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Advanced Placement and International Baccalaureate Programs: A "Fit" for Gifted Learners?

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ABSTRACT

Although limited research exists on the appropriateness of Advanced Placement (AP) and International Baccalaureate (IB) Programs for gifted secondary learners, these courses serve as the primary methods of meeting the needs of gifted students in most high schools. This qualitative study employed a grounded theory approach to investigate how teachers conceptualize and implement curriculum and instruction in AP and IB courses and how students enrolled in AP and IB classes perceive and evaluate their learning experiences in these environments. Interviews with and observations of 200 teachers and 300 students in 23 high schools revealed that the end-of-course AP and IB exams drove most teachers' curricular and instructional decisions. Most AP and IB teachers also perceived the students in their courses as a homogeneous group of successful, self-motivated, and driven students. Accordingly, the curriculum and instruction within AP and IB courses was largely one-size-fits-all and fast-paced. Most AP and IB students perceived these courses to be the most challenging and satisfying of any courses they had taken, and described them as a welcome "escape" from general education and even honors courses. However, some students, including students from traditionally underrepresented populations and students who did not fit the "AP/IB mold" of long-time school success—did not perceive the one-size-fits-all, fast-paced courses to be a good fit for their needs. Many AP and IB students also noted that the very heavy workload in these courses left them little time for sleep or other activities; however, most students believed that the benefits they would accrue from completing these courses, such as admission to elite colleges and universities and earning college credits, was worth the hard work. Implications of these findings and recommendations for increasing the goodness of fit of AP and IB courses for—and consequently increasing the participation of—students from a wide variety of backgrounds are discussed.

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EXECUTIVE SUMMARY

Background

Since its inception in 1955-56, the Advanced Placement (AP) Program has expanded significantly. In 1955-56, 1,229 students participated in AP courses; in 2005, 1,197,439 students from the United States were enrolled in AP courses (College Board, 2006). Similarly, the International Baccalaureate (IB) Program has grown since it was first introduced in the United States in 1970; currently, approximately 31,000 students participate in the IB Program (International Baccalaureate Organization, 2004). While these two programs were developed for different purposes and for different types of students, they often comprise the entirety of the gifted education program in secondary schools. The popularity of these courses can be attributed to many factors, including government support; the availability of curricular guides, materials, and training; recommendations and commendations of the program by experts in gifted education; teachers of the courses and students; increased use of the courses as gauges of school quality; and the positive regard of college and university admissions officers (Callahan, 2003).

However, the research supporting and documenting the academic impact of the instruction in these courses on students is very limited. Several studies have investigated student and teacher satisfaction with the courses (e.g., Casserly, 1986; Hellerman, 1994; Oregon University System, Oregon State Department of Education & Office of Community College Services, 1999), and researchers have conducted limited investigations of the educational success of students who have participated in the programs (e.g., Breland & Oltman, 2001; Morgan & Ramist, 1998; National Research Council, 2002). In response to the lack of research on AP and IB programs, questions about the appropriateness of these courses in preparing students for college science success, equity issues, the appropriateness of the curriculum for all gifted students, and the concurrent concerns about the degree to which either of these options have become the only options available to gifted learners at the secondary level have been raised in various reviews of these programs (Center for Undergraduate Education in Science, 1999; Commission on Life Sciences - National Research Council, 1990; National Research Council, 2002).

As with many areas of gifted education, research comparing alternative options for the wide variety of secondary level students who are labeled gifted or who have the potential to develop as gifted adults does not provide conclusive data on the effectiveness and appropriateness of AP courses and IB programs. Further research is needed to document the effectiveness and appropriateness of the curriculum and instruction provided through these options for a broad range of gifted learners.

Research Questions

The purpose of this study was to examine and describe AP courses and IB programs to determine their appropriateness for gifted learners from a variety of populations. The following general research questions guided the study: (a) How do teachers conceptualize and implement curriculum and instruction for gifted learners in AP and IB classes? and (b) How do students enrolled in AP and IB classes perceive and evaluate their learning experiences in these environments?

Methods

Data collection and analysis followed the grounded theory technique as described by Strauss and Corbin (1998).

Sampling Framework

Twenty-three high schools from 7 states were chosen for participation in this study. Selected schools represented varied geographic regions and levels of community size (metropolitan, suburban, and rural), varied school poverty levels, diverse cultural groups of students in the AP courses and/or IB programs, and variations in the scope and services of courses and programs offered to highly able secondary students (AP courses, IB programs, and both AP courses and IB programs in the same school). Data were initially collected in 18 of the 23 sites. Five sites in 4 states were added in years 3 and 4 of the study to test the preliminary theory.

Data Collection

Within the 23 selected schools, approximately 200 teachers, 300 students, 25 building-level administrators/coordinators, and 8 counselors participated in classroom observations and interviews. During each visit, participating teachers' classrooms were observed for at least one complete class period. Interviews with participating teachers occurred directly preceding or directly after classroom observations. Student interviews were conducted mainly through small focus groups (composed of 3 to 5 students per session). Students who were eligible, but not participating in AP courses and/or IB programs, were usually interviewed individually to increase the opportunity to uncover their unique experiences. Administrators and coordinators were interviewed individually.

Documents such as teachers' planning documents, instructional materials, some student artifacts, program literature, and communication materials were collected and analyzed.

Data Analysis

Data analysis occurred in three distinct phases. In the first phase, 2 researchers analyzed the data collected during the first year of the study using a variation of the Scriven (1972) team approach to evaluation. Upon completion of the two analyses, the 2 researchers compared and contrasted their findings.

In the second phase of data analysis, a second set of researchers compared the data from the second year of the study to the initial findings. Where necessary, the preliminary findings were adjusted to accommodate new evidence and themes. In phase three, a tentative theory was developed and tested in five new sites. Where necessary, the preliminary theory was adjusted to accommodate new evidence. From this phase of data analysis, a grounded theory was developed.

Results

Research Question #1: How do teachers conceptualize and implement curriculum and instruction for gifted learners in AP and IB classes?

Several important themes emerged from this study related to Research Question #1. Classroom observation and teacher and student interview data indicated that AP and IB teachers tended to view their students as a homogeneous group and, as such, designed curriculum and instruction in accordance with their expectations of the class as a whole, rather than in accordance with expectations of individual students.

AP and IB Teachers' Curricular Decision-making

Most AP and IB teachers' decisions about curriculum seemed to follow a similar pattern. Guided by the belief that high student performance on the end-of-course exams was the ultimate goal of the course, teachers first and foremost considered what material would be tested on the end-of-course exams. For most teachers, the content included on the exams determined the content to be taught in the course. Belief in the need for student exposure to the entire curriculum and constrained time limits led to one-size-fits-all curriculum.

Based on the belief that students in these classes were (or should be) a homogeneous group, teachers then generally considered the needs of the class as a whole and made some modifications to the curriculum for the whole group in setting the pace of instruction. Generally the pace at which the content was taught was set in response to the general level of understanding of the concept or content being taught. Finally, teachers considered individual student needs as they arose, particularly when a student seemed to be falling behind, and generally provided after school help for struggling students rather than providing scaffolding or other support during class time. They provided extra work

for more advanced students very infrequently. Teachers' beliefs that AP and IB students were a homogeneous group, and that any differentiation of the curriculum for students would entail "dumbing down" the content, led them to make few, if any, provisions for academic diversity in the classroom.

AP and IB Teachers' Instructional Decision-making

AP teachers' instructional decisions were guided primarily by the goal of "covering" a large amount of content by the time the tests were given. As a result, AP teachers tended to choose to use what they perceived to be the most expedient instructional method, lecture, and to forgo instructional methods they perceived to be more time-intensive (such as experiments, hands-on activities, and in-depth investigations). AP teachers' feelings that they needed to "cover" all of the material for the exams primarily through lecture revealed the shared belief that, in AP courses, *learning* equates with *exposure to content*, not with making meaning out of in-depth consideration of ideas.

While IB teachers' instructional decisions were also largely guided by a perceived need to prepare students for the end-of-course exams, IB teachers in general felt that they had more instructional flexibility than AP teachers because they were under less restrictive time constraints due to a less fact-based and more thinking skills-focused curriculum. As a result, IB classes tended to be less lecture-heavy and to include more discussions than AP classes. Further, IB requirements for completion of particular projects led to more variety in instruction. The focus in IB classes appeared to be more on meaning-making than on acquisition of facts.

However, despite feeling that they had some flexibility in their choice of instructional methods, IB teachers, like their AP counterparts, were never observed adjusting their instructional methods to meet the diverse needs of individual learners in their classrooms. It seems that the generally held belief among AP and IB teachers that their students were a *purposefully* homogeneous group of learners left them feeling as though they should not—and ultimately need not—make any modifications to their instructional methods to meet the various learning needs and styles of the students in their classrooms.

Research Question #2: How do students enrolled in AP and IB classes perceive and evaluate their learning experiences in these environments?

The majority of students taking AP and IB classes were satisfied with the nature of the curriculum and instruction within these courses, perceiving the courses as challenging and as representing the "best" classes offered at their schools. Students seemed to believe that AP and IB courses were the "best" because they were taught by the most experienced teachers, required students to take on the heaviest workload, and were populated by the most advanced students. Most students did not question the importance of what they were learning, whether or not they found the content interesting, or the teachers' instructional methods. Students expressed satisfaction with the nature of

these courses as they believed that the courses would ultimately provide them with benefits in the future.

Additionally, most interviewed students judged the learning environments in AP and IB programs to be the best fit for their needs of any they had encountered in school. In these classes, students described finding respite from many years of unchallenging, inappropriate, and even hostile classroom experiences. AP and IB students deeply appreciated the opportunity to work with other advanced students and the highly positive, adult-like relationship with their teachers.

The interview data from students who had dropped out of AP and IB programs told a different story, however. These students made their decisions to leave the programs precisely because they believed that the curriculum, instruction, and learning environment of the classes were inappropriate for their individual needs. All of these students indicated that they originally took the courses because they desired greater challenge than that offered in non-AP or -IB classes, but that the way AP and IB courses were taught did not allow them to succeed, feel welcome, or learn in the ways that they liked to learn.

Conclusion

This study indicated that AP and IB courses provide important educational options for students who, by their last years in our nation's public schools, are clearly starved for challenge, interaction with similarly motivated peers, and relationships with teachers who respect and understand them. One concern, however, emerging from this study's findings is the disturbing picture that AP and IB students' interview responses painted of the grave mismatch between the curriculum, instruction, and learning environments within many general education courses and the needs of gifted learners. Many AP and IB students described educational histories riddled with boredom, uninspiring instruction, and curriculum that did not stretch them. A pervasive sense of relief at being "rescued" from general education—and even honors—classes by the option to take AP and IB courses was evident in most AP and IB students' responses.

