THE EFFECTS OF ADVANCED PLACEMENT AND
INTERNATIONAL BACCALAUREATE
PROGRAMS ON STUDENT
ACHIEVEMENT

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CERTIFICATION OF APPROVAL

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DEDICATION

This dissertation is dedicated in loving memory of my wonderful father, Sogel Pishon Merza (1948-1981), and to my kind brother, Rami Sogel Merza (1980-2009), and my mother, Nonia Petros Merza, for her loving support throughout my life.
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ABSTRACT

This study compared student academic achievement in two college readiness programs, Advanced Placement (AP) and International Baccalaureate (IB) and attempted to determine how well program participation predict student performance compared to variables such as SES, parent education level, GPA, gender, and SAT II scores. Finally, the research investigated AP and IB students’ perceptions of program effectiveness. Data were collected from 97 AP and 102 IB high school students who were seniors during the 2009-2012 academic year. All of the participants took the SAT II in English literature and SAT IIC mathematics. A survey was used to gather information about senior students’ perception of the two programs. Findings indicated that students in AP and IB did not differ substantially when it came to academic achievement and program participation was not determined to be a predictor of performance on the SAT. Students in the two programs reported positive perceptions of how participation prepared them for college success.
CHAPTER I
INTRODUCTION

Over the past five decades, enrollment in college readiness programs, such as Advanced Placement (AP) and International Baccalaureate (IB), has increased. For example, there was a 111% increase in the number of students enrolled in Advanced Placement programs between 1997 and 2005 (National Center for Education Statistics [NCES], 2007). Similarly, there was a 74% increase in the number of students who took the International Baccalaureate examinations between 2003 and 2008 (International Baccalaureate Organization [IBO], 2008). The U.S. Department of Education (USDE, 2011) embraced the increase in student enrollment by providing financial support to these two programs. Specifically, the USDE appropriated millions of dollars to fund, support, subsidize, and reward secondary schools that participate in these programs (USDE, 2011).

The AP and IB Programs are synonymous with the rigorous expectations associated with Ivy League academic achievement. These programs, categorized as college readiness, are recognized by prestigious universities such as Harvard, Princeton, and Yale. These elite institutions acknowledge that students who participate in AP and IB programs are perceived as high quality, first-rate applicants (Chen, 2009).

The AP and IB programs provide advanced-level courses instructed by specially trained teachers. These programs require students to take examinations to
determine whether they have mastered the course material. Additionally these programs are known as accelerated high school programs, thus, scores earned on these exams determine their eligibility to receive college credit (Callahan, 2008).

The concept of the dual credit program allows AP and IB students to earn high school and college credits simultaneously. Dual credit means that students enrolled in these programs receive both high school and college credits for the same course work (Krueger, 2006). Dual enrollment programs save time and money because students can graduate earlier than can those not enrolled in dual programs, which reduces college costs. In addition, dual enrollment attempts to provide a secure, successful, and comfortable transition from high school to college and beyond. Hale (2001) indicated the benefit of dual enrollment as early exposure to rigorous college courses and workload may provide an easier transition from high school to college.

Whether these programs are called college readiness programs, accelerated high school programs, or dual credit programs, AP and IB are not for every secondary student or high school. Not every student has the determination and discipline to take AP or IB courses. Likewise, not every school needs the prestige attached to having such programs on their campus site because they are well established and have an Ivy League reputation.

Initially such accelerated college readiness programs were tailored for high achieving and gifted students who wanted to graduate from high school armed with high academic skills, and the confidence needed to succeed in college and beyond (Bailey & Karp, 2002; Chatman & Smith, 1998; Clark, 2001; Fincher-Ford, 1997;
Greenberg, 1989; Kleiman, 2001; Lords, 2000; Puyear, 1998). The AP and IB programs are perceived as an integral and critical ingredient to preparing high school students for college and the workforce. Research indicates that students are more likely to remain in high school (Archambault, Janosz, Morizot, & Pagani, 2009) and perform at higher levels if the curriculum is challenging and has a strong emphasis on developing college-career readiness skills (Cole, Kennedy, & Ben-Avie, 2009).

While AP and IB were established to address different needs, both focus on college readiness. The popularity of these two programs is not an enigma. Both programs are sponsored by the government, supported by colleges and universities, staffed with highly effective teachers, and recommended by many experts in gifted education (Byrd, 2007; Callahan, 2003).

One drawback to AP and IB programs is the expense of the exit exams; each test costs over $80. However, federal money is available to subsidize these costs for low-income students. Many states have also begun to mandate that each district offer at least one AP course in English, mathematics, science and social studies pursuant to the No Child Left Behind Act of 2001.

The AP consists of 18 independent courses of study and is open to all students who are willing to challenge themselves with college-level coursework, although, some classes have prerequisites and performance standards. Courses are similar to college entry-level survey classes and teachers can work independently or within their discipline to support students. Additionally, students may form peer groups within individual classes or disciplines; however, this is not a goal of the program. Final
grades in these AP classes are based solely on the final exams. Of note, any students, whether enrolled in the AP program or not, can take an AP exam. The AP exams are designed by a National Development Committee in conjunction with experts from the Educational Testing Service (ETS). All exams are administered locally and mailed to ETS for scoring. Finally, AP recognizes high achievement on exams through the AP Scholars program (College Board, 2010a).

In contrast, the IB is a two-year program of study that includes a 13-course schedule, essay, and community service. Like the AP, the IB program is open to all students who are willing to challenge themselves with rigorous college-level coursework. However, students who want to enroll in the program must have completed advanced mathematics (e.g., advanced algebra, trigonometry, etc.) and two years of a foreign language before their junior year.

International Baccalaureate promotes open access to students who are motivated to pursue a well-rounded education and a high level of performance in six disciplines: English, world language, individuals and societies (social studies), sciences, mathematics, and the arts. Teachers are required to work as a team to support students and connect the curriculum across disciplines. International Baccalaureate courses also move at a different, slower pace compared to those in the AP program. For example, some courses last the entire 2-year period to allow time for in-depth research and analysis inquiry. Finally, the IB insists that students work in a cohort or peer group.
The IB also requires examinations; however, they are only given to students enrolled in the program. Exams are developed and scored by an international panel of examiners; the exams are administered locally and mailed for scoring to examiners who live and teach in schools worldwide. Successful students receive an IB Diploma at the end of their program (IOB, 2010).

**Advanced Placement Criticism**

According to the College Board (2001), the initial and main objective of the AP program was to offer high school students the opportunity to take college introductory-level courses that would earn them college credit while still in high school. The courses were not used as admission criteria because most students did not take AP courses until their junior and senior years in high school. In addition, several AP courses have at least two levels (e.g., Level I: pre-calculus; Level II: calculus).

Originally, colleges and universities used AP exam scores to allow high achieving AP students to waive general education or perquisite college courses and register for the advanced college courses. However, the growing popularity of the AP program greatly increased the pool of AP students applying to Ivy League colleges and universities. This overwhelming increase led to the inclusion of exam scores as a criterion for admission. The National Research Council (NRC, 2002) found support for this practice from survey results of deans of admissions from 264 colleges and universities. Findings revealed that some Ivy League colleges and universities began to use the AP exam scores as a way to filter through the numerous amounts of
applicants. Adding the AP exam scores to the admission criteria helped colleges and universities select highly qualified students to attend their prestigious institutions.

While the AP program’s national popularity has significantly increased since its launch in 1955, critics argue that the program can have an adverse effect on schools and the overall curriculum. A main concern of critics is the overwhelming amount of content that AP courses and exams cover, even for the more academically inclined students (Klopfenstein, 2003). According to the NRC (2002), the amount of content in AP courses requires some teachers to increase the pace of teaching, which limits them from any in-depth study of the content.

Sadler (2009) surveyed 8,594 students at one college who were enrolled in introductory science courses. Ten percent of these students had completed the AP counterpart course in high school. Additionally, students who took and passed the AP science exam did about one-third of a letter grade better than did their classmates with similar backgrounds who did not take the AP course. Additionally, students who had scored a ‘5’ on the AP exam scored a ‘B’ or below for the class instead of the assumed college grade of ‘A’ in the same subject. In response, students who had passed the exam as well as those whose scores did not meet the department’s requirement were advised to enroll in the college’s introductory science course to strengthen their knowledge. Typically, AP students who pass the AP science exam are thought to have mastered an equivalent college course level. However, these findings question the validity of awarding college credits to AP students when the difference between those who pass the AP exam and those who do is minuscule (Sadler, 2009).
Gillum and Toppo (2010) reported that 2.9 million AP exams were administered to students in the United States, however, but 41.5% of students did not receive a passing score. Especially high failure rates were seen with students in the south; 48.8% failed to achieve a passing score. These findings raise concerns about whether schools are forcing millions of students into AP courses without being adequately taught the required material to pass these rigorous exams.

AP courses are not a strong predictor of college success (Klopfenstein and Thomas, 2005). However, students who pass AP exams are more successful in college than are students who only take the AP courses.

**International Baccalaureate Criticism**

Critics of the IB program contend that IB exams, although subsidized for low income students, remain costly; thus, the IB program tends to cater to students from high socioeconomic backgrounds (Borland, 2003; Ford, 2003). For secondary schools to be considered for IB authorization, they must pay about $10,000 in application fees (this does not include travel and other costs of sending teachers and coordinators to specialized 3-day professional-development courses, which costs $1,000 per person). Once authorization is granted, IB high schools must pay $8,850 annual fees and middle and primary schools must pay $5,220 annual fees. This can become costly for schools, as some have more than one IB program, (e.g., Primary Years Program (PYP), Middle Years Program (MYP), and the Diploma Program (DP)). Schools pay additional fees per student and per subject. These additional
costs do not include mailing expenses for exams that have to be mailed physically to overseas graders (IBO, 2010).

Another criticism is that the IB program is not as flexible in its course offerings as the AP program. Individual IB courses are not allowed in schools without the adoption of the IB program in its entirety. This requirement is the reason why more schools opt for AP courses than IB courses. The College Board (2010a) reported that 32.6% of American public schools offer AP and 28.3% offer IB courses in the four core subject areas: English language arts, mathematics, science, and social studies.

**Statement of the Problem**

Advanced placement and IB programs have existed since the mid 1950s and the number of schools that are adding these programs is on the rise (Chen, 2009). While the perception of these two programs is positive, data from several studies have indicated that AP and IB courses are not the strongest predictors of college success. American high school students are increasingly taking AP and IB courses based on a wide, popular belief that these courses will guarantee them successful completion of college; however, research shows otherwise. For example, some studies have suggested that AP and IB courses have no effect on college grades. However, the strongest predictors of success in college are high school GPA and SAT II scores (Dougherty, Mellor, & Jian, 2006; Geiser & Santelices, 2004; Klopfenstein & Thomas, 2005).
Although AP and IB programs are different in terms of instruction and content, this researcher did not find literature that indicated whether academic outcomes of these programs were the same or whether one program produced higher academic achievement on the SAT II: Subject Tests (SAT II). Eleventh and twelfth grade students who seek admission to a 4-year college take SAT II: Subject Tests (SAT II). The SAT II was created by the College Board and has been administered since 1937 to measure a student’s knowledge in individual subjects such as English (writing or literature), history and social sciences, mathematics (various levels), sciences, and languages (Chinese, French, German, modern Hebrew, Italian, Japanese, Latin, Spanish, and English). SAT II Subject Tests are not required by most universities (except in California). The researcher is attempting to add to the existing body of knowledge and find which program is more effective than the other (IB vs. AP).

**Purpose and Significance of the Study**

The purpose of this study was to compare student academic achievement of two college readiness programs, Advanced Placement (AP) and International Baccalaureate (IB). Further, the study attempted to determine whether the two programs are predictors of student performance on the SAT II and identify other variables that may contribute to performance on the SAT II. Finally, this study attempted to seek the opinions of AP and IB students regarding program effectiveness.
The results of this study may be beneficial to secondary and post secondary educators in selecting and implementing college preparation programs. Parents are another group that may benefit from the findings of this study. Parents are often unsure of which program will help their child achieve high marks in college; hence, the data attained from this study may offer information that is more reliable and share other factors that contribute to success in college.

Finally, the results from this study may cause the College Board and IOB to reconsider their respective curricula and make revisions that have the potential to improve test performance on the SAT II and student opinions regarding college readiness.

**Research Questions and Hypotheses**

**Research Question #1**

What is the difference in achievement between high school students who are enrolled in IB and high school students who are enrolled in AP?

**Hypotheses 1a.** There is no significant difference in mathematics achievement on the SAT II between 12th grade students who are enrolled in an IB program and 12th grade students who are enrolled in an AP program.

**Hypotheses 1b.** There is no significant difference in English achievement on the SAT II between 12th grade students who are enrolled in an IB program and 12th grade students who are enrolled in an AP program.
Hypotheses 1c. There is no significant difference in mathematics GPA between 12th grade students who are enrolled in an IB program and 12th grade students who are enrolled in an AP program.

