</u>								
Address <u>P.O Box 161250 Orlando, Florida 32816</u>										
Degree Sought: (check one) <table style="display: inline-table; margin-left: 20px;"> <tr> <td><input type="checkbox"/> Associate</td> <td><input type="checkbox"/> Bachelor's</td> <td><input type="checkbox"/> Master's</td> <td><input type="checkbox"/> Specialist</td> </tr> <tr> <td><input checked="" type="checkbox"/> Doctorate</td> <td><input type="checkbox"/> None</td> <td></td> <td></td> </tr> </table>			<input type="checkbox"/> Associate	<input type="checkbox"/> Bachelor's	<input type="checkbox"/> Master's	<input type="checkbox"/> Specialist	<input checked="" type="checkbox"/> Doctorate	<input type="checkbox"/> None		
<input type="checkbox"/> Associate	<input type="checkbox"/> Bachelor's	<input type="checkbox"/> Master's	<input type="checkbox"/> Specialist							
<input checked="" type="checkbox"/> Doctorate	<input type="checkbox"/> None									
Project Title <u>Practices of High School Principals Regarding Open Enrollment in Advanced Placement Courses and Student Achievement Results</u>										
ESTIMATED INVOLVEMENT										
PERSONNEL/CENTERS	NUMBER	AMOUNT OF TIME (DAYS, HOURS, ETC.)	SPECIFY/DESCRIBE GRADES, SCHOOLS, SPECIAL NEEDS, ETC.							
Students	n/a									
Teachers	n/a									
Administrators	17	10 minutes	High School Principals – Online Survey							
Schools/Centers	n/a									
Others (specify)	n/a									
Specify possible benefits to students/school system: <u>The study of open enrollment practices and student achievement success will provide data necessary to make important educational decisions regarding increasing equity and access of rigorous curricular offerings while allocating scarce resources at the high school level.</u>										
RECEIVED DEC 03 2009										
ASSURANCE										
Using the proposed procedures and instrument, I hereby agree to conduct research in accordance with the policies of the Orange County Public Schools. Deviations from the approved procedures shall be cleared through the Senior Director of Accountability, Research, and Assessment. Reports and materials shall be supplied as specified.										
Requester's Signature <u>Leigh Ann Bradshaw</u>										
Approval Granted: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Date: <u>12-3-09</u>								
Signature of the Senior Director for Accountability, Research, and Assessment <u>Lee Baldwin</u>										

NOTE TO REQUESTER: When seeking approval at the school level, a copy of this form, signed by the Senior Director, Accountability, Research, and Assessment, should be shown to the school principal.

Reference School Board Policy GCS, p. 249

**SEMINOLE COUNTY
PUBLIC SCHOOLS****BILL VOGEL, Ed.D.**
*Superintendent***Educational Support Center**
400 E. Lake Mary Boulevard
Sanford, Florida 32773-7127**RONALD L. PINNELL, Ed.D.**
*Executive Director of
Secondary Education***WALT GRIFFIN**
*Executive Director of
Secondary Education*

Telephone: (407) 320-0039

Facsimile: (407) 320-0293

Suncom: 351-0038

Visit Our Web Site
www.scps.k12.fl.us

December 8, 2009

Ms. Leigh Ann Bradshaw
7715 East Allen Drive
Inverness, Florida 34450

Dear Ms. Bradshaw:

I am in receipt of the proposal and supplemental information that you submitted for permission to conduct research in the Seminole County Public Schools. After review of these documents, it has been determined that you are granted permission to conduct the study described in these documents under the conditions described herein.

Each high school principal has the authority to decide if he/she wishes to participate in your study. Therefore your first order of business is to contact the principals that you wish to involve in your research to explain your project and seek their participation approval.

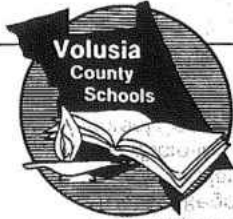
A school address list is attached with the high schools' addresses and principals' names. The high schools are highlighted for your use.

Please forward a summary of your project to my office upon completion.
Good Luck!