That gifted students' needs frequently go unmet in the general classroom has been the subject of much discussion in the gifted education literature (e.g., Colangelo, Assouline, & Gross, 2004; Gross, 2000; Reis et al., 1993). With the recent push for de-tracking and inclusion, gifted students are increasingly being served in more heterogeneous classrooms. As such, we need to focus on ensuring that these environments are appropriate for the needs of advanced students by training teachers to meet the academic needs of advanced students in the evolving context of heterogeneity. Successful development of teacher skills would be characterized by an increased competence on their part in raising the challenge level of the curriculum and instruction in all classes, understanding the unique learning needs of advanced students and providing advanced students opportunities to work in a variety of grouping settings, including in homogeneous groups with similarly-motivated and able peers. Many

advanced and gifted students spend much of their educational lives in general education courses and should not have to wait until late in high school to experience rigorous curriculum.

Clearly, the level of challenge and the learning environments within AP and IB courses are judged more positively by many advanced secondary students than other classroom environments these students have encountered. However, it is not enough that gifted students find the educational experiences within AP and IB classes to be "better" experiences only in comparison to the other unsatisfying courses available to them. While AP and IB courses appear to be doing the best job of any high school courses of challenging advanced secondary learners, the study results suggest numerous ways in which the learning experiences of the students populating AP and IB classes could be enriched, including:

- Enrich the curriculum and instruction within AP courses by decreasing the breadth of content to be covered within the scope of the courses and increasing depth;
- Emphasize the benefit of experiencing genuine challenge over other rewards for taking AP/IB courses;
- Provide AP and IB teachers with more consistent and comprehensive AP and IB training;
- Make achieving equity within AP and IB courses a priority;
- Provide AP and IB teachers with skills in delivering a differentiated curriculum and using varied instructional strategies to meet the needs of a broad range of gifted students; and
- Investigate options for gifted and talented secondary learners beyond AP and IB courses.

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Table of Contents

Table of Contents (continued)

Table of Contents (continued)

List of Tables

List of Figures

Advanced Placement and International Baccalaureate Programs: A "Fit" for Gifted Learners?

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CHAPTER ONE: Introduction

The evolution of Advanced Placement (AP) courses and the International Baccalaureate (IB) program into the fundamental core of offerings for gifted and talented students in America's high schools has been a relatively recent phenomenon. Prior to the introduction of these options, educational opportunities for gifted students at the secondary level were limited in most cases to honors level courses that were independently developed and defined at each school, some geographically localized programs in conjunction with colleges and universities, and/or seminars and mentorship opportunities. Over the past two decades, the vacuum created by "de-tracking" high schools has been filled with increased enrollment in AP courses and IB programs. In 2005, 1.2 million students from 15,000 schools took 2.1 million AP exams; over 50,000 students from 1,597 schools in 122 countries worldwide were enrolled in the IB Diploma Program.

Callahan (2003) identified potential reasons for the increased adoption of AP and IB programs in America's schools: (a) the rigor and challenge associated with the course offerings; (b) readily available course descriptions, teachers' guides and teaching materials; (c) lack of other rigorous and challenging options at the high school level; (d) the actions and support of state-level leaders; (e) the opportunity offered by AP and IB to complete a Baccalaureate degree in a shorter time frame, saving money on tuition and also opening slots for other students, which is particularly important in state institutions where demand exceeds space; (f) a prevailing belief that students enrolled in AP or IB courses have an advantage in the college admissions process; (g) media use of the number of AP courses, success on AP exams, and presence of the IB program to judge quality of high school programs and even to rank high schools (Mathews, 2003); (h) state assessments of educational success based on enrollment in AP courses, success on AP exams, and enrollment in IB programs as indicators of quality (Articulation and Coordinating Committee, 1994); and (i) judgment of the quality of high schools based on their AP offerings by leaders in the field of gifted education (e.g., Feldhusen, 1995).

Statement of the Problem and Significance of Study

Not all educators, however, are convinced that the AP and IB programs serve all students well. While the *perceived* challenge offered by AP and IB courses has been documented in the research studies described below, the degree to which the courses actually provide preparation for advanced college-level courses and the appropriateness of these courses for a broad range of gifted students are not clearly agreed upon. For example, the Commission on Life Sciences of the National Academy (1990) concluded that while students often report that they found themselves well prepared for the sequence of advanced college-level courses in which they could enroll, that view was not universally shared by college faculty. The *Oregon Early Options Study* questioned whether the AP courses offered in high school are, in fact, college level (Oregon University System, Oregon State Department of Education, & Office of Community College Services, 1999). Additionally, the results of the TIMSS study raise questions about whether AP science and mathematics courses are adequately preparing our students in high-level mathematical and scientific thinking (National Center for Education Statistics, 1999), an issue further explored by the National Academy of Sciences (National Research Council, 2002) review of AP mathematics and sciences courses.

Questions of equity in AP and IB courses are also at issue. It has been well-documented that minority students have traditionally been underrepresented in advanced coursework and, in particular, in AP courses (e.g., Jencks & Phillips, 1998; National Study Group for the Affirmative Development of Academic Ability, 2004). Increasing the number of minority students participating in these advanced-level courses has been a major focus of the College Board and of the Federal and state governments in recent years (College Board, 2005a; Paige & Marcus, 2004; U.S. Department of Education-Press Releases, 1998). While these efforts have been successful in raising the number of minority students enrolling in AP courses, minority students continue to under-perform on the end-of-course exams (College Board, 2006), suggesting that increasing participation in AP courses alone is not enough to ensure equity. The curriculum and instruction within these courses may also need to be adjusted to accommodate different learners' needs. However, no studies have investigated the match of the curriculum and instruction within AP courses with the needs of learners from minority backgrounds.

Despite the paucity of research indicating whether or not AP and IB courses do indeed provide appropriate college-level learning experiences for a broad range of gifted learners, most secondary schools do not offer other curricular options for gifted students beyond AP courses, IB programs, and/or dual enrollment courses (Sytsma, 2000). Because so many high schools have adopted AP and IB courses as the primary options for serving their gifted learners, the effectiveness of these courses in meeting the needs of a broad range of gifted students warrants examination.

This research monograph describes a study examining two central research questions: (a) How do teachers conceptualize and implement curriculum and instruction for gifted learners in AP and IB classes? and (b) How do students enrolled in AP and IB classes perceive and evaluate their learning experiences in these environments?

Chapter Two explores the background and philosophies of the AP and IB programs, the reasons for their growing popularity, and the body of research centering on these programs. Chapter Three presents the framework for and methodology employed in the study. Chapter Four presents the study's findings, and Chapter Five discusses the implications of these findings and recommendations for practice and further research.

CHAPTER TWO: Review of the Literature

An historical perspective of the development of Advanced Placement (AP) courses and International Baccalaureate (IB) programs, the philosophy underlying the offerings, an examination of the rapid growth of these options, and the research currently available on AP and IB options are the focus of this review.

General Background Information and Philosophies of the AP and IB Programs

Advanced Placement

Origins of the AP Program

Initial development of the AP program was predicated on a perceived need to provide students with an opportunity to earn college credit while still in high school. The major impetus for the creation of the AP courses and exams came from a group of educators convened to respond to concerns that an innovative program developed by the Ford Foundation providing scholarships to high school sophomores to attend prestigious colleges was taking the most promising students away from their secondary schools. Noting that there was "a failure of the school and college to see their jobs as a continuous process" (General Education in School and College, 1952, as cited in Rothschild, 1995, p. 26), the group recommended that able students take freshman college courses in their home high schools during their senior years. In 1954, the Educational Testing Service was given a contract to: (a) develop exams to assess outcomes in experimental schools using college level syllabi, and (b) to compare results of the high school students' scores on the exams to those of freshmen in the 12 colleges involved in the endeavor. The resulting favorable comparison provided an impetus to expand efforts to develop individual courses allowing motivated students to earn college credit while still in high school.

The Educational Testing Service developed courses, course materials and examinations across the traditional core disciplines of mathematics, science, English, the social sciences, and foreign languages. In addition, as demand for courses in such diverse areas as computer science, art, and music emerged, the College Entrance Examination Board (CEEB) has responded. For each course in the current set of offerings, course syllabi—including topical outlines and recommended texts and readings, specifications of the emphases on particular topics on examinations, recommended laboratory time and exercises, and sample exam questions—are provided for teachers. The courses are developed in consultation with college faculty and high school teachers who are experienced in AP teaching. The Educational Testing Service also provides workshops for teachers on both curriculum and instructional strategies for teaching AP courses and on the development of curricular alignments to prepare students for AP courses.

AP Exams

For each AP course, students may elect to take the standardized examination developed by the CEEB and scored by independent, trained examiners. The examinations, like the courses, are developed in consultation with college faculty and high school teachers experienced in AP teaching. Each course is treated independently, and all exam scores are assigned without input from the teachers at the local school setting. Scores range from 1 to 5 on each exam.

AP Recognitions

Students may elect any number of the courses and exams across 34 subject areas that are currently offered by the College Board, dependent on availability and timing of offerings in their schools. Schools are not required to offer any specific number or sequence of courses, although a new AP Scholar program awards certificates for completing increasing numbers of exams with greater proficiency. The College Board designates the award levels as follows:

> AP Scholar: Granted to students who receive scores of 3 or higher on three or more AP exams on full-year courses (or the equivalent).
>
> AP Scholar with Honor: Granted to students who receive an average score of at least 3.25 across all AP exams taken and scores of 3 or higher on four or more of these exams on full-year courses (or the equivalent).
>
> AP Scholar with Distinction: Granted to students who receive an average score of at least 3.5 across all AP exams taken and scores of 3 or higher on five or more of these exams on full-year courses (or the equivalent).
>
> National AP Scholar: Granted to students in the United States who receive an average score of at least 4 across all AP exams taken, and scores of 4 or higher on eight or more of these exams on full-year courses (or the equivalent). (College Board, 2005b)

One state, Texas, has incorporated recognition of AP and IB achievement levels directly into high school programs, creating a Distinguished Achievement Program (DAP). One option to achieve the DAP award is to earn a score of 3 or above on four College Board AP exams or a score of 4 or above on four IB exams (Texas Education Agency, 2004).

Growth and Broadened Offerings

The AP courses and examinations that were initially developed for 5% of high school seniors soon became available to a wider group of students. The percentage of seniors taking AP courses increased to as much as 10-20% in many schools (and, in some

schools, all seniors are encouraged to take at least one AP course). Further, opportunities for students below the high school level have evolved.