Hypotheses 1d. There is no significant difference in English GPA between 12th grade students who are enrolled in an IB program and 12th grade students who are enrolled in an AP program.

Research Question #2

Compared to other variables, how much do college preparation programs influence performance on college entrance exams?

Hypotheses 2a. Participation in an AP or IB program has a greater influence on SAT II scores in English than do other variables including gender, SES, parents’ levels of education, and GPA.

Hypotheses 2b. Participation in an AP or IB program has a greater influence on SAT II scores in mathematics than do other variables including gender, SES, parents’ levels of education, and GPA.

Research Question #3

Is there a significant difference in student opinions regarding the effectiveness of IB and AP programs on rigor of courses, college preparation, and career endeavors?

Hypotheses 3. There is no significant difference in the distribution of survey responses regarding program effectiveness between IB and AP students.
Definition of Key Terms

The following terms are used in this study. These terms are related directly to this study and will be used throughout the research.

**Advanced Placement (AP).** Courses that are offered by school districts and approved by the College Board. The AP program currently offers 31 courses and exams across 22 subject areas: Art History, Biology, Calculus AB, Calculus BC, Chemistry, Chinese Language and Culture, Computer Science A, Macroeconomics, Microeconomics, English Language, English Literature, Environmental Science, European History, French Language and Culture, Italian Language and Culture, German Language and Culture, Comparative Government and Politics, U.S. Government and Politics, Human Geography, Japanese Language and Culture, Latin Literature, Latin: Vergil, Music Theory, Physics B, Physics C, Psychology, Spanish Language, Spanish Literature, Statistics, Studio Art, U.S. History, and World History. Due to under enrollment, the College Board will be eliminating Computer Science AB, French Literature, and Latin Literature (College Board, 2011).

Advanced Placement consists of examinations administered each year in May and that represent the culmination of college-level work in a given discipline. Completed AP examinations are scored on a numeric scale from 1 to 5. Students who earn qualifying scores on AP examinations may obtain course credit or placement at colleges and universities. However, policies regarding the acceptance of AP exams or the scoring level required for course credit or placement vary among colleges or universities. Individual colleges and universities, not the College Board or the AP test
program grants course credit and placement (California Department of Education [CDE], 2011).

**International Baccalaureate (IB).** A two-year comprehensive pre-university curriculum leading to an IB diploma. Successful IB students are granted advanced placement credit at Ivy League universities and non-Ivy colleges. Students who participate in the full diploma program are actively engaged in a liberal arts curriculum that includes enhancement of critical thinking skills, participation in extracurricular activities and community services, and development of a research paper (CDE, 2011).

**SAT II: SAT Subject Tests (SAT II).** A test that assesses student knowledge in individual subjects such as English (writing or literature), history and social sciences, mathematics (various levels), sciences, and languages (Chinese, French, German, modern Hebrew, Italian, Japanese, Latin, Spanish, and English). The SAT II Subject Tests is not required by most universities (except in California). The SAT II consists of two tests, writing and mathematics Level 1 or Level 2, plus a third subject test of the student's choosing; scores on the three tests are totaled for a final score.

Each subject test lasts one hour and consists entirely of multiple-choice questions, except for the Writing Test, which consists of a 20-minute essay section in addition to a 40-minute multiple-choice section. The maximum possible composite score on the SAT II is 2400. The SAT II is offered six times a year, usually in October, November, December, January, May, and June. The SAT I and SAT II are
held on the same day at the same time. Students cannot take both exams on the same administration date (College Board, 2010a).

**SAT II-Math IIC.** A one-hour, 50 multiple-choice question test. The exam is broken into approximately 10-14% numbers and operations, 48-52% algebra and functions, 28-32% geometry (coordinate, three-dimensional, and trigonometric geometry; plane geometry is not directly tested), and 6-10% data analysis, statistics, and probability (College Board, 2011).

**SAT II-English Literature.** A one-hour, 60 multiple-choice question test. The exam contains about six to eight passages (half are prose and half are poems) (College Board, 2011).

**Socioeconomically Disadvantaged.** Students whose parents have not received a high school diploma or students who are eligible for free or reduced-price lunches under the National School Lunch Program (CDE, 2011).

**Weighted courses.** High school courses that provide an extra grade point, which allows students to earn a grade point average above the traditional perfect average of 4.0. Students enrolled in AP and IB classes receive extra GPA points, thus, their maximum GPA is 5.0; whereas, the unweighted GPA is 4.0 points.

**Introductory courses.** College freshmen general education and prerequisite courses. Advanced Placement and IB students may receive credit for this coursework taken at the secondary school level.

**No Child Left Behind Act of 2001 (NCLB).** Federal legislation that supports the theories of standards-based education reform. Pursuant to 20 USCS §
NCLB, the Act ensures that all children have a fair, equal, and significant opportunity to obtain a high-quality education and reach, at a minimum, proficiency on challenging state academic achievement standards and state academic assessments. NCLB mandates that 100% of students (including special education students and those from disadvantaged backgrounds) within a school become proficient in mathematics and reading by the year 2014.

**Theoretical Foundations**

Progressivism, social constructivism, and communal learning are the three educational theories that make up the theoretical framework of this study. Progressivism has never been the predominant philosophy of American education. This is largely because state educational systems in the 1830s were primarily concerned with achieving cultural uniformity, not diversity. Additionally, the American education system at its infancy was focused on teaching basic skills such as reading and mathematics to prepare most students for vocational occupations (“The 1930s,” 2001). Until WWII, the mission of public schools emphasized vocational training to support the expanding industrial work force. After WWII, parents and concerned citizens wanted to graduate students who were committed to perpetuating America’s new status as a superpower; hence, college preparatory programs such as AP and IB were established (Nugent & Karnes, 2002). John Dewey saw a need to educate the young people in the art of democratic participation. From 1899 to 1916, Dewey conveyed this progressive idea. The Progressive Education Association was
founded in 1919 and aimed to make schools effective agencies of a democratic society (Dewey, 1912; 1916; 1938).

Progressivism is based on the study of natural and social sciences where teachers expose students to new scientific, technological, and social developments, they are reflecting the progressivist notion that progress and change are fundamental. In a progressive classroom, students solve problems similar to those they will encounter outside of the classroom, and they learn to be flexible problem solvers (Cohen, 1999).

Dewey, the leader of progressive educators, fought the notion that academia was for the selected few and vocational training was forced upon the masses. Progressive education generated a larger following when William H. Kilpatrick and other students of Dewey began to teach these principles to future teachers and administrators at various teachers’ colleges (Graham, 1967). However, the Cold War of the 1950s overshadowed this movement for a short time until groups of educators revived the progressive movement in the 1970s and 1980s. Progressivism was the rationale behind open classrooms, schools without walls, cooperative learning, multiage approaches, whole language, social curriculum, experiential education, and numerous forms of alternative schools (Lave & Wenger, 1991).

The progressivist curriculum mirrors the descriptions of AP and IB curricula as cited by the College Board and the IBO (2010). For instance, AP and IB students are taught rigorous, advanced mathematics and science by teachers who allow them to think outside of the box, gain field experience, use the text as a resource instead of
a source, and engage and manage their school and community environments to become active citizens of their world (Byrd, 2007; Kim, 2006).

Progressivists argue that learning is a progressive activity that is focused on improving personal knowledge; yet, knowledge building is the constant manipulation of all factors that encompass an idea from its strengths to its weaknesses and its applicability to limitations (Lamon, Reeve, & Scardamalia, 2001). Knowledge building is described as a constant and meaningful course of action toward improving upon ideas that are valued by the community with the understanding that the outcome generated by this collaborative effort will be greater than the sum of a single contributor (Scardamalia & Bereiter, 2003).

Vygotsky's constructivist theory, which is often called social constructivism, is based on the belief that culture supplies students with the cognitive tools necessary for development. This theory emphasizes the importance of culture and the social context for cognitive development. The major theme of Vygotsky's work is that social interaction plays heavily in the development of cognition (Vygotsky, 1934/1962).

According to Bruning, Schraw, Norby, and Ronning (2004), “The core of Vygotsky’s theory is that higher mental functions have their origin in social life as children interact with more experienced members of their community, such as parents, other adults, and more capable peers” (p. 197). This type of active interaction promotes a venue where meaning is negotiated within the community for better understanding and retention. This practice also allows a forum for the
individual to develop strong critical thinking skills and deductive reasoning, especially in language learning. Under this educational philosophy, AP and IB teachers require their students to perform a certain amount of community hours (IBO, 2011; College Board, 2011).

The third teaching philosophy, communal learning, induces knowledge building beyond simple learning without understanding. The definition of knowledge asserts that meaning is negotiated within a social discourse community as it communicates, makes use of symbols and tools, and organizes its belief systems. For students to obtain this knowledge, they must become active members of this social group or community. As students immerse themselves in the community, they become a part of it (Hewitt & Scardamalia, 1998). Communal learning parallels what IB teachers strive to instill in their students.

According to Bruning et al. (2004), a community of learners is a group of individuals who collectively gather to share their resources and manipulate knowledge in a matter that will increase and build on current knowledge. This type of instruction is similar to the design and operation of AP and IB programs. Additionally, this type of knowledge collaboration leads to knowledge building, which is different from simply learning. In AP and IB classrooms, students engage in intense discussions, solve problems collaboratively, perform project-based experiential work, and learn to write clearly and persuasively. This holistic approach embodies AP and IB programs (Dairty, 2001).
Summary

Chapter I provided a brief overview of the AP and IB programs. The rapid increase of AP and IB programs in American’s public high schools requires a study of their effectiveness in meeting state and federal goals that involve increasing opportunities for students to attend college. These programs have expanded since their inception in 1950s and 1960s; however, their effectiveness has received limited attention.

Chapter II provides a review of the literature related to the topic of this study. Chapter III describes the research design, sample population, instrumentation, procedures followed for collecting data, and the methods that were used to analyze the collected data. Chapter IV synthesizes and reports the results of this study, and Chapter V discusses themes that emerged from the research questions and implications for the educational community.
CHAPTER II

REVIEW OF LITERATURE

The purpose of this study was to compare the student academic achievement in two college readiness programs, Advanced Placement (AP) and International Baccalaureate (IB). Further, the study attempted to determine whether the two programs are predictors of student performance on the SAT II and identify other variables that may contribute to performance on the SAT II. Finally, this study attempted to seek the opinions of AP and IB students regarding program effectiveness.

The literature review is organized into four parts: (1) Background of the Advanced Placement Program, (2) Background of the International Baccalaureate Program, (3) Characteristics of Students Who Enroll in Advanced Placement and International Baccalaureate, (4) Perceived Benefits, (5) Research on Advanced Placement, and (6) Research on International Baccalaureate.

Background of the Advanced Placement Program

Prior to the 1940s, college education was reserved for students who were mostly male, White, and belonged to upper or middle class families. There was rarely financial aid or scholarships available to assist those who were less fortunate (Rudolph, 1990). Therefore, higher education was out of reach for most African-Americans, women, and low-income families (Bonner, 1986). However, WWII (1939-1945) began to alter this mass-produced image of the college student.
Specifically, WWII heightened the significance of science and technology and made the ongoing development of expertise in these areas a national priority. Americans saw themselves as a superpower, hence, they wanted the brightest from all socioeconomic backgrounds to have an educational edge in meeting the needs of the rapidly changing world. In particular, WWII increased middle class access to higher education (Ravitch & Vinovskis, 1995; Reese, 1986).

In 1900, Nicholas Murray Butler, Dean of the Faculty of Philosophy at Columbia University, founded the College Entrance Examination Board, commonly referred to as College Board (a non-profit organization based in New York). He sought to establish continuity among subjects taught at the university level, thus, secondary school teachers would know the appropriate course content required of their college bound students (College Board, 2001a, 2002).

After much dialogue with several educators from various American universities, an entrance exam was created that articulated uniformity of standards. The exam was administered on the same date and time to secondary education students across the United States. The exam was intended to facilitate better articulation between secondary and higher education, establish a uniform method of fairness for college admission, and simplify the transition process from high school to college (College Board, 2002).

The College Board adhered to changing higher education policies, reassessed its mission, and devoted more effort toward reducing barriers to access. In 1937, the entrance exam, Scholastic Aptitude Test (SAT), had become more accepted as a tool
to measure students’ readiness for college. Thus, in 1941, the College Board published a college handbook that illustrated a concise road map for potential college students. Nevertheless, frustration at the college level was expressed because some colleges and universities perceived aptitude exams as a more reliable measurement than common courses (Bowles, 1967). Following WWII, the College Board diligently worked to establish a common curriculum among colleges and universities, and the American public demanded an educated workforce that could support and maintain the new role of America as a superpower. In concert with American sentiment, the Ford Foundation established the Fund for the Advancement of Education to prepare high-achieving American students for the future (Rothschild, 1999). By 1951, the College Board had become a well-accepted and respected organization that had successfully simplified the transition between secondary and higher education (Lawrence, Rigol, Van Essen, & Jackson, 2002).