Sincerely,

Ronald L. Pinnell, Ed.D.
Executive Director
Secondary Education

RP/jr



Dr. Margaret A. Smith
Superintendent of Schools

P.O. Box 2118
DeLand, Florida 32721-2118

200 North Clara Avenue
DeLand, Florida 32720

DeLand (386) 734-7190 Daytona Beach (386) 255-6475 New Smyrna Beach (386) 427-6229 Osteen (386) 860-3322

School Board of Volusia County

Mrs. Diane Smith, Chairman
Ms. Candace Lankford, Vice-Chairman
Ms. Judy Conte
Mr. Stan Schmidt
Dr. Al Williams

December 9, 2009

Ms. Leigh Ann Bradshaw
7715 East Allen Drive
Inverness, FL 34450

Dear Ms. Bradshaw:

I have received your request to conduct research within Volusia County Schools. I have approved your request to conduct research on the topic of "Principal Practices Regarding Open Enrollment in Advanced Placement Courses and Student Achievement." As with all requests to do research; participation is at the sole discretion of the principals, teachers and parents of all students involved. Parent Consent Forms will be necessary for all data gathered from the students of Volusia County Schools.

By copy of this letter, you may contact the school principals who allow this research to be conducted with their faculty and students. We request that you conduct your survey with as little disruption to the instruction day as possible.

I would appreciate receiving a copy of your project at the completion of your study.

Sincerely,

Chris J. Colwell, Deputy Superintendent
Instructional Services

CJC/mh

An Equal Opportunity Employer

APPENDIX F
INSTITUTIONAL REVIEW BOARD APPROVAL



University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

Approval of Exempt Human Research

From: **UCF Institutional Review Board #1
FWA00000351, IRB00001138**

To: **Leigh Bradshaw**

Date: **October 27, 2009**

Dear Researcher:

On 10/27/2009, the IRB approved the following activity as human participant research that is exempt from regulation:

Type of Review: Exempt Determination
Project Title: PRACTICES OF HIGH SCHOOL PRINCIPALS REGARDING
OPEN ENROLLMENT IN ADVANCED PLACEMENT
COURSES AND STUDENT ACHIEVEMENT RESULTS
Investigator: Leigh Bradshaw
IRB Number: SBE-09-06507
Funding Agency:
Grant Title:
Research ID: n/a

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these changes affect the exempt status of the human research, please contact the IRB.

In the conduct of this research, you are responsible to follow the requirements of the [Investigator Manual](#).

On behalf of Joseph Bielitzki, DVM, UCF IRB Chair, this letter is signed by:

Signature applied by Joanne Muratori on 10/27/2009 02:11:27 PM EST

IRB Coordinator

APPENDIX G
PRINCIPAL INITIAL CONTACT LETTER

Date

Name

Address

City State Zip

Dear :

I would like to invite you to participate in a confidential research study that I am conducting as a doctoral student at the University of Central Florida. I am also a high school principal in Citrus County, Florida. You were selected to be a participant because you are a high school principal in one of the selected central Florida counties. Your school district has granted permission for me to ask you to participate in my research study. Attached is a copy of the permission to conduct research by XXX, title.

Completion of this survey will assist in examining the practices of high school principals regarding open enrollment in Advanced Placement (AP) courses and subsequent student achievement success. Your participation and honest answers are crucial for determining the practices in place and the relationship, if any, on student achievement success on AP exams. Because of your experiences as an instructional leader and as a high school principal, your input is extremely valuable. The survey is completely voluntary. You may choose not to participate or not to answer any specific questions. To help ensure the confidentiality of your identity, you will be assigned a numeric random principal access code. This principal access code, as well as all the information gathered through the use of the survey instrument, will be held confidential and discarded upon completion of the research study. The published research will not contain any school or principal names, other than to note that all participating schools were located in five central Florida counties. The survey will take approximately 10 minutes to complete.

In approximately one week, you will receive an email from me that will contain the survey link and the principal access code. By clicking on the link, entering the access code, and submitting the survey, you will indicate your consent to volunteer to participate in this research study. You may exit the survey at anytime and withdraw freely from participation without any repercussions.