College Credit

The College Board does not assign college credits; rather, credits are assigned according to the policy of the college or university to which the student applies for credit. A score of 3 or greater is described by the College Board as acceptable to most colleges for granting credit or advanced placement (Morgan & Ramist, 1998). The AP Program website advises students that a grade of 3 on an AP exam is equivalent to a C in an introductory college course, and that a 5 is equivalent to an A (College Board, 2005c). According to Camara, Dorans, Morgan, and Myford (2000), these scores are derived by having instructors in the 200 colleges that receive the most AP exam grades in the course under consideration administer the exam to their students under "motivated conditions" (not defined in the original paper). "The lowest composite score that earns an AP grade of 5 is set to represent the average performance equivalent of college students who earn grades of A from their instructor" (p. 7). The descending levels of performance are similarly derived.

Lichten (2000) reports that even though two-thirds of test takers earn a score of 3 or higher, only 49% receive college credit based on an Advanced Placement exam score of 3 or higher. Many highly selective colleges and universities require at least a 4 for college credit and there is an increasing tendency for institutions of higher education to require higher scores in some areas (e.g., English literature, foreign language) than in others. The trend seems to be in the direction of setting higher minimum scores for credit (e.g., Harvard only awards college credit for an exam score of 5 in 24 of the 34 AP courses currently offered, and of those, 11 courses receive only one-half of the credits of the introductory course) (Harvard College Freshman Dean's Office, 2005).

International Baccalaureate

While the College Board does not specifically tailor its courses to gifted students, early descriptions of the IB program asserted that the program was "a rigorous pre-university course of study, leading to examinations, that meets the needs of highly motivated and academically gifted secondary school students" (International Baccalaureate North America, 1986, p. 1). The initial aim of the program, as its name implies, was to provide "an international university entrance examination that could be taken in any country and recognized in any country" (p. 1). However, the most recent literature of the diploma program no longer includes *gifted* as a descriptor of its target population, but rather describes its focus as "highly motivated students who hope to attend university" (International Baccalaureate Organization, 2004a).

Funded by major grants from the Ford Foundation and the Twentieth Century Fund, the program was initiated by educators in international schools who were faced with multiple entrance exams required by the nations where their students were considering post-secondary education. These educators were also concerned about the

"increasing emphasis on education as the delivery of information, the fragmentation of knowledge, and the de-emphasis on aesthetic and creative education" (International Baccalaureate North America, 1986, p. 2).

Organization and Philosophy

Because the IB program originated from a goal to standardize programs across international school situations, it is not surprising that the International Baccalaureate program reflects a different organization and philosophy than Advanced Placement. First, a distinguishing feature of IB is its design as a *program* of studies. Students in the program are expected to complete a course of study following specific requirements including study in both the humanities and the sciences. Goals of the early developers of the program included "learning how to learn, how to analyze, and how to reach considered conclusions about people, their languages and literature, their ways in society, and the scientific forces of the environment" (International Baccalaureate North America, 1986, p. 1).

While the AP courses stand as individual educational pursuits, the aim of the IB program is to transcend achievement of particular content-related goals in specific subject areas to achieve the more comprehensive goal of developing "to their fullest potential the powers of each individual to understand, to modify and to enjoy his or her environment, both inner and outer, in its physical, social, oral, aesthetic, and spiritual aspects" (International Baccalaureate Organization, 2004b, p. 4). To ensure program integrity, a school must be approved through formal application and a review process to participate in the IB program. The application and continued designation as an IB program requires that the school offer all of the courses in the program leading to the diploma.

Program Requirements

Students seeking the IB diploma must select one subject from each of six categories of study. However, students who declare themselves Certificate students (as opposed to Diploma students) are allowed, in special cases, to select courses from within the sequence of course offerings. Courses are designated either as Higher Level (HL) or Subsidiary Level (SL). Generally students must complete at least three courses at HL. Course selections include:

Group 1-language A1

> In this group of courses the student is expected to develop "strong written and oral skills and respect for the literary heritage" (International Baccalaureate Organization, 2002, p. 10) of his or her first language. In addition, the student is expected to "gain an international perspective through world literature studies" (p. 10). More than 80 languages have been offered for examination in this cluster.

Group 2-second language

> All diploma candidates must pass an exam focusing on written and oral communication in a second language with the aim of verifying that the student can use the language in a range of contexts and for many purposes.

Group 3-individuals and societies

> Subjects included within this group are: business and management, geography, history, history of the Islamic world, information technology in a global society, philosophy, psychology, and social anthropology.

Group 4-experimental sciences

> This group includes biology, chemistry, physics, environmental systems, and design technology. The brochure describing the IB program stresses that within this cluster students are expected to develop laboratory skills, and "collaborative learning is encouraged through an interdisciplinary group project" (International Baccalaureate Organization, 2002, p. 10). Further, global and local issues are used as a basis for developing a "sense of social responsibility" and an "awareness of moral and ethical issues" (p. 10).

Group 5-mathematics and computer science

> Four courses in mathematics are available including mathematics HL, mathematical methods SL, mathematical studies SL, and further mathematics SL. All students must complete at least one course in mathematics. Computer science is the fifth subject offered in this category; it must be taken in addition to a math course.

Group 6-arts and electives

> Subjects in this group include visual arts, music and theatre arts, with emphasis placed on practical production by the student and exploration of a range of creative work in a global context.

To earn the IB diploma, students must successfully complete at least three (but not more than four) subjects at the "Higher Level" (HL), which translates to 2 years (or a minimum of 240 teaching hours) of in-depth study before sitting for the examinations. They also must complete three subjects at the "Subsidiary Level" (SL). These courses are studied for 1 year (or a minimum of 150 instructional hours). The goal of outlining these parameters for the program is to ensure both breadth and depth of study (International Baccalaureate Organization, 2004a).

Theory of Knowledge is an additional course required of all students who wish to earn the IB diploma. Taken over the course of the 2 years of the program, this course is

designed to offer students and teachers "the opportunity to reflect critically on diverse ways of knowing and on areas of knowledge, and to consider the role and nature of knowledge in their own culture, in the cultures of others and in the wider world" (International Baccalaureate Organization, 2004b, p. 6). Additionally, the course is structured to lead students to the goals of questioning their assumptions about knowledge, becoming aware of ideological biases, and building competencies in the analysis of evidence.

To earn the IB diploma, students must complete two other tasks. First, diploma students must successfully complete an extended essay of approximately 4,000-5,000 words reflecting independent study of a self-selected topic (students choose topics from 22 subjects and 50 language/literature courses). Finally, students must successfully complete an approved creative, aesthetic, or social service activity.

Relationship Between AP and IB

Recognition of the relationship of AP courses to the IB program is noted in IB documents. For example, in describing the degree to which existing courses might be adapted to meet IB requirements, documents of the program note, "If the school has an honors class, such as the College Board Advanced Placement, the adaptation might be slight" (International Baccalaureate North America, 1986, p. 6). IB, however, is designed as a holistic program of courses, whereas AP is geared toward providing challenge in targeted curricular areas. Additionally, the specific IB program's goals extend to broadening students' perspectives and developing higher-level thinking skills.

Grading of IB Courses and Exams

Academic judgments about quality of student work and scoring of the external examinations for the International Baccalaureate rest with almost 6,000 IB independent examiners worldwide (International Baccalaureate Organization, 2005); however, teacher-assigned homework, notebooks, and project grading account for 20% of the final grade in a specific course that are entered in school records and student transcripts. Grading in AP courses for student transcripts is assigned by teachers with no input from the College Board. Only examination results are determined by the College Board (with no input from the teacher of the course). As with AP credit, individual colleges and universities determine whether they will accept IB credit and what level of performance will be required for advanced standing or credit.

Enrollment Requirements

Student enrollment in AP courses and the IB program is not regulated by the College Board or the International Baccalaureate Organization, except as required for IB certification. Neither program specifies that enrollment should be dependent on prior identification as gifted and talented. In some cases, grades and recommendations of teachers in courses immediately preceding the AP option serve as screens, and counselors may act as a screen. Enrollment in AP calculus, for example, is predicated on having

completed the traditional mathematics program at a faster pace, and enrollment in AP chemistry and biology generally requires prior completion of the traditional high school classes in those subjects. Acceptance in the IB program is based on a locally determined screening process conducted at the individual school level (but specified and included as part of the IB approval/certification process).

Growth of the AP and IB Programs

Advanced Placement

The AP program was first implemented in schools in 1955-56 with 1,229 students from 104 participating school sites taking 2,199 exams. At that time, 130 colleges were listed as participants in the program. The number of participating high schools and participating students, the number of exams administered, and the number of participating colleges have grown at a steady pace over the past 47 years. In 2005, 1,197,439 students from the United States (1,221,016 total students) from 14,573 schools (out of approximately 24,300 high schools nationwide) took 2,065,045 exams (2,105,803 world wide) (College Board, 2006). The students submitted their scores to nearly 3,558 colleges and universities (College Board, 2004). Students are not required by the College Board to take an exam if enrolled in an AP course; however, individual schools may, and sometimes do, require enrolled students to take the exam. There is no predetermined number or pattern of courses or exams a student must take during his or her high school career.

International Baccalaureate

Growth of the IB program has been somewhat slower and more selective than the AP program, probably as a result of the resource requirement and the demand for commitment to a full course of study rather than select courses. The IB program was offered in only 20 schools in 1970 (Gehring, 2001). By 2000, 18,717 students were enrolled in IB programs in more than 255 schools in the United States; by May of 2004, these numbers increased further to 31,413 candidates who took over 85,000 exams from 382 high schools (International Baccalaureate North America, 2004). Nearly 800 colleges and universities in the United States are listed as granting credit for performance on IB exams (International Baccalaureate Organization, 2004b). Approximately 76% of candidates earn the diploma each year (M. Schade, personal communication, March 8, 2004).

Potential Explanations for Increased Enrollment in AP Courses and IB Programs

Readily Available Curriculum and Training

As the prior discussions suggest, offerings of AP courses and IB programs in schools have been steadily increasing. One potential reason for the growth of these programs as the primary offerings for advanced high school students is that AP and IB

courses come ready-made. Both the College Board and the International Baccalaureate Program provide summer workshops and institutes to train teachers in the delivery of the curriculum frameworks. These workshops not only provide guidance in teaching strategies for delivering the curriculum, they also provide background and knowledge in the discipline itself. Thus, the adoption of these programs and courses with accompanying curriculum guides, teaching materials, and teacher training may be easier and far less time-consuming for a teaching staff than the creation of new programs and curricula.

Lack of Other Rigorous and Challenging Options

The growth of AP courses and the IB program is also due in part to the lack of other suitably challenging choices available to students in schools where these options are offered. Gifted program options have existed primarily in elementary and some middle schools; advanced high school students have traditionally been served in honors and other "tracked" courses. AP and IB courses are increasingly relied upon by schools to provide the challenge and rigor absent in other, general education courses.