The Ford Foundation for the Advancement of Education sponsored two projects to enhance the educational experiences of high achieving secondary school students. One project involved administrators, professors, and teachers from three elite prep schools (Andover, Exeter, and Lawrenceville) and three Ivy League colleges (Harvard, Princeton, and Yale) who met in October of 1951 to compare the last two years of high school course-load curricula and the first two years of college preparation courses (College Board, 2001b). Under the leadership of Alan R. Blackmer, an Andover English teacher, the Committee published a report, *General Education in School and College*, through the Harvard University Press in 1952.
The published report stated that general secondary education and college preparation courses overlapped and did not have the rigor to that could successfully prepare high school students for college. Consequently, the committee strongly recommended that schools and colleges collaborate and design high school courses that required the same rigor as college coursework (College Board, 2001b).

Additionally, secondary schools were encouraged to recruit innovative teachers to engage high achieving juniors and seniors in more independent college-level work. Educators also recommended that high school students be administered achievement exams to validate their mastery of advanced-level course content as a condition of earning college credit (College Board, 2002).

The Ford Foundation funded a parallel project headed by Gordon Keith Chalmers, President of Kenyon College. Chalmers led a committee of representatives from 12 colleges and 12 secondary schools to address the same problem but from a different direction. This committee, the School College Study of Admission with Advanced Standing (SACSAAS), developed college freshmen level curricula and standards that college faculty would accept even if the courses were taught in high school (Rothschild, 1999).

The committee discussed the most practical length of the undergraduate experience and graduation requirements. In 1951, presidents and deans from 11 colleges (Bowdoin, Brown, Carleton, Haverford, Kenyon, MIT, Middlebury, Swarthmore, Wabash, Wesleyan, and Williams) met in Washington, DC to explore the project that was eventually called the Kenyon Plan (Rothschild, 1999).
In spring of 1952, a 12th college, Oberlin, joined the group. The committee then followed the recommendations of both studies and recruited higher education leaders in every discipline. These leaders took on the challenge of developing high school course descriptions and assessments that the 12 colleges found rigorous enough to use as a basis for granting credit. The two Ford Foundation initiatives prompted the development of the Advanced Placement (AP) Program in 1952. The program initially offered 11 subjects in 104 high schools and 130 universities as a way of connecting high schools with colleges and challenging top students (Callahan & Hertberg, 2008; Rothschild, 1999).

In 1955, the Committee of Admissions invited the College Board to assume control of the AP program. The College Board took over and expanded the program. Specifically, the College Board focused its efforts on providing teachers with high quality training and ensuring that AP courses and exams were equivalent to college coursework and assessment. During the 1960s, the College Board began a long-term commitment to professional development by holding workshops for AP faculty consultants and summer institutes for secondary teachers (College Board, 2010b).

By the 1990s, the College Board had widened its scope to include minority and low-income students. Additionally, the Board had introduced pre-AP programs, including AP vertical teams and building success workshops for teachers to help students gain the necessary study skills required to succeed and become eligible to register for AP classes. Vertical teams consisted of teachers from different grade levels who developed and implemented a prerequisite curriculum (lower division
In 2008, the College Board reported a total of 12,323 American public high schools that offered AP courses. Students enrolled in AP courses in high school and who take AP exams may earn college credit for scores above a minimum threshold. Currently, 37 AP exams are offered by the College Board, and schools that offer AP programs tend to have at least ten different AP courses. In 2010, over 1.5 million students in the United States had taken at least one AP exam; this is more than double what occurred 10 years prior (College Board, 2010a).

Advanced Placement students determine whether they will take the annually exam, therefore not every AP student will take AP exam. Students who do take the exam sit for two sections; the first section is a multiple choice and the second section is a free response (written). Each exam lasts 2 to 3 hours depending on the subject. Additionally, AP exam scores are a weighted combination of the student’s score on the multiple-choice section and the free response section. The summative performance is reported on a 5-point scale (5 = extremely well qualified; 4 = well qualified; 3 = qualified; 2 = possibly qualified, and 1 = no recommendation (College Board, 2010b).

The multiple-choice section is computer scored and “readers” who include AP trained teachers and college professors evaluate the free response section. The AP exam scores are reported to colleges where students have applied (up to five colleges of their choice without additional charges) and are sent by mail to students and their
high schools in mid July. Students may receive their scores on July 1st by phone for a fee of $8. Furthermore, AP allows students to request a rescoring of the multiple-choice section for a fee of $25 per exam (Callahan & Hertberg, 2008; College Board, 2008a).

The College Board has no power over how colleges and universities grant credit or place students in freshmen college-level courses. The nature of these policies is the prerogative of the universities. Generally, most colleges and universities consider a score of 3 (qualified) sufficient for college introductory-level course credit (Johnson, 2005). However, Ivy League institutions, such as Stanford, only accept a perfect score of 5 (extremely well qualified) to grant test credit for college introductory courses (Stanford University, 2009).

There is no limit to the amount of exams students may take, and students who do not enroll or pass an AP course are still permitted to take the respective AP exams. Furthermore, students who have documented disabilities can receive accommodations on the AP exams, which include extended time, large-print exams, and Braille. Finally, students must pay $87 per AP exam. The College Board provides a $22 reduction for financially disadvantaged students (College Board, 2008b), and most states offer additional fee reduction programs to make exams more affordable for low-income students (College Board, 2008b). For instance, California’s Assembly Bill 2216 created a grant that covers the costs of AP exam fees for economically disadvantaged students. The grant program permits students of low-income families
to pay only $5 for each AP exam while the remainder of the cost is reimbursed through federal grants and state funds (Cal Ed. Code § 52240).

The most important achievement of the AP Program is the inspiration of students to learn. Students throughout the United States find AP courses stimulating and challenging. Furthermore, many American colleges offer students who score a 3 or higher on AP exams college credits or the opportunity to register for higher-level college courses. Studies have also shown a strong correlation between AP exam success and college success. College students who participate in AP courses and pass AP exams in high school earn higher GPAs and are more likely to graduate than are students who take only AP courses but do not take or pass the AP exam (Camara, 2003; Hargrove, Godin, & Dodd, 2008).

**Background of the International Baccalaureate Program**

Early in the 1920s, European educators were interested in establishing an international high school program and college entrance examination that would be accepted by colleges and universities worldwide. In 1925, International School of Geneva/Ecole Internationale de Geneve (Ecolint) introduced the idea of the International Baccalaureate program. The idea was discussed, but nothing ensued. Educators reintroduced the concept in 1948 at the Conference of Internationally-Minded Schools (Walker, 2004; Peterson, 1987; Hayden & Wong, 1997).

The IB program did not fully take shape until 1961. Faculty and administrators at Ecolint, with the help of the International Schools Association (ISA), organized a conference to examine the social studies curricula in international
schools. The United Nations Educational, Scientific, and Cultural Organization (UNESCO) funded the conference. Conference members were successful in establishing an international social studies curriculum, thus, in 1965, the ISA was able to secure additionally, more funds from UNESCO to establish a separate organization that focused on developing a comprehensive, encompassing international high school program and college entrance examination.

The resulting organization was named the International Schools Examination Syndicate (ISES) (Walker, 2004; Peterson, 1987; Hayden, 1997) and included the ISA, Ecolint, European Office of the Carnegie Endowment for World Peace, and Oxford University. By securing funds from UNESCO and the Twentieth Century Fund, the organization established an international curriculum that was composed of various academic traditions and standards from different countries. The curriculum consisted of several general subject areas and students could choose at least one course per year from each subject area (Walker, 2004; Peterson, 1987; Hayden, 1997).

The first draft of a common, international curriculum was presented at the Curriculum Conference in Geneva in March 1965. A year later, during the second curriculum conference, the ISES included educators from the United Nations International School in New York and the College Board. Subsequently, the ISES was renamed the International Baccalaureate Organization (IBO) (Walker, 2004; Peterson, 1987; Hayden, 1997).

It took the IBO a year to construct a well rounded international curriculum and examination system, secure partnerships with universities worldwide that would
accept results of the IBO examinations for admission, garner agreements from several schools to teach the IBO curriculum on their campuses, obtain acceptance of the program from parents whose children would be taught using the IBO curriculum, and acquire adequate funding to maintain the program. In 1967, the IBO unveiled its complete curriculum at the final Curriculum Conference. Three years later, the first group of IB graduates, 29 students in all, successfully exited the program and used the examination results for college entrance (Walker, 2004; Peterson, 1987; Hayden, 1997; IBO, 1997).

The IB is a comprehensive 2-year program composed of a common introductory college curricula and a common set of external examinations (in all disciplines except science). The program included six academic areas from which students choose classes: Group 1 (First Language), Group 2 (Second Language), Group 3 (Individuals and Societies), Group 4 (Experimental Sciences), Group 5 (Mathematics and Computer Sciences), and Group 6 (The Arts) (IBO, 1997).

First Language courses include a study of world literature in the students’ native language. Each course provides students with opportunities to develop their oral and written communication skills and learn how to evaluate, analyze, describe, and interpret literary works. Second Language (foreign language) courses provide instruction in a language other than the students’ native language.

Courses in the subject area of Individuals and Societies consist of economics, geography, history, philosophy, psychology, social and cultural anthropology, business and management, Islamic history, and information technology in a global
society. Experimental Science courses consist of biology, chemistry, physics, and environmental systems. Mathematics courses allow students to study a specific topic in depth or enhance their understanding of other mathematics subjects. Computer Science courses teach students about the range and organization of computer systems as well as the use of computers in a wide range of disciplines, applications, and contexts. Courses in the Arts include visual arts, music, and theater and allow students to learn to express themselves artistically and explore art forms from different cultures (Koetzsch, 1997).

The IB program offers 129 courses in six core subject areas in 120 countries. Almost all courses are two years in length, and teachers design their syllabi according to IB stipulations. Students who complete the IB diploma program take exams in all six subject areas, which are scored on a scale of 1 to 7. During the 1995-96 academic year, 775 students participated in the IB Program (Gazda-Grace, 2002).

Students select one subject from each of five groups; hence, they gain a comprehensive knowledge in languages, social studies, experimental sciences, and mathematics. The sixth subject may be in fine arts (selected from group 6), or students may choose a subject from groups 2 through 5. A minimum of three and no more than four courses are taken at the higher level (HL) (similar to upper division level coursework), the other courses are at standard level (SL) (similar to lower division coursework) (IBO, 2010).

Students need 240 hours of HL courses and 150 hours of SL. Additionally, students are recommended for college credits if they receive an exam score of 4 or
higher on a 7-point scale. Successful IB participants receive an IB diploma at the end of the program journey. A score of 6 or 7 on HL courses secures credit at most colleges or universities; however, SL courses do not secure any college credit. High school IB teachers are hand-picked by the school’s administrators. Selected teachers attend three 6-day workshops and submit projects, taped oral exams, lab books, and papers to be scored by world-examiners (IBO, 2010).

The IB courses are also known as the six academics that revolve around a core curricula that consists of three elements: Theory of Knowledge (TOK); Creativity, Action, and Service (CAS); and Extended Essay (EE) (Nugent & Karnes, 2002). According to Gazda-Grace (2002), “Theory of Knowledge encourages students to think about the interconnectedness of the disciplines as well as the epistemology of each subject area” (p. 84).

The first element, Theory of Knowledge (TOK), is concerned with motivating students to critically reflect, re-evaluate, and challenge previously held assumptions, prejudices, and biases. Theory of Knowledge also encourages students to become more culturally aware by examining their perspectives through a new lens. A sample TOK essay prompt usually contains an abstract quote such as the following: “A historian must combine the rigor of the scientist with the imagination of the artist.” With this prompt, IB students would be required to write a clear, concise evaluative 1,600-word essay that answers the following questions: “To what extent, then, can the historian be confident about his or her conclusions?” (IBO, 2002).
The second element of the IB program, Creativity, Action, and Service (CAS), provides students with a counterbalance to academic studies. The creativity component encompasses numerous types of art activities and encourages students to demonstrate their creativity by designing and implementing service projects. Action requires IB students participating in some type of physical exertion such as individual or team sports as well as taking part in expeditions and local or international projects. Service entails student participation in various community and social service volunteer activities. Helping children with special needs, visiting hospitals, and working with refugees or the homeless are some examples of CAS activities. Of note, IB students are expected to allocate at least three hours each week for CAS activities (IBO, 2010).