I am grateful for your participation. Your time and effort in helping me gather information is appreciated and will ultimately assist educational professionals in understanding the impacts of open enrollment in AP courses. Thank you in advance for your assistance with this research study.

Sincerely,

Leigh Ann Bradshaw
Principal, Citrus High School
Doctoral Candidate, University of Central Florida

APPENDIX H
PRINCIPAL EMAIL, CONSENT, AND SURVEY LINK

Dear :

You have been selected to participate in a confidential research study that I am conducting as a doctoral student at the University of Central Florida. You should have received a letter in the past week explaining my research study and requesting your permission to participate. Currently, I am the principal of Citrus High School. You were selected to be a participant because you are a high school principal at a school that offers AP courses. Your district representative has granted permission for me to ask you to participate in my research study. Because of your experiences as an instructional leader and as a high school principal, your input is extremely valuable.

An online survey has been created to collect data on the Advanced Placement (AP) course enrollment procedures in Florida public high schools. The **online survey** has 24 questions and **should take you less than 10 minutes to complete**. Completion of this survey will assist in examining the practices of high school principals regarding open enrollment in Advanced Placement (AP) courses and subsequent student achievement success. Your participation and honest answers are crucial for determining the practices in place and the relationship, if any, on student achievement success on AP exams.

In order to participate in the research study, you must read the following information regarding participating in the study and provide your consent to participate. The survey is completely voluntary. You may choose not to participate or not to answer any specific questions. You may skip any questions you are not comfortable answering. You can decline to participate in this survey without repercussions. There are no anticipated professional or financial risks. Do not take this survey if you are under the age of 18.

The survey is confidential. To help ensure the confidentiality of your identity, you will be assigned a random numeric principal access code. This principal access code, as well as all the information gathered through the use of the survey instrument, will be held confidential and discarded upon completion of the research study. The published research will not contain any school or principal names, other than to note that all participating schools were located in five central Florida counties.

Please answer the questions honestly. If you choose to participate, please complete the items included in this online survey. Your privacy and research records will be kept confidential to the extent of the law. Authorized research personnel, employees of the Department of Health and Human Services, the UCF Institutional Review Board and its staff, and other individuals, acting on behalf of UCF, may inspect the records from this research project. If you have any questions about this survey or would like additional information about this research study, please contact me at BradshawLa@tampabay.rr.com. My faculty advisor, Dr. Rosemarye Taylor, may be contacted at (407) 823-1469 or by email at rtaylor@mail.ucf.edu.

Research at the University of Central Florida involving human participants is carried out under the oversight of the Institutional Review Board (IRB). Questions or concerns about research participants' rights may be directed to UCF Institutional Review Board Office at the University of Central Florida, Office of Research and Commercialization, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246. The phone numbers are (407) 823-2901 or (407) 882-2276.

By clicking on the survey link, entering the principal access code, and answering the survey, you will provide your informed consent.

The survey can be accessed at the following link:

<http://www.surveymonkey.com/s/6KRHXCW>

The principal access code is: XXXX

Please complete the survey by *January 10, 2010*. If you would like to receive a copy of the research findings, email me at BradshawLa@tampabay.rr.com.

I value and appreciate your input. Your time and effort in helping me gather information will ultimately assist educational professionals in understanding the impacts of open enrollment in AP courses. Thank you in advance for your time and assistance with my research.