Government Financial Support for AP

State level support. The widespread adoption of AP courses also reflects the actions and support of state-level leaders who have been vocal about the benefits of these courses. For example, in 1999, then-Governor of Texas George W. Bush stated, "Making Advanced Placement available to students across Texas is one of the best ways to challenge students academically" (College Entrance Examination Board and Educational Testing Service, 1999a, p. 16). Under Bush's leadership, Texas appropriated $21 million for the AP program for the biennium 1999-2001 with the goal of having at least 4 to 6 AP courses in every Texas high school by the year 2002 (College Entrance Examination Board and Educational Testing Service, 1999a). Although this ambitious target has not yet been achieved, by 2004, Texas had succeeded in decreasing the number of school districts not offering AP courses from 181 to 121 out of a total of 1,130 districts (K. Howell, personal communication, April 21, 2004).

Most states and the District of Columbia use state funds to support AP programs either through the subsidizing of exam fees, subsidizing the costs of teacher training, providing funds for materials and supplies for AP courses, offering incentives for providing AP courses or hosting training sessions, encouraging universities to accept AP credit, or encouraging the offering of professional development opportunities (Paige & Marcus, 2004). In addition, in 2005, the College Board announced a fee reduction of $22 for low-income families coupled with the expectation that the school forgo the $8 exam administration fee, thereby reducing the cost of the exam to $52 from the standard $82 (College Board, 2005d).

The College Board (2005d) reported that each state determines its own direct assistance to students with regard to exam fee subsidies. Some states, including Kentucky and Maine, pay the exam fees of students who qualify for the College Board

fee reduction. Other states, such as Arkansas, contribute $52 toward each exam fee for students who meet the College Board fee reduction requirements and $74 per AP exam fee for those public school students who do not qualify for the AP reduction but do qualify according to the Arkansas Department of Education's income guidelines. Oklahoma offers an AP exam fee subsidy of $52 per exam for students who qualify for the College Board fee reductions and $25 per AP exam for any public school student taking more than one exam. Texas offers $47 per AP exam fee for students who qualify for the College Board reduction fee, and for those public school students who do not qualify, the state offers a subsidy of $30 per exam. Michigan offered to pay the costs for the first 100 students who enroll in one of five new online AP courses. Individual school systems in Michigan have also taken the initiative to pay for the examination (Mathews, 1999b). Other states, such as California, Arkansas, Georgia, Oklahoma, and New Mexico, target their fee subsidies specifically to minority and/or low-income students.

Other incentives to take AP exams include cash payments to successful students and their teachers. For example, Florida state law provides that for each student who scores higher than 3 on an AP exam, teachers receive a $50 bonus (Hirst, 2002). The incentive is even greater for Florida's low-performing schools: AP teachers who have at least one student scoring a 3 or higher receive a $500 bonus. In Texas, a program financed by Advanced Placement Strategies Inc. provides cash payouts to students and their teachers. Students receive $100 for each AP exam score of 3 or higher, teachers receive $100 to $500 for each student who passes an AP exam with additional bonuses if their students' exam results show progress over time, and principals receive $1,500 to $3,000 annually for work supporting growth of AP in their schools (Cavanagh, 2003).

Federal support. The federal government first endorsed AP courses as a route to achieving greater diversity in higher education by allocating $3 million for support of those courses in fiscal year 1998. This amount was increased to $4 million in fiscal year 1999. The goal was to facilitate minority and/or low-income students' participation in AP by covering the costs of AP examination fees.

When announcing the availability of grants to states to pay for AP test fees, then-U.S. Secretary of Education Riley stated, "I want everyone to know that college is possible. The funds will be available if you do the work and prepare for college level courses" (U.S. Department of Education - Press Releases, 1998). Federal initiatives have continued to play an increasing role in the adoption of AP courses as a model of rigorous curriculum for high school learners. In September 2002, then-U.S. Secretary of Education Ron Paige established the AP Incentives program as a component of the No Child Left Behind Act to make competitive grant awards to programs designed to increase the number of students who take and succeed in advanced courses. Secretary Paige said of AP courses, "Taking tough courses pays off. Research shows that students who take challenging classes are more likely to obtain a college degree" (U.S. Department of Education - Press Releases, 2004).

Continued federal endorsement of the AP program was reflected in President Bush's fiscal year 2005 budget that included a 119% increase for the AP Incentives

program, from $23.5 million to $51.5 million (U.S. Department of Education - Press Releases, 2005). A report released jointly by the U.S. Department of Education and the Office for Civil Rights (Paige & Marcus, 2004) emphasized that AP courses are especially valuable to students without family experience of college attendance or whose peer groups do not consider education a promising or attractive option for the future.

National Trend Toward Increased Time to Complete the Baccalaureate Degree

One of the frequently cited potential benefits of taking AP courses or enrolling in the IB program is the opportunity to complete a Bachelor's degree in a shorter time frame, thus saving money on tuition and opening slots for other students, particularly in state institutions where demand exceeds space (e.g., Oregon University System, Oregon State Department of Education, & Office of Community College Services, 1999). Whether or not students actually take advantage of the option to complete their college degrees early has not been documented.

Beliefs About the Advantages in the College Admissions Process

Publications of the College Board and college and university web pages often highlight the positive edge to be gained from participation in AP and IB programs. In a CEEB brochure, benefits of taking AP courses are noted: "Students improve their chances of being accepted by the college of their choice. Participation in AP courses is, therefore, a great advantage to a student who wishes to attend a highly selective college" (College Entrance Examination Board and Educational Testing Service, 1999b, p. 1). In a Johns Hopkins University newsletter designed for pre-college gifted students, students are advised to "[t]ake the most advanced courses available—especially in your areas of strength—including *honors, Advanced Placement* (AP), and/or *International Baccalaureate* (IB) *options*" (Hellerman, 1994, p. 4). Students are also advised that "even when an AP score won't translate into credit you can use, it can still help you in other ways—by impressing admissions officers or convincing professors to let you take more advanced courses" (p. 7). The veracity of these claims is affirmed on college websites and in articles in college admissions journals (Sindelar, 1988). For example, the University of Washington encourages and applauds students who have chosen IB courses as part of their high school curriculum, noting that "these courses, as well as honors courses, are challenging and demanding, and we believe they provide excellent preparation for university study" (University of Washington, 2005).

A review of biology education in the United States concluded that AP courses probably help individual students in admission to college (Commission on Life Sciences - National Research Council, 1990). The Center for Undergraduate Education in Science, Mathematics and Engineering Education (1999) advised college admissions officers that "every effort should be made to encourage students to undertake a rigorous high school program of studies, including Advanced Placement" (p. 24). Belief in the importance of taking AP courses in the college admissions process has even been the issue underlying a lawsuit in California claiming bias because fewer AP programs are offered in schools with higher percentages of minority and low-income students (Mathews, 1999a).

AP Courses and IB Programs as Indicators of School Quality

AP courses and IB programs have also become markers of quality in high school programs in the popular media. The number of AP courses offered, the number of students enrolled and achieving on AP exams, and whether an IB program is in place in a high school have been used to judge the quality of high school programs and even to rank high schools (Mathews, 1998, 1999b, 2003). State assessments of educational success have also utilized enrollment in AP courses, success on AP exams and enrollment in IB programs as indicators of quality (Articulation and Coordinating Committee, 1994).

Recommendations to Gifted and Talented Learners

In the gifted education and general education literature, AP courses and IB programs are presented as viable options for gifted and talented learners. In journals for secondary school principals, these options have been ranked among the most favorable educational options for high achieving and gifted learners (Cox & Daniel, 1985; Curry, MacDonald, & Morgan, 1999; Daniel & Cox, 1992; Grier, 2002). In publications for secondary school principals about world-class schools, the IB program is cited as a leading example of a way to transform a school into an institution reflecting world-class standards (Marnholtz, 1994). In journals and book chapters for gifted educators, AP courses and IB programs are favorably reviewed as appropriate options for gifted and talented learners (Feldhusen, 1995; Poelzer & Feldhusen, 1997; Pyryt, Masharov, & Feng, 1993). Articles for educational researchers reflect the same endorsements (e.g., Jacoby, 1992).

Quality of Curriculum, Level of Challenge, and Learning Environment

The most frequently cited reason for the increased growth of AP and IB offerings has been the rigor and challenge associated with these options. Not only do these courses provide challenge at the time of taking the courses, they also allow successful candidates to begin taking more advanced courses at the beginning of their college careers. The *Oregon Early Options Study* (Oregon University System, Oregon State Department of Education, & Office of Community College Services, 1999), which includes an examination of AP courses and IB programs, cites "acceleration of progress" and "relief of high school boredom" (p. 3) among the benefits of AP, IB, and other early college credit options. Students also report feeling better prepared for college as a result of taking AP and IB courses (Hellerman, 1994, p. 7).

Challenges Facing the AP and IB Programs

While AP and IB courses are generally highly recommended in the literature and media and highly regarded by politicians and policy makers, concerns have arisen regarding the underrepresentation in AP courses and IB programs of females, students from rural areas, students from minority backgrounds, and students from low SES homes.

School Demographics

The nature and location of some high schools may preclude providing AP and IB opportunities for the students they serve. Schools in rural areas and those serving students from impoverished environments are less likely to offer AP courses and IB programs than suburban schools (unless designated as magnet schools). Even among suburban schools, a considerable variability in number and quality of offerings exist (Aluri, 1991; California State University Institute for Educational Reform, 1999; Mathews, 1998; National Research Council, 2002).

The use of technology and distance learning have been proposed as means to increase access to AP courses in rural schools (Gilbert-Macmillan, 2000; Hellerman, 1995). In addition, increased federal and state support for AP teacher training and AP examination fees are lessening the barriers to offering AP courses in schools in impoverished areas. Businesses are also investing in efforts to make AP options more universally available, illustrated by venture capitalist investments of more than $20 million in a company offering on-line AP courses in calculus, statistics, U.S. government and economics (Cook, 2000).

Females and Advanced Math and Science Courses

While female participation in AP science and mathematics courses is increasing, inequities persist in enrollment and achievement of females in the advanced calculus AP course, all physics areas, chemistry, and computer science (College Board, 2006; College Entrance Examination Board and Educational Testing Service, 1999a). The AP National Summary Report 2004 indicates that while young women out-number young men by nearly 30% among AP exam takers as a whole, males out-number females in every area of science mentioned above. Inequities between males and females in achievement in the physics and chemistry courses of the IB program were documented by Poelzer and Feldhusen (1996), suggesting that the ways in which these courses are taught and/or the options available to females in the learning of advanced science and mathematics need to be examined.

Underrepresentation of Minority Students

The College Board has devoted considerable attention to the issue of the underrepresentation of certain populations of students in AP courses in recent years. As described above, there have been concerted federal and state efforts to increase minority participation in AP courses. Indeed, the total number of AP exams taken by African American students rose from 11,919 in 1997 to 86,798 in 2004, an increase of 628% (College Board, 1997, 2006). Nevertheless, African American students, who accounted for 13.2% of the overall student population of high school graduates (Western Interstate Commission for Higher Education, 2003) in 2004, only accounted for 5% of students taking AP exams (College Board, 2006).