The final element, Extended Essay (EE), requires students to develop a 4,000-word in-depth research paper. The paper requires IB students to select a topic of study and formulate, analyze, synthesize, and evaluate the information collected for the research. During the writing process, IB students are assigned an advisor for guidance and support. Advisors are usually IB teachers from the students’ school sites (IBO, 2010). The IB curriculum is illustrated in the shape of a hexagon with the aforementioned three elements in the center with the six disciplines that build on the core surrounding it (Nugent, 2002).
To graduate from the program, students take external exams that are offered in three formats: short-answer, longer-answer, or essay IB exams (not classroom exams). Furthermore, students must participate in community service projects, such as helping children with special needs, visiting hospitals, or working with the homeless. The exams are not free and only students who are enrolled in IB courses are allowed to take IB exams. Currently, first time students (usually junior year students) must pay a $141 registration fee and $96 per IB exam by October 15, for a total of $237. Seniors typically pay $480 (5 exams x $96) and a late fee of $25 if registration is received after October 15th. International Baccalaureate diploma
students (who take HL classes) pay the registration fee only once, but IB certificate students (who take SL classes) must pay the registration fee every year (Cal Ed. Code § 52240). Low-income IB students can receive fee waivers. For instance, in California, economically disadvantaged students pay only $5 while the remainder of the cost is reimbursed through federal grants and state funds (Cal Ed. Code § 52240). International Baccalaureate certificates are issued whether students pass or fail the exams; students receive an IB certificate as long as they submit the test fee and write their name on the test.

International Baccalaureate exams are scored by external examiners worldwide. Unlike AP, IB exams cannot be rescored and IB charges a fee of $12 for each school that a student wishes to have the exam scores mailed. However, students are allowed one free submission to a U.S. university. Students do not receive the IB diploma document until October, typically after they have begun their freshmen at a university. Another noticeable difference between AP and IB is that the IB exams are “light on multiple-choice questions and heavy on written essays” (Dwyer, 2006, p. B17).

**Characteristics of Students Who Enroll**

Advanced Placement students are predominately high achievers, motivated, and dedicated to school work. They usually can multitask, prioritize activities, meet deadlines, prepare, and organize. Additionally, AP students can write and read proficiently, and these students earn much higher 8th grade test scores and higher academic achievement compared to average students. Any student who wants to
enroll in AP classes can do so; however, high schools have limited number of spaces and specific academic requirements; thus, only the highest academic achievers typically get in AP classes (Geiser & Santelices, 2004).

According to the 7th Annual AP Report to the Nation on the public school graduating class of 2010, 16.8% of AP students were Hispanic or Latino; 14.6% were Black or African American; 1.1% was American Indian or Alaska Native; 5.5% were Asian, Asian American, or Pacific Islander; and 60.5% were White (College Board, 2011). The AP examinee population was 16.8% Hispanic or Latino students; 8.6% Black or African American; 0.6% American Indian or Alaska Native; 10.2% Asian, Asian American, or Pacific Islander; and 57.9% White. Additionally, the report indicated that, across ethnicities, females are the dominate participants in the AP program (all ethnicities, 61% female v. 39% male; American Indian or Alaska Native, 58% female v. 42% male; Hispanics or Latinos, 59% female v. 41% male; and Black or African American, 63% female v. 37% male).

International Baccalaureate students exhibit similar character traits as AP students. According to the IBO (2004) IB students are self-motivated, have significant family support, and have the desire to challenge themselves intellectually and academically. Furthermore, IB students are competent readers, and speak and write the English language clearly and effectively (IBO, 2010). International Baccalaureate students are committed to acquiring analytical and critical thinking and adequately managing and prioritizing their time with the least amount of stress. Further, students are open-minded and willing to commit 150 hours to CAS (Creativity, Action, and
Service). For instance, Callahan and Hertberg (2008) found that these students are driven within, earn high academic scores on California Standards Tests, and are committed to put forth their best effort.

As of 2008, IB annual reports indicated the following ethnic breakdown of student participation: 59% White, 10% Black, 12% Hispanic, 16% Asian or Pacific Islander, and 3% no response. Furthermore, 15% of students were low-income as measured by their eligibility to receive free or reduced price lunch (IBO, 2008).

### The Perceived Benefits

According to Conley (2005), “The single most important factor in determining college success is the academic challenge of the courses students take in high school” (p. 38). Advanced Placement and IB are two of the most popular and demanding college readiness programs. Additionally, AP and IB programs offer qualified students the opportunity to take rigorous college level courses in high school that are instructed by trained, motivated teachers. These programs also set higher learning standards and expectations for participating students (Curry, MacDonald, & Morgan, 1999; Santoli, 2002). Teachers of AP courses are creative and work outside the box to academically, mentally, and emotionally support and challenge students to meet the high expectations and standards of these courses (College Board, 2009; IBO, 2007).

Students in AP and IB programs are taught in homogenous classrooms with like-minded and highly capable peers. Teachers instruct in a fast-paced engaging manner. Hence, students receive an in-depth and rigorous learning experience of the each subject taught. Students are also constantly challenged with abstract, 3-
dimensional philosophies and scholarly projects that hold their interest, thus, they do not find themselves sitting at their desks with nothing to do (Callahan & Hertberg, 2008). Finally, schools that offer AP or IB programs have community, state, and nationwide reputations. For instance, Newsweek publishes annual rankings of the 100 best high schools in America. Schools that are ranked high usually have AP and IB programs (Santoli, 2002).

In addition to the positive learning environment these programs offer, AP and IB programs also allow students to satisfy the public high school graduation criteria and earn college credit. Additionally, these college level academic courses are ‘weighted,’ which boosts Grade Point Average (GPA). Research also indicates that AP and IB students have a higher retention rate in college completion and most colleges grant credit, upper-level course placement, or both for qualifying AP and IB exam grades (California Postsecondary Education Commission [CPEC], 2005).

Teachers also benefit from AP and IB programs. For instance, the College Board provides AP teachers training through subject-specific summer institutes. These summer institutes allow AP teachers to share and exchange instructional ideas with other AP course teachers. While teacher training is not required by the College Board, districts that want state subsidies for program costs must send their teachers to the College Board training. Unlike AP, the IB Program requires IB teachers to attend an IB-certified professional development program and states provide funding for this training (College Board, 2010b; IBO, 2010). For example, California allocates $1.05 million to fund professional development and materials that are shared
among the schools in the state’s IB network. Other states focus funding for professional development in subject areas such as mathematics and science where credentialed teachers are needed (Lerner & Brand, 2008).

The College Board offers several other incentives to persuade AP teachers to attend AP professional development workshops that are offered throughout the year and during summer (Callahan & Hertberg, 2008). For example, Texas provides a $450 reimbursement for training costs (to cover the attendance of an AP Summer Institute). Minnesota pays AP instructors approximately $650 for tuition and college credit plus an additional $200 for room and board. Florida awards teachers $50 for each student who scores ‘3’ or better on an AP exam and teachers who instruct in low-performing schools are awarded $500 for each student who scores ‘3’ or better on an AP exam (Callahan & Hertberg, 2008).

**Research on Advanced Placement**

Multiple studies have concluded that even students who do poorly on AP tests in high school (i.e., score a 3 or lower), more likely to attend college and graduate from college than students who did not take AP courses in high school (Callahan, 2003; Matthews, 2005; Santoli, 2002).

Dougherty et al. (2006) conducted a study to compare college graduate notes between students who take AP courses and those who do not take AP courses. The researchers tracked a statewide cohort of 67,412 eighth grader students who graduated from high school in Texas. These students enrolled in Texas public
colleges or universities within the first 12 months of graduating from high school in 1998. The authors collected data from 1998 to 2003 for this longitudinal analysis.

First, students were followed from 8th grade to control for academic preparation prior to entering high school. Second, the researchers disaggregated students by ethnicity (African American, Hispanic, White, and Other-Asian and Native American), as well as by income (low- and non-low-income student groups) to examine the relationship of AP to college graduation for each group. Third, students were divided into four groups: (1) Passed AP Exam- Students who took and passed at least one AP exam, (2) Took, Did not Pass AP Exam- Students who took one or more AP exams but did not pass any, (3) Took AP Course, Not AP Exam- Students who took at least one AP course but did not take any AP exams, and (4) Took No AP Course or Exam- Students who took no AP courses or exams.

The researchers compared college graduation rates of AP and non-AP students. Using descriptive statistics, Dougherty et al. (2006) found that 64% of the 5,549 (p<.01) high school students who received a score of 3 or higher on one or more of their AP exams were more likely to graduate from college in five or less years. The researchers also compared college graduation rates of AP and non-AP students after controlling for student demographics. Using a hierarchical linear modeling (HLM) regression analysis, Dougherty et al. found that AP student graduation rates were higher than were the rates of non-AP students after controlling for student demographics (African-American and Hispanic 28%, White 33%, low-income 26%, and non-low income 34%). Finally, the researchers examined the
relationship between the percent of students who passed AP exams and the percent who graduated from college based on student demographic factors. Using ordinary least squares (OLS) regression at the school level, Dougherty et al. found a statistically significant relationship between passing the AP exam and college graduation (Hispanic .27, White .19, low-income .32, and non-low income .23; \( p < .01 \)).

Geiser and Santelices (2004) examined the role of AP and other honors courses in predicting the college performance of four student cohorts who entered the University of California (UC) between 1998 and 2001. The sample included 81,445 students who enrolled as first-time freshmen at any of UC’s eight undergraduate campuses during that 4-year period. Geiser and Santelices used a regression analysis to determine the extent to which student grades and persistence in college could be predicted or explained by AP and honors coursework in high school when other factors were held constant. Findings revealed that high school GPA had the strongest predictive weight (.25), followed by SAT II scores (.16), parents’ education (.08), school API quintile (.05), and SAT I scores (.04) – all of which are statistically significant at the 99% confidence level. However, number of AP or honors courses (.01) had no statistically significant predictive weight. The introduction of additional demographic variables into the regression analysis did not improve or better explain the null relationship between AP or honors coursework and college grades. Geiser and Santelices concluded that when academic and socioeconomic factors are controlled for the number of AP and honor courses taken in high school has little or
no relationship to student performance in college. However, SAT II and AP
examination scores were strongly related to college performance (Geiser &
Santelices, 2004).

Hargove et al. (2008) examined student performance of five Texas public high
cohorts through their fourth year of Texas public higher education. Findings
indicated that AP students who successfully completed one or more AP courses in
high school significantly outperformed non-AP students in college ($p < .01$). In
addition, students who earned introductory course credit for passing one AP test in
high school had greater success in college compared to students who did not take AP
courses in high school.

The benefits of participating in both AP courses and exams also extended
across mean AP grade categories within the AP course and exam group in comparison
to other AP and non-AP groups, not only for mean grades of 3 and above, but also for
mean grades of 2 at the level of significance conducted $p < .01$. Among the
intermediate college success measures, the underestimation of first- and fourth-year
credits for students passing dual enrollment courses or earning qualifying AP exam
scores was problematic because these credits were unavailable in the credits earned
measures at the level of significance conducted $p < .01$.

Although numerous studies show the benefits of the AP program experience
for academic success in college, there are a few that indicate otherwise. Klopfenstein
and Thomas (2005) used data from 28,000 students, who graduated from a Texas high
school and continued on to a Texas 4-year university in fall 1999. The goal of this research was to study the effects of AP courses on college retention and GPA. Ordinary least squares (OLS) coefficients were estimated separately for White, Black, and Hispanic students because statistical tests indicated differential curriculum effects by race ($R^2$ was approximately 0.20 for all three samples, $p = 0.01$). The authors found that when factors such as race, socioeconomic background, and previous honors courses were controlled for AP students did not perform better in college than non-AP students. Of note, the correlation coefficient between AP math and AP science was 0.33 in the White, Black, and Hispanic samples. However, the AP government and AP economics, resulted in a correlation coefficient of 0.68 in White and Hispanic samples and 0.65 in the Black sample. Klopfenstein and Thomas asserted that the AP experience signals high ability and motivation, but it does not itself indicate higher quality college readiness or higher first semester GPA. Thomas and Klopfenstein also claimed that the AP program’s rapid expansion without maintaining the standards of quality might be the cause.

Duffett and Farkas (2009) conducted a study that consisted of a multiyear examination of the conditions of high-achieving students in U.S. schools during the No Child Left Behind (NCLB) era. This study included a national survey of randomly selected participants (1,024 AP teachers) and four focus groups with AP teachers from Maryland, Texas, Utah, and Wisconsin.

The results showed that AP teachers (90%) were satisfied with the quality of the AP program curriculum and courses. According to the teachers, program quality
had remained intact throughout the rapid expansion. However, survey results also revealed that teachers felt that program quality was in jeopardy because of declining student aptitudes and skills. For examples, 56% of participants had seen numerous students overestimate their abilities and 60% of teachers noted that overzealous parents were eager to place their children in AP courses. When teachers were asked whether the AP program should be opened to all students, 52% stated that the courses should only be open to students who are deemed able to handle the course material. The findings of this study along with other studies may explain the reason why not all students pass AP exams (Duffett & Farkas, 2009; Klopfenstein, 2004).