Sincerely,

Leigh Ann Bradshaw
Principal, Citrus High School
Doctoral Candidate, University of Central Florida

LIST OF REFERENCES

- Adelman, C. (1999). *Answers in the tool box: Academic intensity, attendance patterns, and bachelor's degree attainment*. Washington, DC: U.S. Department of Education.
- Adelman, C. (2003). In Affirmative Action, it's curriculum that counts. U.S. Department of Education. *Diversity web: An interactive resource for higher education, 1-4*.
- Archbald, D., & Keleher, J. (2008). Measuring conditions and consequences of tracking in the high school curriculum. *American Secondary Education, (36)2*. 26-42.
- Brevard County Public Schools (2010). Facts and demographics. Retrieved May 12, 2010 from: <http://www.brevard.k12.fl.us/superintendent/Superintendent.htm>
- Carnoy, M., & Loeb, S. (2004). Does external accountability affect student outcomes? A cross-state analysis. *Educational Evaluation and Policy Analysis 24*(4), 305-331.
- Cech, S. (2007). Number of schools offering AP falls after first audit of courses. *Education Week, 27*(12).
- College Board. (2002). *Opening classroom doors: Strategies for expanding access to AP*. New York, NY.
- College Board. (2004). *Barriers to equity and access*. New York, NY.
- College Board. (2008a). AP program guide: 2008-2009. New York, NY.
- College Board. (2008b). *Get with the program*. New York, NY.
- College Board. (2008c). 2008 AP Report to the nation highlights for Florida public schools. New York, NY.
- College Board. (2009). AP report to the nation: subject-specific results. New York, NY.
- Conger, D., Long, M., & Iatarola, P. (2009). Explaining race, poverty, and gender disparities in advanced course-taking. *Journal of Policy Analysis and Management (28)4*, 555-579.
- Dodd, B. G., Fitzpatrick, S. J., De Ayala, R. J., & Jennings, J. A. (2002). An investigation of the validity of AP grades of 3 and a comparison of AP and non-AP student groups (College Board Rep. No. 2002-9). New York, NY: College Entrance Examination Board.

- Dougherty, C., Mellor, L., & Jian, S. (2006). Orange juice or orange drink?: Ensuring that “advanced courses” live up to their labels. Retrieved on March 20, 2009 from <http://www.ecs.org/html/Document.asp?chouseid=6762>
- ERIC Clearinghouse on Assessment and Evaluation. (1999). *A nation still at risk. ERIC Digest* (No. ED429988). College Park, MD: ERIC Clearinghouse on Assessment and Evaluation.
- Figlio, D. N., & Rouse, C. E., (2006). Do accountability and voucher threats improve low-performing schools? *Journal of Public Economics*, 90 (2006), 239-255.
- Florida Department of Education. (2007). *History of school grades*.
- Florida Department of Education. (2008). *Overview of school grades*. Retrieved November 15, 2008, from <http://www.fldoe.org/eias/databaseworkshop/word/schoolgrades.doc>
- Florida Department of Education. (2009a). *AP data report*. Retrieved September 18, 2009 from <http://www.fldoe.org/evaluation/act-sat-ap.asp>
- Florida Department of Education. (2009b). *AP trends: Florida and the nation public schools only 1987 - 2009*. Retrieved December 28, 2009 from <http://www.fldoe.org/evaluation/pdf/APTrends2009>
- Florida Department of Education. (2009c). Florida Comprehensive Assessment Test. Retrieved July 5, 2009 from <http://fcats.fldoe.org/>
- Florida Department of Education. (2009d) *Florida school indicators report: Membership category*. Retrieved July 1, 2010 from <http://www.fldoe.org/eias/eiaspubs/fsir.asp>
- Florida Department of Education. (2009e). *Grading Florida’s Public Schools*.
- Florida Department of Education (2009f). Revising high school grading requirements: Revision of Rule 6A-1.09981, F.A.C. [PDF document]. Retrieved from http://www.fldoe.org/board/meetings/2009_09_15/109981presentation.pdf
- Gándara, P., & Bial, D. (2001). *Paving the way to postsecondary education: K–12 intervention programs for underrepresented youth. Report of the national postsecondary education cooperative working group on access to postsecondary education*. (NCES Report No. NCES2001205). Washington, DC: National Center for Education Statistics.