While minority participation in AP courses has increased dramatically, the large increase in participation has not been matched by dramatic increases in performance on AP exams. In fact, the percentage of African American students receiving a 3 or higher on AP exams has dropped. In 2004, 32% of the AP exams taken by African American students received a score of 3 or higher (College Board, 2006), compared to 39% in 1997 (College Board, 1997). In contrast, 96% of White students scored 3 or higher on AP exams in 2004, down from 99% in 1997 (College Board, 1997, 2006). The College Board suggests that scores ranging from 3 to 5 indicate students are "qualified" to "extremely well qualified" in terms of their abilities to tackle the challenges of college coursework (College Board, 2005c).

The decrease in the number of students who scored 3 or higher on AP exams between 1997 and 2004 confirmed Andrews' (2003) prediction that as more students take AP courses, passing rates will decrease. Nevertheless, the National Center for Educational Accountability reported that based on data from Texas schools, even students who scored less than 3 on AP examinations in high school were twice as likely to graduate from college in 5 years as students who had not taken an AP course (Mathews, 2004). These results confirmed earlier findings by Clifford Adelman (1999) of a relationship between AP course taking and Bachelor's degree completion.

Many unresearched assumptions underlie equity concerns about AP courses and the IB program. It is often presumed that it is only the lack of available courses, lack of money to take exams, and/or poor attitudes toward school that underlie the lower participation rates of students from minority and low SES backgrounds in advanced high school courses. Hence, the presumption is that if the courses and money were made available, minority and low SES students would be more proportionately represented and would be more successful in these courses.

A second assumption is that earlier preparation of students for these courses (in middle and early high school) would address the problem of underrepresentation of minority and low SES students in advanced high school courses (hence the development and institution of pre-AP courses) (Cox, 1983; Paige & Marcus, 2004). Underlying these assumptions is the belief that it is only limited access to these advanced courses, and not the structure or content of the courses themselves, that is contributing to the underrepresentation of minorities. The startling and renowned success of Jaime Escalante with minority students is often pointed to in support of the assumption that, simply by being provided exposure to advanced content, minority students will achieve (Pasadena City College, 1999). What has heretofore been left unexamined is the *way* in which he taught calculus—using strategies, approaches, and an organizational scheme that responded to and addressed the particular learning styles of the students with whom he was working—and the ways in which he altered the organization and strategies for teaching to reach highly able minority and poor students. These strategies are aligned with recommendations for an emphasis on learning with understanding, active learning, responding to prior knowledge, and responsiveness to students' backgrounds as it affects their structural knowledge of the discipline (Bransford, Brown, & Cocking, 1999). The process of starting with an understanding of how students conceive and misconceive

mathematical concepts, the ways in individual students learn, the different supports they need, and the motivations that would influence each student individually appears to have been key to Escalante's ability to teach these students successfully, not simply giving students exposure to high-level concepts.

Burton, Whitman, Yepes-Baraya, Cline, and Myung-in Kim (2002) also emphasized the importance of the teacher in the success of minority students in both mathematics and English AP classes. The authors analyzed school questionnaire data from 200 schools and concluded that, "The teacher is more important for minority students than for others. Because more minority students lack a good academic background, it is important that they have good AP teachers" (p. 51). The researchers found that the AP teachers in this study who were most effective in teaching high-potential minority students had high performance expectations for all students, a deep understanding of the characteristics of all students and the cultural resources students brought to class, an awareness of the prevailing culture in school and the classroom, and a broad repertoire of effective teaching strategies and tools. They also noted that good teachers of minority students were good teachers for all students and that the best way to encourage minority participation in AP was to have a quality AP program that emphasized cooperation, communication, hard work, a high level of commitment from the teacher, students, and parents, and a clear communication of expectations and progress between the teacher, students, and parents.

Research on the AP Program and the IB Program

Student Satisfaction

Research on student perceptions of AP and IB courses reveals that students feel satisfied with the challenge offered in these courses, particularly as they are compared to non-accelerated high school options. The *Oregon Early Options Study* (Oregon University System, Oregon State Department of Education, & Office of Community College Services, 1999), which included an examination of student satisfaction with AP courses and IB programs, cited "relief of high school boredom" (p. 3) as among the benefits of AP, IB, and other early college credit options. In another study of students' perceptions of AP and IB courses, students reported feeling better prepared for college as a result of taking these courses (Hellerman, 1994). In 1986, Casserly reported in College Board publications that student satisfaction with AP courses was high. Overall, students in a California sample gave a mean rating of 4.05 out of a possible 5 on a scale rating the challenge of the courses. However, the relatively large standard deviations on each rating (close to 1 in most cases) and correspondingly broad frequency distributions indicated that while the mean reflects the positive end of the scale, considerable numbers of students gave ratings at the middle and below the middle of the scale. Unfortunately, no recent independent research has studied student satisfaction with the AP course offerings.

Teacher Opinion

In 1986, the College Board reported that 92% of a national sample of teachers rated the AP program as excellent or good, and 78% agreed that the courses challenge both teachers and students. Similarly, 92% of teachers in a limited 1985 California sample rated AP Programs as good or excellent. Data were not analyzed by course in these studies. In a more recent survey of AP teachers that yielded over 32,000 responses, the College Board reported that ethnic minority teachers were heavily underrepresented, and most teachers appeared to have financial access to professional development activities prior to teaching AP, but limited time to take them. These teachers described the 5 most pressing issues they faced as a result of teaching AP as keeping up with changing discipline content, integrating new teaching methods, preparing students for state assessments, dealing with lack of family involvement, and accessing good professional development (Milewski & Gillie, 2002).

Based on a self-report study of teachers who were experienced AP science teachers, Herr (1992) concluded that AP teachers introduced a wider range of topics than teachers in honors classes did and covered them in greater detail. But because of the need to cover topics to be tested, they adopted a "strong lecture format and minimize time-consuming, student-centered activities such as laboratory experiments, student projects, and student presentations" (p. 530). Furthermore, one third of AP science teachers judged the pace of AP to be too fast and indicated a preference to switch to honors if given a choice. They also indicated that they failed to spend time on topics that piqued the interests of students because of demands of coverage.

Herr (1993) also noted that offering AP biology may result in a reduction in high school physics enrollments, particularly when schools offer extra grade point credit for AP courses. This belief is confirmed in the report on biology education in U.S. schools (Commission on Life Sciences - National Research Council, 1990). According to the Commission, counselors feel there are valuable, rigorous non-AP courses that students forgo to take AP courses.

Impact on Student Performance in College

Research studies on outcomes of enrollment in AP courses have focused primarily on documenting that students who successfully complete AP courses succeed in college courses. For example, Adelman's (1999) much-cited study, "Answers in the Toolbox," reported that completing rigorous coursework, such as that offered in AP courses, is an important influence on attainment of a Bachelor's degree, particularly for Black and Latino students. Morgan and Crone (1993) (as cited in College Board, 2005e) found that AP students continue to pursue courses in the subject area of their exams at greater rates than other students—not a surprising finding since one would be less likely to take AP classes in an area of no interest. They also found that students with AP exam scores of 3 or higher received higher grades in related college courses than students who had not received AP credit in the same discipline. More recently, Morgan and Ramist (1998) also compared "upper-level" students who had received AP credit to peers who were in their

classes but who had taken the introductory college class instead. They also found that in most areas the AP students earned significantly higher grades than their fellow students. A re-analysis of the same data by Breland and Oltman (2001) came to the same conclusion for students in AP comparative government and politics and AP economics. However, a review of the methodology of these two most recent and most comprehensive studies and a re-analysis of the data by the panel of the National Academy of Sciences (NAS) (National Research Council, 2002) concluded that the most precise interpretation of the data is that:

> students with qualifying AP scores who were exempted from first-year courses in college appeared, on average, to earn grades in second-year courses that were no lower than those earned by students who took the introductory courses in college. . . . [T]he methodology used in conducting the studies makes it difficult to determine how often and under what circumstances there is a positive advantage for AP students relative to non-AP students in second level courses. . . . [The methodological flaws also] make it difficult to determine whether any apparent advantage held by AP students over non-AP students is a function of the colleges they attend, the classes they enter, their own academic backgrounds and abilities, or the quality of the AP courses they took in high school. . . . It is possible that some AP students were at a disadvantage in some classes or at some colleges. (p. 193)

As with the AP courses, independent research regarding the impacts of the IB program on student performance in college is limited. Further, like the research on AP, lack of control for aptitude and motivational variables often inhibits understanding of the results. Poelzer and Feldhusen (1996) compared students enrolled in IB higher level [HL] courses in physics, biology, and chemistry; students enrolled in subsidiary level [SL] courses in the same subjects; and students enrolled in regular school courses. Even though sample sizes were small, an ANOVA repeated measure pre-post comparison showed students in the HL (studying the subject two years before sitting for the examination) and SL courses (studying the subject for one year before sitting for the examination) outperforming students in the traditional courses on AP tests. The result is not surprising since students in the IB program were selected based on prior high achievement and teacher recommendations and the teachers in the study reported that the IB students were more motivated and "demonstrated greater task commitment, questioning, independence, intelligence, ability to see connections among concepts, desire to understand, management skills, and taking responsibilities for their own learning" (p. 33). Poelzer and Feldhusen also found that the increases in achievement for students in the HL and SL biology classes and physics were equal. Second, while the increase in male scores in HL IB chemistry was greater than that of females in HL IB and males and females in SL IB, females in HL IB showed gains only equal to those of the males and females in SL IB. Finally, the mean score of IB physics students (27%) fell well below the mean for AP students (43%).

A study of IB students at the University of Virginia documented that the grade point averages of IB students during their college years exceed those of AP students by .2

points and exceed students who were in neither IB nor AP programs by .3 points (Grexa, 1988). The author concluded, weakly, "IB students perform at least as well as their counter-parts from the same or other schools that do not offer IB" (p. 5).

A report prepared by the Center for Undergraduate Education in Science, Mathematics, and Engineering (1999) cautions that even high scores on the AP examinations cannot be equated with deep understanding. Part of the concern about the preparedness of students for college courses stems from the conclusion that the College Board courses are based on "*typical* [emphasis in the original] college introductory courses, rather than the best college courses or educational practices based on learning and pedagogy" (p. 24). The National Academy panel studying AP mathematics and science courses likewise challenged the "assumption that AP courses uniformly reflect the content coverage and conceptual understanding that is developed in good college courses" (National Research Council, 2002, p. 192). The IB program does not claim that its courses are based on college introductory courses, yet many colleges and universities grant credit for courses based on scores on the IB exams. No independent research documents the equivalence of AP and IB courses, and the literature does not present evidence that the IB exam score predicts or does not predict success in upper-level college courses, nor that the preparation in IB courses provides (or does not provide) the depth of understanding equivalent to that of introductory college courses (National Research Council, 2002).