The above studies indicate that graduates from the Advanced Placement Program have experienced high-rate college completion success regardless of the score received on the AP exam. Yet, others found that the AP program’s rapid growth and openness to all level of students may explain why AP students were not passing the AP exams. Additionally, some studies have indicated that when factors such as race, socioeconomic, and previous honors courses were controlled for AP students did not perform better than non-AP students (Duffett & Farkas, 2009; Hargove et al., 2008; Klopfenstein, 2004; Geiser & Santelices, 2004)

**Research on International Baccalaureate**

An International Baccalaureate Global Policy and Research (2010) examined the academic performance of three distinct groups of University of California students who were enrolled from 2000-2002. The first group consisted of 1,547 IB students. The second group (control group), consisted of 5,253 non-IB students who
were closely matched to the experimental group by year of enrollment, demographics, socioeconomic status, high school GPA, and SAT/ACT (The American College Testing Assessment) scores. The third group comprised the rest of the UC population, 93,458 non-IB students who were not included in the control group.

Findings indicated that IB students earned higher GPAs (4 to 7 percentage points higher) and graduated at higher rates (1-11 percentage points) compared to the controlled group and the third non-IB group. Overall, the data suggested that IB students performed better than the control group (non-IB students) and the third group (non-IB students who were not included in the control group) (International Baccalaureate Global Policy and Research, 2010).

Taylor and Porath (2006) administered a survey during the spring of 2005 to graduates of the IB Program at two public schools in British Columbia, Canada. Participants were asked to respond to 20 statements on a 4-point Likert-type scale and 7 open-ended questions. The first group of participants were graduates of the 1999-2000 academic year who had just completed, or were about to complete, their undergraduate postsecondary degrees. The second group consisted of 1995-1996 graduates who were near completion of their postgraduate studies or were starting their careers. The researchers asked the two groups to reflect on their high school IB experience and identify benefits during their postsecondary studies. The results from the survey indicated that the two groups were positive about their IB experience. Graduates indicated that the rich curriculum (87.5%), critical thinking (93.75%), and
time management skills (87.5%) prepared them for postsecondary studies and future career success (Taylor & Porath, 2006).

Shaunessy, Suldo, Hardesty, and Shaffer (2008) compared the psychological functioning (i.e., perceived climate, academic functioning, life satisfaction, and psychopathology) of IB students compared to general education students ($N=307$).

The range of scores on the Perceived Stress Scale was 1 to 5; the mean score for 139 IB students was 3.42 ($SD = 0.86$) and 3.11 ($SD = 1.03$) for 168 non-IB students. The results of an independent $t$-test reported that IB students had significantly higher scores than non-IB students ($t = 2.77, p < .01$). The study found that IB students felt less pressure or stress compared to their peers in non-IB courses. The data suggested that IB students predominantly exhibited an equivalent or slightly higher levels of psychological adjustment compared to non-IB students. In fact, IB students reported fewer behavior problems than their non-IB peers (the sample of this study contained more females than males and more freshmen and sophomores than juniors and seniors). Overall, the authors reported that IB students had more positive perceptions of the program’s rigorous climate than non-IB. Additionally, IB students reported better relations with their teachers, higher achievement rates, and exuded higher confidence in their academic abilities than did non-IB students. Finally, IB students reported stronger interpersonal skills than those who were not in the IB program (Shaunessy et al., 2008).

Foust, Hertberg-Davis, and Callahan (2009) conducted a 5-year qualitative study that included four schools and 84 AP and IB students. Observations,
interviews, and other documents were collected and analyzed to determine how students perceived and evaluated their learning experiences in their respective AP and IB programs. The study also attempted to determine whether differences existed between AP and IB student perceptions regarding program effectiveness.

The results of the study revealed that both AP and IB students experienced positive and negative social and emotional consequences from enrollment in these college readiness programs. The perceived positive benefits included better classroom environments, closer AP/IB peer relationships, and pride and confidence from completing more challenging course work. The negative perceptions included unflattering stereotypes (e.g., name calling and pre-judging) by non-AP/IB students, feeling different than their non-AP/IB students, heavier workload that limited their involvement in extracurricular activities and social interactions with non-AP/IB students, and sleep deprivation. Of note, IB students reported disadvantages more frequently than did AP students. One explanation for this could be that unlike AP students, IB students are grouped by cohorts as they enter the program and cannot change their cohorts (Foust et al., 2009).

Overall, the aforementioned studies reported some advantageous and disadvantageous to being in the International Baccalaureate Diploma Program. IB students reported to gaining strong interpersonal skills, as will as performing better in college than non-IB students. Yet, there were some disadvantages such as sleep deprivation and coursework overload (Foust et al., 2009; Shaunessy et al., 2008 Taylor & Porath, 2006; UC, 1982).
Summary

The AP program is offered in 60% of the American public high schools and the IB diploma is offered in 50% of American public high schools. Both programs were established to meet the needs of high achieving and self-motivated high school students who want to be prepared and confident to meet the challenges of the postsecondary institutions (Geiser and Santelices, 2004).

Using qualitative methods, researchers found that AP and IB students have positive perceptions of these program (i.e., better class environment, closer bonding with other AP/IB students, and self-confidence). However, AP and IB students have reported some negative perceptions such as pre-judging by non-AP/IB students and workload that limits their participation in social and extracurricular school activities (Foust et al., 2009).

Although AP and IB program aim to prepare American public high school students for higher education, students must take and pass exams with high marks if they want to reap the full benefits of being an AP or an IB student. Research also suggests that high school students who pass AP exams with a ‘3’ or higher will graduate in four years or less. The same is said of the IB program; students who take the exam and receive a score of ‘4’ or more tend to graduate in four years or less. Additionally, students who pass the AP and IB exams can earn college credits and start their college careers as sophomores instead of freshmen (Camara, 2003; Hargrove et al., 2008).
Studies have also shown that most students who participate in the AP and IB programs are well adjusted with no added intensity, stress, or pressure. Further, AP and IB students are well connected with their teachers. Evidence collected indicates that AP and IB students exhibit less behavioral conflicts at school (Shaunessy et al., 2006).

Overall, this chapter provided background information regarding the AP and IB programs and various studies that revealed the effectiveness of these college readiness programs. Additionally, this chapter offered a description of the character traits that are representative of AP and IB students. Thus, an understanding of what each program represents and offers was comprehensively detailed. Chapter III provides a description of methods used in the current study regarding sample population, data collection, and analysis.
CHAPTER III

METHODOLOGY

The purpose of this study is to compare the influence of Advanced Placement and International Baccalaureate programs on math (Math Level IIC) achievement on SAT II, English (English Literature) achievement on the SAT II., and cumulative GPA. The Advanced Placement (AP) and International Baccalaureate (IB) programs are designed for high achieving high school students. Using quantitative methods, this research examined the academic achievement scores of public high school students who were enrolled in AP and IB programs. Furthermore, the study examined the perceptions of AP and IB students’ opinions or beliefs regarding program preparedness. This chapter covers the following sections: (a) research design, (b) population sample, (c) instrumentation, (d) analysis of data, and (f) summary.

Research Design

This quantitative study was conducted in three phases. The first phase was conducted using a t-test for independent means to assess whether the test and GPA means of two groups (AP and IB) were statistically different from each other. The second phase consisted of performing a multiple regression analysis to determine if participation in college preparation programs had a greater influence on SAT II scores in mathematics and English than gender, SES, parent education level, and cumulative GPA. The third phase involved a Chi-square test of independence analysis to determine if differences exist in the distribution of responses on a survey of student
perceptions (opinions or beliefs) regarding program preparedness between the two groups.

**Population Sample**

The study included students who attended two high schools in a northern California school district. The district is located in a city of 201,165 as of 2010. The city’s median household income was $51,094 and the median home price was $285,200 (US Census Bureau, 2011).

Enrollment in the first high school consisted of 2,571 for the 2010-2011 academic year. The demographics were as follows: Black or African American 5.5%, American Indian or Alaska Native 0.7%, Asian 5.3%, Filipino 3.3%, Hispanic or Latino 33.6%, Native Hawaiian or Pacific Islander 1.3%, White 45.3%, two or more races 3.3%, socioeconomically disadvantaged as measured by free and reduced lunch 38.0%, English Learners 10.9%, and students with disabilities 8.4%.

The second high school’s enrollment was 2,583 for the 2010-2011 academic year. The demographics were as follows: Black or African American 3.9%, American Indian or Alaska Native 0.3%, Asian 10.9%, Filipino 1.0%, Hispanic or Latino 59.5%, Native Hawaiian or Pacific Islander 0.8%, White 19.6%, two or more races 2.9%, socioeconomically disadvantaged as measured by free and reduced lunch 71.8%, English Learners 35.8%, and students with disabilities 9.6%.

**Instrumentation**

Demographic and academic data were collected and updated on an annual basis using the district’s student information systems: PowerSchool, SASI (Schools
Administrative Student Information), and Naviance. Gender, SES, parent education level, and other demographic information are provided by the parent on an annual basis at the beginning of each school year.

All data were downloaded from PowerSchool, SASI, and Naviance to an Excel spreadsheet and uploaded into SPSS (19.0) for analysis. For each student, the following data were collected: grade, gender, National School Lunch Program participation, parent education level, socioeconomic level, cumulative Grade Point Average (GPA), and SAT II scores. The researcher used the Naviance, a web based software program, to collect SAT II scores, gender, and cumulative GPA from the selected AP high schools. The selected senior students took the SAT II in English literature and math IIC. This researcher collected the SAT II scores of 97 AP senior students. These students were graduates of the 2009-2012 classes from the first high school. This researcher collected the SAT II scores of 102 IB senior students. These students were graduates of the 2010-2011 classes from the second high school.

Eleventh and 12th grade students who seek admission to a four year college take SAT II: Subject Tests (SAT II). The SAT II was created by the College Board and has been administered since 1937 to measure a student’s knowledge in individual subjects such as English (writing or literature), history and social sciences, mathematics (various levels), sciences, and languages (Chinese, French, German, modern Hebrew, Italian, Japanese, Latin, Spanish, and English). SAT II Subject Tests are not required by most universities (except in California).
Procedure for Data Collection

Data were collected during the spring semester of 2012. The procedures for collecting the data were as follows:

1. The Assistant Superintendent of Educational Services was contacted to obtain approval for the survey at two high schools in the district.

2. Principals of the two high schools were emailed a copy of the permission letter that was granted by the Assistant Superintendent of Educational Services. Then the researcher applied and received the approval of the Institutional Review Board (Protocol #1112-143).

3. Teachers and students selected by the school principals and college counselors were informed of the general objectives of this study by the school principals and this researcher. Students were asked to participate voluntarily in this study.
   a. After a week of reviewing and testing the survey by the college counselors and the AP and IB teachers from each site, the researcher was permitted to conduct a 5-min survey.
   b. After one AP teacher at one site and an IB teacher at the other site volunteered, their contact information were sent to this researcher.
   c. This researcher contacted the teachers and made arrangements to conduct the survey.

4. Parents of the identified AP and IB students from the two selected high schools received a letter informing them of the general objectives of this study.
and to offer them an option to opt out their children. Parents had a week to
decline their children’s participation in this study (Appendix A).

5. AP and IB students of the two high schools were informed of the general
objectives of the study by the teacher and this researcher. Also, they were
given the option to opt out of taking the survey.

6. After the deadline that allowed parents to decline their children’s participation
had passed, this researcher conducted the survey in an AP class at one of the
two high schools. The researcher distributed a consent letter (Appendix B) to
30 AP students. Once the students agreed to participate, they were informed
by their teacher and this researcher that the project required them to complete
a survey consisting of 10 statements (see Appendix C). Students were given a
pencil and a copy of the survey to record responses. Students were allowed 5
minutes to complete the survey; if additional time was needed, it was allowed.
On the same day, the researcher traveled to the other high school to administer
the same survey to 30 IB students. The researcher distributed the consent
letter (Appendix D) to 30 IB students. Once the students agreed to participate
in the research, they were informed by their teacher and this researcher that
the project required them to complete a survey consisting of 10 questions (see
Appendix C). Students were given a pencil and a copy of the survey
questions to record responses. Students were allowed 5 minutes to complete
the survey; if additional time was needed, it was allowed.
Data Analysis

After the achievement data and the survey were collected from two high schools, the researcher conducted analyses using the computer software program, Statistical Package for the Social Sciences (SPSS) 19.0.

The analysis was conducted in three phases: (1) Determination of differences in mean SAT II scores and cumulative GPA between students who were enrolled in the AP program and students who were enrolled in the IB program; (2) Determination of how much demographic and academic factors explain achievement on the SAT II; and (3) Determination of differences in the distribution of survey responses regarding program preparedness between AP and IB students.

A t-test for independent means was used to determine if there is a significant difference in mathematics and English achievement on the SAT II between 12th grade students who were enrolled in an IB program and 12th grade students who were enrolled in an AP program. Two groups of students were established for this analysis. One group consisted of 60-61 AP students and the other consisted of 65-68 IB students. The mathematics and English mean scores of each group were compared at the .05 level of significance.