- Geiser, S., & Santelices, V. (2004). *The role of advanced placement and honors courses in college admissions*. University of California at Berkley: Center for Studies of Higher Education.
- Greene, J. P., & Winters, M. A. (2003). *When schools compete: The effects of vouchers on Florida public school achievement*. New York: Center for Civic Innovation at the Manhattan Institute.
- Hanushek, E. A., & Raymond, M. E. (2005). Does school accountability lead to improved student performance. *Journal of Policy Analysis and Management*, 24 (2), 297-327.
- Klopfenstein, K., & Thomas, M (2005). Advanced placement performance advantage: Fact or fiction. Working Papers Retrieved from www.aeaweb.org/annual_mtg_papers/2005/0108_1015_0302.pdf.
- Kyburg, R., Hertberg-Davis, H., & Callahan, C. (2007). Advanced placement and international baccalaureate programs: Optimal learning environments for talented minorities? *Journal of Advanced Academics*, 18, 172–215.
- Lake County Public Schools (2010). Facts and demographics. Retrieved May 12, 2010 from: <http://lake.k12.fl.us/1651103109482070/site/default.asp?1651103109482070Nav=&NodeID=970>
- Luce, T., & Thompson, L. (2005). *Do what works: How proven practices can improve America's public schools*. Dallas, TX: Ascent Education Press
- Marzano, R.J. (2003). What works in schools: translating research into action. Alexandria, VA: Association for Supervision and Curriculum Development.
- Mayer, A. P. (2008). Expanding opportunities for high academic achievement: An international baccalaureate diploma program in an urban high school. *Journal of Advanced Academics*, 19, (2) 202–235.
- McDaniel, T.R. (1999). School accountability. *The Clearing House*, 72(3), 132.
- Morgan, R., & Ramist, L. (1998). *Advanced placement students in college: An investigation of course grades at 21 colleges*, 98(3). Princeton: Educational Testing Service.
- National Commission on Excellence in Education. (1983). *A nation at risk: The imperative for educational reform*. Retrieved April 20, 2009, from <http://www.ed.gov/pubs/NatAtRisk/index.html>

- No Child Left Behind Act of 2001, Pub. L. No.107-110, S 1, 115 Stat. 1425 (2002).
- Orange County Public Schools (2010). Facts and demographics. Retrieved May 12, 2010 from: <https://www.ocps.net/sb/Superintendent/Pages/default.aspx>
- Rose, H., Sonstelie, J., Reinhard, R., & Heng, S. (2003). *High expectations, modest means: The challenge facing California's public schools*. San Francisco: Public Policy Institute of California.
- Santoli, S. (2002). Is there an advanced placement advantage? *American Secondary Education*, 30(3), 23-35.
- Seminole County Public Schools (2010). Facts and demographics. Retrieved May 12,2010 from: http://www.scps.k12.fl.us/community_involvement/_doc/SCPSFacts.pdf
- St. Jarre, K. (2008). They knew calculus when they left: The thinking disconnect between high school and university. *Phi Delta Kappan*. 90(2). 123-126.
- Strong, R., Silver, H., & Perini, M. J. (2001). *Teaching what matters most: Standards and strategies for raising student achievement*. Association for Supervision and Curriculum Development.
- Tai, R. (2008). Posing tougher questions about the advanced placement program. *Liberal Education*. 38-43.
- Taliaferro, J., & DeCuir-Gunby, J. (2007). African American educators' perspectives on the advanced placement opportunity gap. *The Urban Review*. (40)2.
- Thompson, T., & Rust, J. (2007). Follow-up of advanced placement students in college. *College Student Journal*. 41(2). 416-422.
- U. S. Department of Education. (2005). No child left behind: Expanding the promise. Guide to President Bush's FY 2006 education agenda. Retrieved April 10, 2009, from <http://www.ed.gov/about/overview/budget/budget06/nclb>
- Volusia County Public Schools (2010). Facts and demographics. Retrieved May 12,2010 from: <http://blackboard.volusia.k12.fl.us/webapps/portal/frameset.jsp>
- Whiting, G., & Ford, D. (2009). Black students and advanced placement classes: Summary, concerns, and recommendations. *Gifted Child Today* (32)1. 23-26.
- Willinghan, W., & Morris, M. (1986). *Four years later: A longitudinal study of advanced placement students in college*, 86(2). Princeton, NJ: College Board.