In reviewing the mathematics and science curriculum offered in AP and IB programs, the National Academy of Sciences (NAS) panel (National Research Council, 2002) concluded that there were shortcomings in these curricula, particularly with respect to developing deep understandings of concepts and key ideas from the disciplines: "Excessive breadth of coverage (especially in 1-year science programs) and insufficient emphasis on key concepts in final assessments contribute to the problem in all science fields. . . . [I]n mathematics, further improvement is needed" (p. 8). Further, they conclude, many of the programs and courses are not effective in helping students develop metacognitive skills.

Match of Gifted Student Learning Needs With AP and IB Offerings

Beyond surveys of student and teacher satisfaction, no prior research studies have examined the match of the curriculum, instruction, and learning environments in AP and IB courses with the needs of a broad range of advanced secondary learners. However, research on the learning needs and preferences of these learners gives some insight into the types of curricular and instructional experiences necessary for providing academic challenge and provoking growth in gifted students.

Definition of Giftedness and the Appropriateness of AP or IB Programs

One unresolved debate in the field of gifted education impacting the discussion of all curricular or programming options available for gifted learners is how giftedness is defined. Currently, there is no single definition of giftedness agreed upon by the field.

How giftedness is defined impacts *who* is considered gifted, identification methods utilized to "find" giftedness, and the programming and curriculum used to serve those who are identified. While whole texts are devoted to the topic of conceptions of giftedness (e.g., Sternberg & Davidson, 2005), there are several conceptions that most directly apply to this discussion. The first, identified by Mönks and Mason (1993), is the cognitive component model such as that espoused as part of the Study of Mathematically Precocious Youth at Johns Hopkins University, which represents the trait of giftedness functionally rather than by intelligence test scores. In models such as this, an exceptional level of performance in a specific cognitive area guides identification and bases programming on the faster pace of learning characterizing these students. For these students, the model espoused by AP has been recommended as an appropriate fit.

A second, dominant conception is one of achievement orientation. Authors representing achievement-oriented definitions regard other non-cognitive factors as having equal importance as cognitive factors in defining giftedness and talent. For example, Renzulli (1978) based his definition of giftedness on a review of the literature on gifted adults that led him to the conclusion that giftedness is a dynamic interaction among three traits: above average abilities, high levels of task commitment, and high levels of creativity. Renzulli distinguishes this type of giftedness (which he calls creative productive giftedness) from "schoolhouse giftedness" in which the student is a consumer of the knowledge already produced in the discipline. Renzulli acknowledges the role of the AP courses as appropriate for students possessing "schoolhouse giftedness," but questions the ability of the AP program to nurture the creatively productive gifted learner, particularly when the goals of course instruction focus on exam success. He judges the opportunity for extended independent investigation in the IB program as more closely aligned with his definition of appropriate opportunities for gifted learners that lead to the study of real problems, using the methodology of the discipline with products produced for real audiences (J. S. Renzulli, personal communication, 2000).

While there is no one agreed-upon definition of giftedness in the field of gifted education, a commonly held belief about giftedness is that there is no "one" type of gifted student, and that gifted students come from a broad spectrum of backgrounds and present myriad strengths and needs. Thus, programming and curricular options that are responsive to the varied needs of the diverse lot of gifted students must themselves be varied.

Literature on How Gifted High School Students Learn

While literature on the young child, the elementary school learner, and the middle school learner abound, the literature specifically focusing on the gifted high school learner is much less prevalent. In seeking evidence of how these individuals learn, a search of the index of such publications as *How People Learn* (Bransford et al., 1999) does not even include the terms adolescent, adolescence, or the high school learner. Constructivist theories of learning abound in discussions of teaching science and mathematics, but no studies of the relationship of these theories to the highly able secondary learner are found in the literature.

Similarly, while texts and research abound in the area of psychosocial changes that occur during adolescence, little examination has been made of the ways in which gifted adolescents learn differently from pre-adolescent or adult gifted learners. The most common statements made about highly able learners in adolescence reflect the generalizations made about gifted learners at all levels; e.g., gifted students learn at a faster pace, understand advanced and complex concepts, are more independent in learning, have insights into solutions to problems, and exhibit greater efficiency in problem-solving (Saul, 1999).

General Cognitive Abilities

In one study examining the learning processes of gifted students, Mönks and Van Boxtel (1985) note a differentiation of cognitive abilities wherein gifted students become increasingly capable of reflecting on their thinking processes and are more able to engage in meta-cognition as they move into adolescence. They also point out that gifted adolescents exhibit motivation to reach high standards of achievement and that they become more realistic and knowledgeable about their own abilities as those abilities become more manifest over time in more specialized areas. At this time, as with all adolescents, gifted learners become more independent. The increase in autonomy associated with adolescence in general is related to increased cognitive capacity to judge the value of learning experiences.

Specific Research on Talented Teenagers

Perhaps the most comprehensive studies of talent development in adolescents have been performed by Csikszentmihalyi, Rathunde, and Whalen (1997) and Bloom (1985). Csikszentmihalyi et al. found great discrepancies between the motivational factors influencing learning and the practices of teachers in the classroom. While they found the focus of talented adolescents in classrooms to be greater than that of other students, their motivation was still low: "Three-fourths of the time, when talented teens reported from the classroom, they did not want to be doing what they were doing" (p. 180). Even in classes in which teenagers were experiencing great academic success, they typically did not want to be there.

The overarching theme that described teachers successful in working with talented teenagers was their ability to attend to the students as emerging adults and go beyond the standardized curriculum to respond to the particular developmental stages and interests of the student. Those teachers identified as motivators were characterized by an "ability to transcend institutional roles in favor of a more personal approach to teaching" (Csikszentmihalyi et al., 1997, p. 181).

Three particular dimensions seem to characterize classrooms for highly able adolescents that were described as fostering "flow in learning." First, the teachers in these classrooms never abandoned their own commitment and passion for learning. Second, these teachers sought to create classroom conditions that minimized the pressures from "competition, grades, needless rules, and bureaucratic procedures. Instead

they did all they could to center students' attention on the challenges and inherent satisfaction of learning something new" (Csikszentmihalyi et al., 1997, p. 191). Csikszentmihalyi et al. noted that when feedback focuses on external rewards, students cease to develop the self-reinforcing skills necessary for sustained concentration on a problem and focused and extended immersion in challenging tasks. Finally, teachers who fostered flow had an ability to judge the changing needs of learners and alter the pace of learning, to provide the appropriate scaffolding necessary for individual student learning, and to provide choice in activities to students. They were able to adjust learning experiences to student interests and learning style as well as to provide choice in materials and themes of study.

The view these researchers hold of the talented adolescent learner is quite different from those often cited as characteristics of the teenaged population in general. Csikszentmihalyi et al. (1997) acknowledged, "what came through clearly in our study was an avid willingness to accept challenges and overcome obstacles when the problems were interesting and the necessary skills were within the individual's reach" (p. 187).

While the students in the talented teenager study recognized a high level of challenge and clear goals in their classes, they complained most about the rigidity of the structured curriculum and the reluctance of teachers to deviate from highly structured programs. They complained of little opportunity for choice, especially with regard to the pace of instruction. Data collected from students while in class revealed unusually high levels of concentration, but also unusually high levels of tension and confusion accompanied by dramatic drops in self-esteem. The authors concluded that:

> The problem with our technologically inspired views of education is that we have come to expect learning to be a function of the rationality of the information provided. In other words, we expect that if the material is well organized and logically presented, students will learn it. Nothing is farther from the fact. Students will learn only if they are motivated. Unless a person enjoys the pursuit of knowledge, learning will remain a tool to be put aside as it is no longer needed. (Csikszentmihalyi et al., 1997, p. 195)

Bloom and his colleagues (1985) found that talented mathematicians had engaged in independent work in mathematics while in high school, usually on their own without school support when they found the courses in school uninteresting or too low-level. The teachers and courses that impressed these individuals were those in which the teachers were actively involved in learning and able to transmit the excitement of the learning process.

Summary

The rapid growth of AP courses and IB programs in the United States is clearly based on filling a gap in the provision of high level, challenging courses at the high school level. While developed for different purposes and for different types of students, the courses in both educational options often comprise the entirety of the gifted education

program in secondary schools. The popularity of these courses can be attributed to many factors including government support; the availability of curricular guides, materials, and training; recommendations and commendations of the program by experts in gifted education, teachers of the courses and students; increased use of the courses as gauges of school quality; and the positive regard of college and university admissions officers. However, as demonstrated above, the research supporting and documenting the academic impact of the instruction in these courses on students is very limited. Several studies have investigated student and teacher satisfaction with the courses, and researchers have conducted limited investigations of the educational success of students who have participated in the programs. In response to the lack of research on AP and IB programs, questions about the appropriateness of these courses in preparing students for college science success, equity issues, the appropriateness of the curriculum for all gifted students, and the concurrent concerns about the degree to which either of these options become the only options available to gifted learners at the secondary level have been raised in various reviews of these programs (Center for Undergraduate Education in Science, 1999; Commission on Life Sciences - National Research Council, 1990; National Research Council, 2002). As with many areas of gifted education, research comparing alternative options for the wide variety of secondary level students who are labeled gifted or who have the potential to develop as gifted adults does not provide conclusive data on the effectiveness and appropriateness of AP courses and IB programs. Further research is needed to document the effectiveness and appropriateness of these options for a broad range of gifted learners.

CHAPTER THREE: Methodology

The purpose of this study was to examine and describe AP courses and IB programs to determine their appropriateness for gifted learners from a variety of populations. The following general research questions guided the study: (a) how do teachers conceptualize and implement curriculum and instruction for gifted learners in AP and IB classes? and (b) how do students enrolled in AP and IB classes perceive and evaluate their learning experiences in these environments?

Data collection and analysis followed the grounded theory technique as described by Strauss & Corbin (1998). Data collection and data analysis were thus iterative; as preliminary themes emerged, more data were collected to provide confirming or disconfirming evidence. Through a process of rigorous coding of the resulting data, a tentative theory was developed and tested in 5 additional sites, leading to the development of a grounded theory.

Sampling Framework

Twenty-three high schools from 7 states were chosen for participation in this study. Selected schools represented varied geographic regions and levels of community size (metropolitan, suburban, and rural), varied school poverty levels, diverse cultural groups of students in the AP courses and/or IB programs, and variations in the scope and services of courses and programs offered to highly able secondary students (AP courses, IB programs, and both AP courses and IB programs in the same school). See Appendix A for the school and student demographics for the 18 original study sites. Consistent with the grounded theory method, data were initially collected in 18 of the 23 sites. Five sites in 4 states were added in years 3 and 4 of the study to test the preliminary theory. The 5 additional schools were selected because they represented the range of student demographics of our initial sample of 18 schools. See Appendix A for the school and student demographics for the 5 additional sites.