A t-test for independent samples was used to determine if there is a significant difference in cumulative GPA between 12th grade students who were enrolled in an IB program and 12th grade students who were enrolled in an AP program. Two groups of students were established for this analysis. One group consisted of 97 AP
students and the other consisted of 102 IB students. The cumulative GPA means of each group were compared at the .05 level of significance.

A multiple regression analysis was used to clarify how much of SAT II performance in mathematics and English (dependent variable) can be explained by independent variables such as program participation, gender, socioeconomic status, and parent’s level of education. A regression model was used to test the strength of these independent variables as predictors of success on the SAT II. Two groups of students were established for this analysis. One group consisted of 60-61 AP students and the other consisted of 65-68 IB students. The results of the analysis were determined at the .05 level of significance.

A Chi-square test of independence was used to determine if significant differences exist in the distribution of responses on a survey of perceptions of students regarding their opinions or beliefs of AP and IB programs. Two groups of students were established for this analysis. One group consisted of 30 IB students and the other consisted of 30 AP students. High school senior students self-reported their perceptions on ten statements. Students used a five point Likert Scale in which (1) = strongly agree, (2) = agree, (3) = no opinion, (4) = disagree, and (5) = strongly disagree. A copy of the survey can be found in Appendix B. The survey instrument was developed by the researcher to determine and compare students’ perceptions regarding program preparedness. The results of the analysis were determined at the .05 level of significance.
Summary

Chapter III provided a description of the research methods which included description of population sample, instrumentation, and data analysis. The results of data analysis will be presented in Chapter IV.
CHAPTER IV
ANALYSIS OF DATA AND FINDINGS

The purpose of this study was to compare student academic achievement of two college readiness programs, Advanced Placement (AP) and International Baccalaureate (IB). The study attempted to determine whether the two programs are predictors of student performance on the SAT II and identify other variables that may contribute to performance on the SAT II. Finally, the study attempted to seek the opinions of AP and IB students regarding program effectiveness. Both programs offer students the opportunity to take college level coursework taught by secondary teachers and earn college credit while still in high school (Callahan & Hertberg, 2008). This chapter presents the statistical analyses and results of this study.

Plan of Analysis

The analysis was designed to (1) compare college entrance exam scores and cumulative GPA between the AP and IB programs, (2) determine the degree to which program participation and other correlates of academic achievement may predict college entrance exam scores and cumulative GPA, and (3) examine student opinions about the programs. Table 1 provides a summary of the descriptive characteristics of the high school students from each program who participated in this study (97 AP students and 102 IB students). Both high schools shared similar demographics.
Table 1

Descriptive Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Advanced Placement</th>
<th>International Baccalaureate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>48.5%</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>51.5%</td>
</tr>
<tr>
<td>SES: Free/Reduced Lunch Price</td>
<td>No</td>
<td>87.6%</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>12.4%</td>
</tr>
<tr>
<td>Parent Education</td>
<td>No HS Grad</td>
<td>26.8%</td>
</tr>
<tr>
<td></td>
<td>HS Grad.</td>
<td>32.0%</td>
</tr>
<tr>
<td></td>
<td>More than HS Grad.</td>
<td>41.2%</td>
</tr>
</tbody>
</table>

Phase I

The first phase was conducted using a t-test for independent samples to determine whether differences existed in mean SAT II scores and cumulative GPA between students who participated in the AP program and students who participated in the IB program.

Research Question #1. Is there a difference in achievement between high school students who were enrolled in AP and high school students who were enrolled in IB?

Hypothesis 1a. There is no a significant difference in achievement on the SAT II (math level IIC) between twelfth grade students who participated in an AP program and twelfth grade students who participated in an IB program.

A t-test for independent samples was conducted to determine whether there was a significant difference in the mean scores between the two groups. One group consisted of 61 AP students and the other consisted of 65 IB students. The means
were compared at the .05 level of significance. Resulted indicated no significant
difference in achievement on the SAT II (Math Level IIC) between twelfth grade
students who were enrolled in an IB program and twelfth grade students who were
enrolled in an AP program (see Table 2). Therefore, the researcher was unable to
reject the null hypothesis.

Table 2

<table>
<thead>
<tr>
<th>Groups</th>
<th>N</th>
<th>M</th>
<th>t</th>
<th>SD</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP</td>
<td>61</td>
<td>612.62</td>
<td>-.316</td>
<td>66.51</td>
<td>.753</td>
</tr>
<tr>
<td>IB</td>
<td>65</td>
<td>616.92</td>
<td>-.318</td>
<td>84.61</td>
<td></td>
</tr>
</tbody>
</table>

**Hypothesis 1b.** There is no significant difference in achievement on the SAT
II (English Literature) between twelfth grade students who were enrolled in an AP
program and twelfth grade students who were enrolled in an IB program.

A t-test for independent samples was conducted to determine whether there
was a significant difference in the mean scores between the two groups. One group
consisted of 60 AP students and the other consisted of 68 IB students. The means
were compared at the .05 level of significance. Results indicated no significant
difference in achievement on the SAT II (English Literature) between twelfth grade
students who were enrolled in an IB program and twelfth grade students who were
enrolled in an AP program (see Table 3).
Hypothesis 1c. There is no significant difference in cumulative GPA between twelfth grade students who were enrolled in an AP program and twelfth grade students who were enrolled in an IB program.

A t-test for independent samples was conducted to determine whether there was a significant difference in the mean cumulative GPA between the two groups. One group consisted of 97 AP students and the other consisted of 102 IB students. The means were compared at the .05 level of significance. Results indicated a significant difference in cumulative GPA between twelfth grade students who were enrolled in an AP program and twelfth grade students who were enrolled in an IB program (see Table 4). Therefore, the null hypothesis was rejected. The AP students significantly outperformed the IB students. The AP means was 3.61 in comparison with the IB that was 3.50.

Table 3

*T-test Independent Samples, Between Groups, SAT II: (English Literature)*

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>t</th>
<th>SD</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP</td>
<td>60</td>
<td>581.83</td>
<td>.385</td>
<td>71.37</td>
<td>.701</td>
</tr>
<tr>
<td>IB</td>
<td>68</td>
<td>576.32</td>
<td>.390</td>
<td>88.40</td>
<td></td>
</tr>
</tbody>
</table>
Table 4

*T-test Independent Samples, Between Groups, Cumulative GPA*

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>t</th>
<th>SD</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP</td>
<td>97</td>
<td>3.61</td>
<td>2.076</td>
<td>.2984</td>
<td>.039*</td>
</tr>
<tr>
<td>IB</td>
<td>102</td>
<td>3.50</td>
<td>2.093</td>
<td>.4192</td>
<td></td>
</tr>
</tbody>
</table>

*p<0.05

**Phase II**

The second phase of the data analysis consisted of performing a multiple regression analysis to determine whether participation in college preparation programs had a greater influence on test scores in mathematics, English, and cumulative GPA after adjusting for the correlates of gender, socioeconomic status, and parent education level.

**Research Question #2.** How does participation in college preparation programs relate to performance on college entrance exams after adjusting for known correlates of academic achievement?

**Hypothesis 2a.** Participation in an AP or IB program does not influence SAT II scores in English (English Literature) while controlling for cumulative GPA, gender, socioeconomic status, and parent education level.

A linear multiple regression analysis was conducted to examine the relationship between the independent variable (program participation) and dependent variables (college entrance exams; cumulative GPA; and three correlates, gender, socioeconomic status, and parent education level). Separate multivariate equations were examined for each dependent variable with program participation and the three
correlates. One hundred and twenty-eight AP and IB students took the English Literature exam. Table 5 shows the results from the regression analyses. The regression was significant \( F(5,122) = 2.639, p = .027 \). However, participation in AP and IB programs did not explain a statistically significant amount of variability in the English literature scores \( t(5,122) = .245, p = .807 \). The sample's multiple correlation coefficient was \( R = .312 \) and \( R^2 = .098 \), which indicates that approximately 10\% of the variance on the English SAT II scores can be accounted for by the linear combination of these measures including program participation, gender, socioeconomic status, and parent education level.

**Hypothesis 2b.** Participation in an AP or IB program has no influence on SAT II scores in mathematics while controlling for cumulative GPA, gender, socioeconomic status, parent education level.

A linear multiple regression analysis was conducted to examine the relationship between the independent variable (program participation) and dependent variables (college entrance exams; cumulative GPA; and three correlates, gender, socioeconomic status, and parent education level). Separate multivariate equations were examined for each dependent variable with program participation and three correlates. One hundred and twenty-six AP and IB students took the math IIC. Table 5 shows the results from the regression analyses. The regression was significant \( F(5,120) = 10.776, p = .000 \). However, participation in an AP or IB program did not explain a statistically significant amount of variability in SAT II scores in mathematics (math level IIC; \( t(5,120) = 1.567, p = .120 \). The sample multiple
correlation coefficient was $R = .557$ and $R^2 = .310$, which indicates that approximately 31% of the variance on the mathematics SAT II scores can be accounted for by the linear combination of these measures including program participation, parent education level, socioeconomic status, and gender.

In Table 5, regression models are presented to explain the variability in math, English, and cumulative GPA scores with and without correlates. Neither program was a significant predictor of math SAT II scores: $R^2 = .001$, Adj $R^2 = -.007$, $F(1, 124) = .100$, $p = .753$. However, significance was reached when correlates such as socioeconomic status, parent education level, and gender were controlled ($R^2 = .128$, Adj $R^2 = .099$, $F(3, 121) = 5.886$, $p = .001$). Neither program was a significant predictor of English SAT II scores with or without the correlates ($R^2 = .005$, Adj $R^2 = -.003$, $F(1, 126) = .647$, $p = .423$; $R^2 = .050$, Adj $R^2 = .020$, $F(3, 123) = 1.960$, $p = .124$, respectively). Finally, neither program was a significant predictor cumulative GPA (cumGPA); however significance was reached when correlates such as socioeconomic status, parent education level, and gender were controlled($R^2 = .012$, Adj $R^2 = .007$, $F(1, 197) = 2.326$, $p = .129$, $R^2 = .045$, Adj $R^2 = .025$, $F(3, 194) = 2.246$, $p = .084$, respectively).
Table 5

<table>
<thead>
<tr>
<th></th>
<th>Model A: Program</th>
<th>Model B: Program + Other Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$R$</td>
<td>$R^2$</td>
</tr>
<tr>
<td>Math</td>
<td>.028</td>
<td>.001</td>
</tr>
<tr>
<td>English</td>
<td>.071</td>
<td>.005</td>
</tr>
<tr>
<td>CumGP</td>
<td>.108</td>
<td>.012</td>
</tr>
</tbody>
</table>

Table 6 presented indices that indicate the relative strength of the individual predictors. There were no statistically significant relationships between any of the correlations.

Table 6

Partial/Adjusted Correlations of Model A+B

<table>
<thead>
<tr>
<th></th>
<th>Partial Coefficient</th>
<th>Collinearity (Tolerances)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program</td>
<td>.065</td>
<td>.935</td>
</tr>
<tr>
<td>Gender</td>
<td>-.304*</td>
<td>.969</td>
</tr>
<tr>
<td>Socioeconomic Status</td>
<td>-.160</td>
<td>.792</td>
</tr>
<tr>
<td>ParentED</td>
<td>-.03</td>
<td>.759</td>
</tr>
</tbody>
</table>

*p<0.05

Phase III

The third phase involved a Chi-square test of independence to determine whether differences existed in the distribution of responses to a survey on student opinions regarding program preparedness.
**Research Question #3.** Is there a significant difference in the opinions of students regarding the effectiveness of IB and AP programs on rigor of courses, college preparation, and career endeavors?

**Hypothesis 3.** There is no significant difference in the distribution of survey responses between IB students and AP students regarding opinions of their respective programs.

Two groups of students were established for this analysis. One group consisted of 30 IB students and the other consisted of 30 AP students. The senior high school students self-reported their opinions on ten statements. Students used a five point Likert type scale (1 = *strongly agree*; 2 = *agree*; 3 = *no opinion*; 4 = disagree; and 5 = *strongly disagree*). Students in both programs showed no significant differences in opinions regarding six of the ten statements. However, significant differences in opinions did occur regarding statements 3, 4, 5 and 9.

Statement one was as follows: AP/IB classes have improved my chances of getting into college where admission is competitive. The computed Chi square value was 7.777. Because the computed probability (\(p = .100\)) was greater than .05, there was no significant difference in the distribution of responses between AP and IB students regarding statement one. Although there was no significant difference, 46.7% of AP students strongly agreed that their program’s classes would improve their chances of getting into college where admission is competitive while only 20% of IB students did (see Table 7).
Statement two was as follows: English AP/IB courses are more challenging and rigorous than honors English classes. The computed Chi square value was 1.732. Because the computed probability ($p = .421$) was greater than .05, there was no significant difference in the distribution of responses between AP and IB students regarding statement two. Although there was no significant difference, 60.0% of AP students strongly agreed that their classes were more challenging and rigorous than honors English classes while only 43.3% of IB students did (see Table 7).

Statement three was as follows: AP/IB classes positively affected my performance on the SAT. The computed Chi square value was 9.333. Because the computed probability ($p = .009$) was less than .05, there was a significant difference in the distribution of responses between AP and IB students regarding statement three. Thirty-three percent of AP students strongly agreed that their program had positively affected their performance on the SAT, while only 13% of IB students did.

Statement four was as follows: AP/IB teachers are innovative, stimulating, imaginative, and philosophical. The computed Chi square value was 15.625. Because the computed probability ($p = .000$) was less than .05, there was a significant difference in the distribution of responses between AP and IB students regarding statement four. Seventy-seven percent of IB students strongly agreed that their teachers were innovative, stimulating, imaginative, and philosophical, while only 27% of AP students did.

Statement five was as follows: AP/IB classes taught me critical thinking skills and problem solving. The computed Chi square value was 15.625. Because the
computed probability \( (p = .000) \) was less than .05, there was a significant difference in the distribution of responses between AP and IB students regarding statement five. Forty-seven percent of IB students strongly agreed that their classes taught those critical thinking skills and problem solving, while only 17% of AP students did (see Table 7).

Statement six was as follows: The pace of instruction in my AP/IB course status was appropriate, and allowed me to absorb the information that was presented to me. The computed Chi square value was .392. Because the computed probability \( (p = .983) \) was greater than .05, there was no significant difference in the distribution of responses between AP and IB students regarding statement six. Although there was no significant difference, only 56% of AP students and 50% of IB students agreed that the pace of instruction was appropriate and allowed them to absorb the information that was presented to them (see Table 7).

Statement seven was as follows: I feel that there are long-lasting personal benefits to participating in the AP/IB Program. The computed Chi square value was 3.156. Because the computed probability \( (p = .368) \) was greater than .05, there was no significant difference in the distribution of responses between AP and IB students regarding statement seven. Although there was no significant difference, 53.3% of IB students strongly agreed that there are long-lasting personal benefits to participating in their program while only 33.3% of AP students did (see Table 7).

Statement eight was as follows: AP/IB classes helped me develop the study habits necessary for tackling rigorous course work. The computed Chi square value
was 2.133. Because the computed probability ($p = .545$) was greater than .05, there was no significant difference in the distribution of responses between AP and IB students regarding statement eight. Although there was no significant difference, 40.0% of IB students strongly agreed that their program’s classes helped them develop the study habits necessary for tackling rigorous course work while only 26.7% of IB students did (see Table 7).

Statement nine was as follows: AP/IB classes developed my ability to communicate with and understand people from other countries and cultures. The computed Chi square value was 9.534. Because the computed probability ($p = .049$) was less than .05, there was a significant difference in the distribution of responses between AP and IB students regarding statement nine. Twenty-seven of IB students strongly agreed that their classes developed their ability to communicate with and understand people from other countries and cultures, while only 3% of AP students did (see Table 7).

Statement ten was as follows: I feel that the AP/IB workload is excessive and/or unmanageable. The computed Chi square value was 6.038. Because the computed probability ($p = .196$) was greater than .05, there was no significant difference in the distribution of responses between AP and IB students regarding statement ten. Although there was no significant difference, 20.0% of AP students disagreed that their program’s workload was excessive and/or unmanageable while only 16.7% of IB students did (see Table 7).
Table 7

**Descriptive Summary Regarding Students' Opinions**

<table>
<thead>
<tr>
<th>Statement</th>
<th>% AP Students (Strongly agree + agree)</th>
<th>% IB Students (Strongly agree + agree)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. AP/IB classes have improved my chances of getting into college where admission is competitive.</td>
<td>76.7%</td>
<td>70.0%</td>
</tr>
<tr>
<td>2. English AP/IB classes are more challenging and rigorous than honors English class.</td>
<td>96.7%</td>
<td>96.6%</td>
</tr>
<tr>
<td>3. AP/IB class positively affected my performance on the SAT.</td>
<td>83.3%</td>
<td>46.6%</td>
</tr>
<tr>
<td>4. AP/IB teachers are innovative, stimulating, imaginative, and philosophical.</td>
<td>90.0%</td>
<td>93.4%</td>
</tr>
<tr>
<td>5. AP/IB classes taught me critical thinking skills and problem solving.</td>
<td>90.0%</td>
<td>93.4%</td>
</tr>
<tr>
<td>6. The pace of instruction in my AP/IB course status was appropriate, and allowed me to absorb the information that was presented to me.</td>
<td>66.7%</td>
<td>60.0%</td>
</tr>
<tr>
<td>7. I feel that there are long-lasting personal benefits to participating in the AP/IB Program.</td>
<td>86.6%</td>
<td>93.3%</td>
</tr>
<tr>
<td>8. AP/IB classes helped me develop the study habits necessary for tackling rigorous course work.</td>
<td>63.4%</td>
<td>73.3%</td>
</tr>
<tr>
<td>9. AP/IB classes developed my ability to communicate with and understand people from other countries and cultures.</td>
<td>20.0%</td>
<td>53.4%</td>
</tr>
<tr>
<td>10. I feel that the AP/IB workload is excessive and/or unmanageable.</td>
<td>23.3%</td>
<td>23.4%</td>
</tr>
</tbody>
</table>

**Summary**

This chapter presented the analyses of the data that were conducted for this study. The results of $t$-tests for independent samples suggested that there are no significant differences in mathematics and English achievement on the SAT II between twelfth grade students who participated in an IB program and twelfth grade students who participated in an AP program. However, the $t$-test for independent
samples suggested a significant difference in cumulative GPA between both groups in favor of AP students. Additionally, the linear multiple regressions suggest that program participation is not a predictor of performance on the SAT II English Literature or Mathematic IIC exams.

Furthermore, analyses of the survey data were also presented. The results of the survey served to provide insight into differences in the opinions between AP and IB students on program effectiveness. The results of the survey revealed that significantly more AP students felt their program positively affected their performance on the SAT II. However, the results also showed that significantly more IB students felt their teachers were more creative and classes taught them to be critical thinkers and culturally aware.

Chapter V presents a summary of the study and provides conclusions drawn from the findings. The chapter concludes with implications for stakeholders and recommendations for further research.
CHAPTER V

SUMMARY, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

The purpose of this study was to compare student academic achievement of two college readiness programs, Advanced Placement (AP) and International Baccalaureate (IB). Secondly, this study attempted to determine whether the two programs are predictors of student performance on the SAT II and identify other variables that may contribute to performance on the SAT II. Finally, this study attempted to seek the opinions of AP and IB students regarding program effectiveness. This chapter summarizes the results of the analyses from in Chapter IV, discusses conclusions and implications, and offers recommendations for further research.

Summary

The researcher used quantitative research analysis techniques to address three research questions. The data were collected from a computerized student information system used by the district that was selected for this study and survey responses from twelfth grade students in AP and IB programs.

The researcher collected SES, parent education level, GPA, gender, and SAT II information from the cohorts of AP and IB high school students who were seniors during the 2009-2012 academic year. These students had taken the SAT II in English
literature and math IIC. Data were also collected from a survey of AP and IB high school students who were seniors during the 2011-2012 academic year. The statistical analyses used in this study included \( t \)-tests for independent samples, multiple regression, and Chi-square of independence. Each research question is presented and followed by a discussion of the findings.

**Conclusions**

**Research Question #1**

Is there a difference in achievement between high school seniors who were enrolled in AP and high school seniors who were enrolled in IB?

Results revealed that there was no statistically significant difference in mathematics (math level IIC) SAT II scores between high school seniors who were enrolled in AP (\( M = 612.62, \ SD = 66.51 \)) and high school seniors who were enrolled in IB (\( M = 616.92, \ SD = 84.61 \)). Results also indicated no statistically significant difference in English (English literature) SAT II scores between high school seniors who were enrolled in AP (\( M = 581.83, \ SD = 71.73 \)) and high school seniors who were enrolled in IB (\( M = 576.32, \ SD = 88.40 \)). There was a statistically significant difference in cumulative GPA between high school seniors who were enrolled in AP (\( M = 3.61, \ SD = .298 \)) and high school seniors who were enrolled in IB (\( M = 3.50, \ SD = .419 \)). These results were in favor of AP students (\( t(197) = 2.08, p = 0.039 \)).
Research Question #2

How does participation in college preparation programs relate to performance on college entrance exams after adjusting for known correlates of academic achievement?

The results showed that college preparation programs (AP and IB) are not predictors of performance in the SAT II. Participation in AP and IB programs did not explain a statistically significant amount of variability in English literature scores ($F(5,122) = 2.639, p = .807$). Furthermore, participation in AP and IB programs did not explain a statistically significant amount of variability in math scores ($F(5,120) = 10.776, p = .120$). The multiple correlation coefficient for this sample was $R = .281$, and $R^2 = .310$, which indicates that approximately 31% of the variance on the mathematics SAT II scores can be accounted for by the linear combination of measures that include program participation, parent education level, socioeconomic status, and gender.

Research Question #3

Is there a significant difference in the opinions of students regarding the effectiveness of IB and AP programs on rigor of courses, college preparation, and career endeavors?

The survey indicated that AP and IB students shared common opinions regarding their respective programs. Both groups of students believed that their respective program offered more rigorous and challenging courses than did honor courses. It is important to note that AP and IB classes are considered college-level
classes, but honor classes are not. Rather, honor classes simply cover more topics at a quicker pace compared to regular classes.

Participants also believed that their programs improved their chances of getting into college. Participants agreed that the pace of instruction in their respective AP and IB courses was appropriate, allowed them to absorb the information that presented, and offered long-lasting personal benefits. Participants in both programs believed that the AP and IB classes helped them develop the study habits necessary to tackle rigorous course work; although, they agreed that AP and IB workload was excessive or unmanageable.

There were some differences of opinion between the two groups. For example, significantly more AP students believed that their program affected their SAT scores in a positive manner. Additionally, significantly more IB students believed that (1) their teachers were innovative, stimulating, imaginative, and philosophical; (2) the program taught critical thinking skills and problem solving; and (3) classes developed the ability to communicate with and understand people from other countries and cultures.

**Implications**

The AP and IB programs were designed to prepare high school students for college. However, studies show that these programs are not strong predictors of student performance in college. Rather, the research suggests that cumulative GPA and SAT II scores are strong predictors of college success (Geiser & Santelices, 2004; Morgan & Maneckshana, 2000). These findings are concerning because high schools
nationwide are adding AP and IB programs to their schools without thoroughly examining research on the effectiveness of these two programs (Conley, 2005).

Educational leaders need to examine the curricula of both programs and determine whether they are appropriately aligned with SAT II tests. This study raised a concern that these programs may not adequately prepare high school students for college. The significant difference in GPA between the two groups of students may be attributed to the program curricula, teacher instruction, and grading practices. For example, IB provides students with a comprehensive 2-year program composed of a common introductory college curricula plus a common set of external examinations (in all disciplines except science). Upon entering the IB program, students must complete a sequence of courses in six academic areas. The AP program offers individual classes that are designed to provide students with college level courses and exams. Advanced Placement students write papers and take exams that are graded by AP teachers and external exams (no papers) that are graded by the College Board. Of note, the AP program offers a more flexible course progression than the IB program.

Unlike AP students, IB students follow a specific set of courses from the following six subject areas: Group 1 (First Language), Group 2 (Second Language), Group 3 (Individuals and Societies), Group 4 (Experimental Sciences), Group 5 (Mathematics and Computer Sciences), and Group 6 (The Arts). International Baccalaureate students select three of the six subject areas to study at high level (a minimum of 240 hours of instruction) and the three other subject areas to study at a standard level (a minimum of 150 hours of instruction). Theory of Knowledge
courses, a 4,000 word Extended Essay, and 150 hours of creativity, action, and service hours are the required core components of each of the six subject areas that all IB students must complete (IBO, 1997). This variation may explain the GPA difference found in this study. The scripted IB curriculum may also explain why IB student survey responses in this study indicated that teachers were innovative and imaginative, and their program developed their critical thinking skills and made them more culturally aware.

Another possible reason for the GPA difference between the two groups may be teacher instruction. The instruction of AP teachers is skill-based, which requires rote-like preparation of students for AP exams (fact-based). Byrd (2007) asserted, “AP courses are too rigid, confining, and single minded, that they are a means to the ends of college admissions and credit rather than an opportunity for deep learning” (p. 7). Culross and Tarver (2011) and Taylor and Porath (2006) found that IB students are exposed to a progressive curriculum designed to developed higher-order critical thinking skills. The IB curriculum is more concept driven and involves higher-order thinking skills. Therefore, teachers are more creative and flexible in their instruction. In addition to explaining the difference in GPA, these characteristics of the IB program and teachers may also explain why significantly more IB students perceived their teachers as innovative, stimulating, imaginative, and philosophical.