Data Collection

Within the 23 selected schools, approximately 200 teachers, 300 students, 25 building-level administrators/coordinators, and 8 counselors participated in observations and interviews. In most cases, each school was visited 3 times over the course of an academic year. These visits were arranged to correspond with the first third of the school year, the second third of the school year, and the instructional time after the AP and IB exams were administered. The purpose of the staggered visits was to increase the credibility in the findings by persistently observing the sites over time, to allow for probing of emerging themes, and to determine a pattern of curricular, instructional, and assessment practices in relation to the administration of exams.

During each visit, participating teachers' classrooms were observed for at least one complete class period. Teachers were notified in advance of the visits, but were not asked to modify their plans for the observers. Researchers used semi-structured observation protocol documents to guide the recording of notes during these observations (see Appendix B for observation protocols). General areas of emphasis included types of instructional approaches observed, teacher-student interactions, instructional resources used, and degree of challenge/rigor evidenced. As themes emerged, researchers sought confirming or disconfirming evidence of these themes in their observations. Whenever possible, verbatim quotes from teachers/students were recorded to enhance the validity of the findings and to reduce bias from the observer. Additional strategies used to increase the validity of findings included triangulation of data sources, the use of multiple data collectors, and the use of multiple data analysts.

Interviews with participating teachers occurred directly preceding or directly after classroom observations. In some cases, teachers were interviewed in focus groups of approximately 3 to 5 members when class schedules did not permit individual interviews. Student interviews were conducted mainly through small focus groups (composed of 3 to 5 students per session). Students who were eligible, but not participating in AP courses and/or IB programs, were usually interviewed individually to increase the opportunity to uncover their unique experiences. Administrators and coordinators were interviewed individually. Often multiple interview sessions were conducted across visits with these individuals because of their role as the lead contact people for the sites and their role in providing leadership with regard to development and implementation of AP and/or IB in their schools. In each case, semi-structured interview protocols guided the interview process and were enhanced by questioning designed to elicit information-rich responses or to follow up on questions from the classroom observations or themes emerging during data analysis (see Appendices C-H for interview protocols). Documents such as teachers' planning documents, instructional materials, some student artifacts, program literature, and communication materials were collected and analyzed.

Data Analysis

Researchers recorded field notes from each classroom observation and after each individual or focus group interview. Field notes were typed up by the researchers who conducted the observations. Interviews were tape recorded (when possible) and transcribed verbatim. A team of researchers analyzed these varied data sources including the field notes, documents, observations, and transcribed interviews. Data analysis occurred in three distinct phases.

Phase One

In the first phase, two researchers analyzed the data collected during the first year of the study using a variation of the Scriven (1972) team approach to evaluation that reduces the occurrence of researcher bias. One researcher followed a deductive analytical method, investigating the study's research questions by comparing the data's

themes to those questions. A second data analyst utilized an inductive approach, seeking prominent themes, patterns, and concepts from within the data. Upon completion of the two analyses, the two researchers compared and contrasted their findings. During year two, additional data were collected and analyzed for confirming and disconfirming evidence of emerging themes and to resolve discrepancies between data analysts' interpretations.

Phase Two

In the second phase of data analysis, a second set of researchers compared the data from the second year of the study to the initial findings. Where necessary, the preliminary findings were adjusted to accommodate new evidence and themes. Strauss and Corbin's (1998) Conditional/Consequential Matrix was used to help understand the interrelationships between the contexts in which AP and IB programs existed and the resulting actions and consequences (see Figures 1-3).

Phase Three

A tentative theory was developed and tested in 5 new sites during years 3 and 4 of the study. The 5 new sites were chosen to represent the student and school demographics represented in the larger study. See Appendix A for the school and student demographics for the original and the five additional sites. In the third phase of data analysis, the tentative theory was tested against data from the new sites. Where necessary, the preliminary theory was adjusted to accommodate new evidence. From this phase of data analysis, a grounded theory was developed.

CHAPTER FOUR: Results

Research Question #1: How do teachers conceptualize and implement curriculum and instruction for gifted learners in AP and IB classes?

Most AP and IB teachers reported that their curricular and instructional decisions were driven primarily by the end-of-course exams. However, the different natures of the AP and IB exams resulted in different impacts on teachers' classroom decision-making. As such, AP and IB teachers' decisions about curriculum and instruction will be examined separately.

Curriculum

Curriculum in AP Courses

Overwhelmingly, AP teachers reported that their decisions about what to teach in their AP courses were almost exclusively driven by the content tested on the end-of-course AP exams.

> I go specifically by the guidelines of the College Board. I teach generally to the test, in terms of using old tests, discussion questions, [Document Based Questions (DBQs)] that have been on previous AP exams. I use all the old multiple-choice questions that have been released because we have found that to use material other than that, they are not as successful on the exam. (WHS#2, Teacher Focus Group Interview, p. 8)

An AP Biology teacher said, "By and large, it's test driven in my class" (ECHS#9, Teacher Focus Group Interview, p. 14).

Student interviews confirmed these findings; one group of AP students discussed how the tests impacted their AP courses:

> ST1: It's all about the test.
>
> ST2: They say the state tests are bad because they teach to the test, but AP classes are exactly the same.
>
> ST3: It's all we do. (MHS#18, Student Focus Group Interview, p. 4)

AP teachers reported that they felt great pressure to prepare students for the end-of-course exams because of the stakes attached to them. Additionally, many teachers believed that student AP exam scores were used to make determinations about AP teacher quality. "You keep hearing, you know, you've got to make these scores, you've got to have this many pass" (C#4, Teacher Focus Group Interview, p. 3). Accordingly,

most teachers held high student performance on these exams as the ultimate goal of AP courses. An AP teacher described "the most valuable thing" she learned about teaching AP as coming from an AP trainer's advice. "Remember your role. Your job is to ensure that all of your students pass the exam. And that means the non-motivated ones as well as the motivated ones" (WHS#6, Teacher Focus Group Interview, p. 5).

The focus on preparing students for the end-of-course exams had profound impacts on teachers' decisions about curriculum and instruction. AP teachers revealed 4 ways in which the AP exam focus affected what and how they felt they needed to teach:

1. AP teachers perceived a need to rush through content in order to "cover" the large amount of material tested on the AP exams.

Overwhelmingly, AP teachers expressed feeling responsible for familiarizing their students with all of the content tested on the end-of-course exams. Further, most AP teachers felt challenged to teach the content of the courses within the time allocated for instruction before the exam.

> Probably the biggest challenge is getting through the material in a timely manner, since the AP exam is the beginning of May and you must cover the entire history of the United States in a short period of time . . . it's very difficult. (WHS#2, Teacher Focus Group Interview, p. 2)

An AP Biology teacher at a different school echoed nearly the same sentiment. "In the biology course. . . we are pressured to, you got to do this, you got to do this. And it's, when you have a textbook with 38 chapters in it, it's very difficult to cover everything" (ECH#5, Teacher Focus Group Interview, pp. 6-7). To "cover it all," most AP teachers indicated feeling that they needed to rush through their course material. One AP U.S. History teacher noted, "I feel constrained by time the whole year. Quite frankly, that is the biggest struggle and [the students] feel like we're rushing. And it's a tremendous amount of material to cover in a short period of time" (WHS#2, Teacher Focus Group Interview, p. 8).

2. AP teachers believed that the exam focus limited the depth of exploration of the content in AP courses.

The broad scope of the content included in AP courses led many teachers to conclude that they were forced to "cover," rather than "teach," the course content. That is, AP teachers indicated that they were able to *introduce* information but did not have time to allow students to process or deeply understand it. "We don't have a lot of time in class to go into extensive depth on any one period of history" (WHS#2, Teacher Focus Group Interview, pp. 8-9). Many teachers felt that they were only able to skim over topics and were not able to go into the depth that they would like to with the material. "I feel like we go over a lot of things at a surface level" (MHS#21, Teacher Focus Group Interview, p. 10). Another AP teacher echoed this feeling. "I can't spend very much time

on a lot of things. I would like to spend more time on certain areas, but I can't because I have to get through the curriculum" (VCH#3, Teacher Interview, p. 3).

3. AP teachers believed that the exam focus narrowed the options they had to extend the curriculum into areas they deemed important.

In addition to limiting the *depth* of the curriculum, many AP teachers expressed feeling that the pressure to prepare students for the AP exams narrowed the *choices* they had in terms of what they taught, often at the expense of content they believed would be valuable for or interesting to students. Many AP teachers indicated that they often excluded material that they thought was important for students to learn if it was not on the test. "You keep finding yourself going back to that idea of . . . OK, I've got to teach them this, this, and this, and well, this part of it isn't tested, so I'll leave that out" (C#4, Teacher Interview, p. 3).

4. AP teachers believed that the exam focus precluded them from attending to student interests.

Teachers also noted that the need to rush through the material prevented them from having the time to divert from the planned curriculum to attend to student interests in or related to certain aspects of the curriculum. "In AP Physics, there's so much material to cover that adding material is not an option in realistic terms" (OL#7, Teacher Interview, p. 4). Teachers overwhelmingly indicated that, because of the end-of-course exams, they could not make decisions about what content to include or discard based on the interests or needs of their students.

> The criticism for AP is the same criticism that I see in general education courses. With the state tests, general education teachers say you have to gut what is fun and you have to teach to the test. Well, I'm teaching to the AP too, but under the constraints of the block I'm actually streamlining more and more of that so it is essential teaching and that is about it. There is not a whole lot of fun. And kids need to have fun in the process. (FHS#4, Teacher Focus Group Interview, p. 4)

Some teachers noted that they used the time after the AP exams were over to go into greater depth in areas of the curriculum in which students expressed an interest.

> As we go through the year, if they feel that there's something that looks like they were interested in, and then they vote. Last year this group felt very, very strongly that they wanted to do the depression generation. This year, the class was really incensed about the black legend and how they really felt that it underpinned American History II . . . but, we do not do anything until the AP test is over. Once the AP test is over, then they do two weeks of very intensive research. (BTW#7, Teacher Interview, pp. 1-2)

Like this teacher, other AP teachers noted that they tried to attend to student interests after the AP tests were given, but that often students had "checked out" of school by that time.

> I have time to pursue student interests after the test. We have a long time afterwards. Of course, their interest level declines. Then they have no interests. They are too busy talking about the prom and the beach and summer jobs and getting out of here. (MHS#17, Teacher Focus Group Interview, p. 11)

As a result, many AP teachers indicated that they did not get a chance during the span of their AP course to attend to individual students' interests.

Curriculum in IB Courses

Like AP teachers, IB teachers felt that the end-of-course exams were the primary influence on their curricular decisions.