Additionally, IB instruction is more concerned with constructing meaning than memorizing facts and demonstrating skills (Chen, 2008, Hertberg-Davis & Callahan, 2008).
International Baccalaureate students earn 20-30% of their grades from internal assessments (e.g., projects, oral presentations, portfolios, and labs) in the aforementioned six subjects and the rest from external assessments. Additionally, IB examiners are usually experienced IB teachers who score the 4,000-word essays according to the IBO’s rubric to score the essay papers. This rubric consists of seven points that focuses on the depth and accuracy of IB students’ answers. In the IB program, the grading is a collaborative effort between the IB teachers and IB external graders (international examiners). Additionally, there is an active partnership between the IB teachers and the IBO to ensure that IB teachers use the grading criteria uniformly. However, the AP program lacks such collaboration as AP teachers have total autonomy and the College Board is not involved in any grading (Chen, 2008). Finally, the letter grade that appears on AP students’ transcripts is assigned by their classroom teachers.

The multiple regression performed in this study showed that the AP and IB programs are not predictors of SAT II scores. Furthermore, Klopfenstein and Thomas (2005; 2009) and Lichten (2000) found that these programs are not predictive of success in college. According to College Board (2009), the number of students who took AP examinations increased dramatically (i.e., 12.2% in 2003; 14.4% in 2007; 15.2% in 2008). The International Baccalaureate Organizations (2009) reported an increase of 12% in 2007 to 19% in 2009. Klopfenstein and Thomas (2005) asserted that the aforementioned rapid expansion of the AP program occurred without maintaining the standards of quality. Connor (2008) voiced similar concerns about
the increased popularity (previously mentioned) of IB due to open enrollment. He stated that “schools might wonder if their newly refurbished reputation as an IB school will be comprised by an open enrollment policy that runs the risk of high attrition rates and low test scores” (p. 337). Moreover, McLaughlin and Mitra (2001) explained that social and political pressure to make advanced programs such as IB accessible to all students might compromise quality.

Self-selection and open enrollment have filled classes with ill-prepared students and inadequately trained teachers. Consequently, these programs are less likely to meet the goal of preparing students for college (Thompson, 2007; Milewski & Gillie, 2002). Additionally, budget cuts often reduce opportunities for teacher training. For example, the school district that was selected for this study does not meet the training expectations of the IBO or the College Board.

The perception is that both programs are providing high school students with successful college readiness, hence, these programs continue to experience rapid expansion. In addition, high school administrators want to maintain a top-ranking reputation to recruit new students into these programs. However, the statistical data in this study clearly indicate the reality that these programs are not adequately meeting their goal of preparing high school students for college.

Advanced Placement and IB programs continue to increase rapidly without maintaining its program quality because both enjoy a perception of being rigorous, comprehensive college preparation programs taught by highly trained teachers. However, here is no data to show a true alignment between these programs and SAT
II. As such, there seems to be inconsistencies between the reality and the perceptions of AP and IB programs.

**Recommendation for Further Research**

The findings of the current study suggest that a replication of this study with AP and non-AP and IB and non-IB students over a period time, after controlling for correlates such as socioeconomic status, parent education level, and gender is needed. Increase the sample size and length of the study may provide results that are more definitive. A second recommendation is to conduct a study that determines whether IB and AP participation is a predictor of AP/IB exam scores. Some studies have indicated that a score of ‘3’ or more on the AP exam is a strong predictor of college success. Future research should examine the effectiveness of AP and IB courses in preparing students for AP/IB exams. The final recommendation is to conduct a study to determine whether a relationship exists between the level of teacher training and student performance on the SAT II and AP/IB exams. Such as study might reveal information that will be useful to making decisions about instructional approaches required for the successful implementation of AP and IB programs.
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APPENDICES
APPENDIX A

INFORMED PARENT CONSENT LETTER FOR AP STUDENTS

Dear Parent/Guardian,

During the week of April 2, 2012, I will ask 12th grade students to complete a short survey during their AP English classes. Students will be asked to indicate their perceptions of the AP program. The information gathered from the survey will be useful for my dissertation that I am writing through the Doctoral of Education (Ed.D.) in Educational Leadership Program at California State University, Stanislaus. The purpose of this letter is to provide the opportunity for you to excuse your student from participation in this project. This project is designed to determine the perceptions of students regarding the effectiveness of the AP program. This survey will take approximately 5 minutes to complete. Participation in this project is voluntary and students may drop out any time without fear of penalty. There are no known risks associated with taking this survey. Students will not be asked to give their names when taking the survey and every attempt will be made to protect the information provided from inappropriate disclosure. All information gathered from the survey will be destroyed upon completion of this research project.

If you do not wish to have your student participate in this study, please complete the bottom portion of this letter and return it to your students’ English classroom by April 5. If you have questions regarding this project, you may contact me at (209) 605-9836 or my committee chair, Dr. Borba at (209)-667-3260. If you have any questions regarding your student’s rights as a participant, you may contact the CSU Stanislaus Campus Compliance Officer at (209) 667-3747. Thank you in advance for your assistance in this project. Return the bottom portion only if you refuse permission for your student’s participation in this research project.

Sincerely,

Samia Merza Luo,
Graduate Student, Doctoral Program (Ed.D.) in Educational Leadership
California State University, Stanislaus

I do not give my permission for my student, ________________________________ to complete the survey on students’ perceptions regarding the effectiveness of the AP program that will be conducted by Samia Merza Luo at school during the week of April 2, 2012.

__________________________________________  ____________________________
Parent/Guardian Signature                                      Date
APPENDIX B

INFORMED PARENT CONSENT LETTER FOR IB STUDENTS

Dear Parent/Guardian,

During the week of April 2, 2012, I will ask 12th grade students to complete a short survey during their IB English classes. Students will be asked to indicate their perceptions of the IB program. The information gathered from the survey will be useful for my dissertation that I am writing through the Doctoral of Education (Ed.D.) in Educational Leadership Program at California State University, Stanislaus. The purpose of this letter is to provide the opportunity for you to excuse your student from participation in this project. This project is designed to determine the perceptions of students regarding the effectiveness of the IB program. This survey will take approximately 5 minutes to complete. Participation in this project is voluntary and students may drop out any time without fear of penalty. There are no known risks associated with taking this survey. Students will not be asked to give their names when taking the survey and every attempt will be made to protect the information provided from inappropriate disclosure. All information gathered from the survey will be destroyed upon completion of this research project.

If you do not wish to have your student participate in this study, please complete the bottom portion of this letter and return it to your students’ English classroom by April 5. If you have questions regarding this project, you may contact me at (209) 605-9836 or my committee chair, Dr. Borba at (209)-667-3260. If you have any questions regarding your student’s rights as a participant, you may contact the CSU Stanislaus Campus Compliance Officer at (209) 667-3747. Thank you in advance for your assistance in this project. Return the bottom portion only if you refuse permission for your student’s participation in this research project.

Sincerely,

Samia Merza Luo,
Graduate Student, Doctoral Program (Ed.D.) in Educational Leadership
California State University, Stanislaus

I do not give my permission for my student, ________________________________ to complete the survey on students’ perceptions regarding the effectiveness of the IB program that will be conducted by Samia Merza Luo at school during the week of April 5, 2012.

Parent/Guardian Signature  Date
APPENDIX C

STUDENT CONSENT LETTER FOR AP STUDENTS

Dear Student,

This attached survey is part of a research project that I am conducting through the doctoral program at California State University, Stanislaus. The purpose of this study is to determine the perceptions of 12th grade AP students regarding the effectiveness of the AP program. The survey will take approximately 5 minutes to complete. Participation is voluntary and you may drop out at any time without penalty. If, at some time during the completion of this survey, you decide not to finish, none of your answers will be included in the final report. There are no known risks associated with taking this survey. You will not be asked to give your name when taking the survey and every attempt will be made to protect the information provided from inappropriate disclosure. Additionally, all data gathered from the survey will be destroyed upon completion of this research project. By completing the survey, you are granting permission to include the data in the final report. If you have questions regarding this project, you may contact me at (209) 605-9836 or my committee chair, Dr. Borba at (209)-667-3260. If you have any questions regarding your student rights as a participant, you may contact the CSU Stanislaus Campus Compliance Officer at (209) 667-3747. Thank you for your help in contributing to this project!

Sincerely,

Samia Merza Luo,

Graduate Student, Doctoral Program (Ed.D.) in Educational Leadership

California State University, Stanislaus

By signing below, I understand that I am voluntarily participating in a survey conducted by Samia Merza Luo, Doctoral Candidate at California State University, Stanislaus. I acknowledge that I have read the above consent letter.

Student name (printed): ______________________________________________________

Student signature: ___________________________________________________________
Dear Student,

This attached survey is part of a research project that I am conducting through the doctoral program at California State University, Stanislaus. The purpose of this study is to determine the perceptions of 12th grade IB students regarding the effectiveness of the IB program. The survey will take approximately 5 minutes to complete. Participation is voluntary and you may drop out at any time without penalty. If at some time during the completion of this survey, you decide not to finish, none of your answers will be included in the final report. There are no known risks associated with taking this survey. You will not be asked to give your name when taking the survey and every attempt will be made to protect the information provided from inappropriate disclosure. Additionally, all data gathered from the survey will be destroyed upon completion of this research project. By completing the survey, you are granting permission to include the data in the final report. If you have any questions regarding this project, you may contact me at (209) 605-9836 or my committee chair, Dr. Borba at (209)-667-3260. If you have any questions regarding your student rights as a participant, you may contact the CSU Stanislaus Campus Compliance Officer at (209) 667-3747. Thank you for your help in contributing to this project!

Sincerely,

Samia Merza Luo,

Graduate Student, Doctoral Program (Ed.D.) in Educational Leadership

California State University, Stanislaus

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By signing below, I understand that I am voluntarily participating in a survey conducted by Samia Merza Luo, Doctoral Candidate at California State University, Stanislaus. I acknowledge that I have read the above consent letter.

Student name (printed): ________________________________

Student signature: ________________________________
APPENDIX E

AP STUDENTS’ PERCEPTION SURVEY

Please read the following statements carefully. Select the response that best describes your opinion. All responses are completely confidential.

1. AP classes have improved my chances of getting into college where admission is competitive.
   Strongly Agree    Agree    Neutral Disagree    Strongly Disagree

2. English AP courses are more challenging and rigorous than honors English classes.
   Strongly Agree    Agree    Neutral Disagree    Strongly Disagree

3. AP classes positively affected my performance on the SAT.
   Strongly Agree    Agree    Neutral Disagree    Strongly Disagree

4. AP teachers are innovative, stimulating, imaginative, and philosophical.
   Strongly Agree    Agree    Neutral Disagree    Strongly Disagree

5. AP classes have taught me critical thinking skills and problem solving.
   Strongly Agree    Agree    Neutral Disagree    Strongly Disagree

6. The pace of instruction in my AP courses was appropriate, and allowed me to absorb the information that was presented to me.
   Strongly Agree    Agree    Neutral Disagree    Strongly Disagree

7. I feel that there are long-lasting personal benefits to participating in the AP program.
8. AP classes helped me develop the study habits necessary for tackling rigorous course work.
Strongly Agree  Agree  Neutral Disagree  Strongly Disagree

9. AP classes developed my ability to communicate with and understand people from other countries and cultures.
Strongly Agree  Agree  Neutral Disagree  Strongly Disagree

10. I feel that the AP workload is excessive and/or unmanageable.
Strongly Agree  Agree  Neutral Disagree  Strongly Disagree
APPENDIX F

IB STUDENTS’ PERCEPTION SURVEY

Please read the following statements carefully. Select the response that best describes your opinion. All responses are completely confidential.

1. IB classes have improved my chances of getting into college where admission is competitive.
   Strongly Agree    Agree    Neutral Disagree    Strongly Disagree

2. English IB courses are more challenging and rigorous than honors English classes.
   Strongly Agree    Agree    Neutral Disagree    Strongly Disagree

3. IB classes positively affected my performance on the SAT.
   Strongly Agree    Agree    Neutral Disagree    Strongly Disagree

4. IB teachers are innovative, stimulating, imaginative, and philosophical.
   Strongly Agree    Agree    Neutral Disagree    Strongly Disagree

5. IB classes have taught me critical thinking skills and problem solving.
   Strongly Agree    Agree    Neutral Disagree    Strongly Disagree

6. The pace of instruction in my IB courses was appropriate, and allowed me to absorb the information that was presented to me.
   Strongly Agree    Agree    Neutral Disagree    Strongly Disagree

7. I feel that there are long-lasting personal benefits to participating in the IB Program?
8. IB classes helped me develop the study habits necessary for tackling rigorous course work.

9. IB classes developed my ability to communicate with and understand people from other countries and cultures.

10. I feel that the IB workload is excessive and/or unmanageable.
APPENDIX G

AUTHOR’S AUTOBIOGRAPHY

Samia Merza Luo earned a Bachelor of Communication from the University of Illinois. When she moved to Modesto, CA, she earned her Multiple Subject Credential, and a year later, she received a Masters in English with a Concentration in TESOL. Following this degree, she pursued her doctorate in Leadership in Education.