> We teach to the test, because as we tell the kids, we don't make the exam and we don't grade the exam, so we have to over-prepare them to take that exam. The first day of the junior year, I hand kids the copies of the past exams and say, "Here is what you are going to see two years from now." And we frequently use those questions to study for that. (WHS#4, Teacher Focus Group Interview, p. 11)

However, IB teachers believed that they were able to go into greater depth with the topics taught than in AP courses because of the nature of the IB tests. Teachers who taught both AP and IB courses indicated that they taught more topics at a surface level in their AP courses, whereas in IB courses they taught fewer topics in greater depth. "In IB, it's concept oriented. In AP, it is more detail oriented" (WHS#4, Teacher Focus Group Interview, p. 11). One teacher described her move from teaching AP European History to teaching an IB history course:

> I had to focus especially on depth of knowledge . . . I've taught AP European history for six years. I grade AP exams. But the depth of knowledge in IB is so much more extensive and [the students] want to know so much more that I find myself having to do a lot more primary reading. (PA#6, Teacher Interview, p. 3)

An AP teacher noted the difference in the depth and breadth of content between AP and IB courses. "In IB they pick one book and they look at every single component very, very deeply. In AP we have to get in much more content" (SBHS#5, Teacher Focus Group Interview, p. 4). Unlike AP teachers, IB teachers did not express the need to rush through topics to "cover" everything before the exam.

> The IB has built in its structure in terms of when deadlines are due. As long as you have your calendar and stick to it, it's not a rush to get through. The AP, everything comes down to that one day. The idea that works best is to not teach

> so much, but to teach fewer more thoroughly, that seems to work better. (WHS#6, Teacher Focus Group Interview, p. 14)

Teachers teaching both AP and IB courses also believed that the IB tests called for higher level thinking and more connection-making than did the AP tests, which impacted the way the two types of courses were taught. In AP courses, they believed, teachers needed to teach facts; in IB courses, they needed to teach students to think.

> The most important emphasis in all IB subject areas and in the program itself is critical thinking skills. That is the cornerstone. That is why when you walk into an IB exam, they are all essay. . . . You can't just memorize things for an IB exam and expect to do well on it. You have to know. Because when you walk in to sit down for the test, you are going to look at something you have never seen before, and you are going to be asked to apply what you have learned to this something new and different that you have never seen before. (PA#28, Coordinator Interview, p. 9)

IB students confirmed their teachers' claims that the IB curriculum was focused on developing higher-level thinking skills. IB students noted that these courses helped them develop general critical thinking abilities applicable to a broad range of topics.

> I think that the most important thing to me that IB has taught me is to analyze things and to be able to learn things more thoroughly and better so that I can handle situations with much more ease than I could before. I can interpret things better and make sense of the world. (PA#34, Student Focus Group Interview, p. 3)

Overall, teachers teaching in both AP and IB courses believed that, as a result of the differences in the AP and IB exams, the IB curriculum was richer than the AP curriculum, with more time for the class to probe deeply into the content.

> I don't feel pressure to cover everything on the test. Not with IB. AP, yes. But definitely not IB. IB is depth of knowledge. Like, for example, for the last week and a half, we're working on the reunification of Germany. They were scheduled to take an essay test on March 11, and I pushed it back to March 13th because there were some other issues that had come up. And we have that sort of freedom to go into those other issues. They are not necessarily issues that I would have covered in my planning—I hadn't planned to cover it—but since they have come up and they are part of the curriculum, I can take the time to go into them. I feel a lot less pressure with IB than I did with AP. (PA#32, Teacher Interview, p. 2).

Curriculum Differentiation in AP and IB Classes

Substantive, pro-active curriculum differentiation based on individual student needs was not apparent in any of the AP or IB classes that we observed. At no time did we witness teachers formally pre-assessing students or using pre-assessment data from individual students to guide curricular decisions. During interviews with AP and IB

teachers, only a few teachers indicated that they made efforts to adjust their curricula according to student needs, and these self-reported efforts generally focused on offering students choice on assignments or meeting with them after class hours to provide extra help. An AP teacher noted:

> I pretty much follow the curriculum. Now if the student comes up and wants some additional help in some area, then that's no problem at all. But during the class time, I follow the curriculum, and I'm driven by that primarily. (KG #31, Teacher Focus Group Interview, p. 5)

An IB teacher at a different school echoed this statement:

> I basically follow the curriculum. If I need to work individually with a student, that's either before or after school. But basically, in the classroom, I have to stick with the pacing so that I do finish the curriculum. (PA#31, Teacher Focus Group Interview, p. 5)

Supporting struggling students. As the comments above indicate, any differentiation consisted of extra, out-of-class time with struggling students. However, almost unanimously, AP and IB teachers noted that, even when they noticed that individual students were struggling with concepts in class, they felt pressure to move on. When asked what happened when a student did not "get" a concept, an IB teacher responded, "We go on . . . I spent a lot of time after school this year" (WHS#4, Teacher Focus Group Interview, p. 12). An AP Biology teacher noted, "I just feel personally that, in order to cover the material in a manner that I feel is adequate in the time I have, I don't have time . . . . And I'll just hope that they can hang on and keep up, because it's a struggle to get through, as it is in many an AP course" (OL#7, Teacher Interview, p. 7). Other teachers noted that they simply did not have time in the context of AP and IB courses to catch students up if they were behind. "There is a little bit of time for remediation in general ed classes, but in an AP class that pretty much is not built into the class. There is no remediation time in class" (MHS#17, Teacher Focus Group Interview, p. 10).

AP and IB students were aware that they needed to keep pace with the rest of the class or suffer the consequences.

> In AP Chemistry you actually have to understand the stuff, and if you don't understand it you get behind and you can't move on because each unit builds up to the next one. So it made it difficult that, if you ever have any trouble, you're stuck. (OL#1, Student Focus Group Interview, p. 7)

Overwhelmingly, both AP and IB teachers reported spending a great deal of time and going to great lengths to provide extra help for students who sought it after school. An IB teacher explained, "I will wait after school for those who need it. Sometimes we meet in different places in town, like the library. Those who don't need it, they don't need to show" (WHS#4, Teacher Focus Group Interview, pp. 12-13). Similarly, an AP teacher

at a different school said, "I stay after school every single day. I spend a lot of time helping kids . . . going through their essays with them and talking to them one-on-one" (SBHS#5, Teacher Focus Group Interview, p. 3).

However, AP and IB teachers tended to struggle with the idea of supporting struggling students in these advanced classes during class time, as many believed that this would require watering down the curriculum:

> I think that many of them sincerely in their hearts want to succeed, and I don't think they realized how difficult it was going to be because I will not change the material. It is what it is and I will not water it down for them because that would be unfair. (GHS#1, Teacher Interview, p. 2)

Students believed that their AP teachers tended to perceive supporting struggling students as "dumbing down" the curriculum. "If a student chooses to be in AP classes, it is supposed to be a college level course. So, I found that most teachers try and gear it toward that level. They don't try and dumb it down" (FQHS#12, Student Focus Group Interview, p. 4).

Providing extra challenge. Interestingly, few teachers were observed making any curricular modifications for individual students who needed challenge beyond that offered in the AP or IB curriculum, even though interviews with students indicated that there were some who felt they needed challenge beyond what was offered in these courses.

> I don't think that I'm working up to my potential. There's a lot of classes that kind of limit you. Yeah, AP classes are great, but you're always going to be limited. You think you can do more and you want to do more. And that's just the way high school is. (MHS#20, Student Focus Group Interview, p. 7)

An IB student indicated that while the *amount* of work in her IB classes was heavy, the challenge level often was not high enough. "It's challenging occasionally, but it's more so that there's just a lot of it. And we do a lot of work. And I really think it's just more content, really, than other classes" (PA#33, Student Focus Group Interview, p. 2).

Despite some students' desire for extra challenge, most AP and IB teachers provided after-school modifications only for students who were struggling. When describing after-school extra help sessions, an AP teacher noted, "Those who have gotten it don't need to come back, they don't need my help."

One IB teacher noted that she allowed the students who finished early or who quickly grasped concepts to work on assignments for other classes.

> I don't believe in giving them more work to do. And they always have something to do for somebody else . . . they ask, "I am finished, can I do . . ." and I say,

> "Yes, go right ahead if you are done with this, feel free to do your math," and we exchange kids across the hall.

Like this teacher, many interviewed teachers indicated that they perceived "extra challenge" as synonymous with "more work." This equation of extra challenge with extra work was pervasive in AP and IB teachers' perceptions of how to challenge the most advanced students in the class. One AP teacher reported that to challenge the most advanced students in her French class, she provided enrichment activities for students who finished early or who were interested in a particular topic. Students could choose to do these activities in addition to, rather than in place of, the regular class activities. "She always offers above and beyond work for students who want more, or are finished with their work. She said that she finds students who soak up the enrichment activities" (OL#4, Researcher Field Notes, p. 6).

The vast majority of interviewed teachers indicated that in-class curriculum differentiation for individual students—either for struggling students or those who were more advanced than the rest of the class—was not a possibility in AP and IB classes because of the need to prepare all students for the end-of-course exams. "I did, in the beginning, start out using more of a differentiated approach, and soon realized that I was not going to cover everything I needed to cover in the time allowed, and so I panicked" (MHS#5, Teacher Focus Group Interview, p. 22). As a result of feeling rushed, the curricula that teachers offered in AP and IB courses were overwhelmingly one-size-fits-all.

The only modifications that most teachers did indicate making to their curricula were *pacing* modifications, either speeding up or slowing down the rate at which they proceeded through the course material. But these pacing modifications were made based on the perceived needs of the class as a whole, not on the needs of individual students.

> I don't work that great in detail to follow individual student needs. Except maybe as a class or a group, I look at this group is stronger at a particular area than another. I spend less time in that and more time in weaker areas. (KG#31, Teacher Focus Group Interview, p. 5)

Perception of student homogeneity. While most teachers cited the pressure for all students to learn the material that would be tested on the end-of-course exams as the primary reason they did not attend to student readiness differences in the classroom, interviews revealed that AP and IB teachers also generally did not perceive a *need* to differentiate. Interviewed teachers tended to express the belief that the students in their classes comprised a largely homogeneous population of well-prepared, motivated, and organized students with a proven track record of academic success—at least the students who *belonged* in these advanced courses.

> Typically, these are students who are very disciplined and self-driven. . . . They are better than average at communication. They want to succeed and if they are not succeeding, they talk to me about it. They are serious, they have a kind of

> awareness. They are responsible, and they are on time the whole time. (SBHS#6, Teacher Focus Group Interview, p. 5)

An AP Chemistry teacher described his AP students as "all the same. I try to address the middle ground" (VCH#4, Teacher Focus Group Interview, p. 5).

Conversely, teachers frequently described those students who were taking AP or IB classes but who did not have these characteristics as "not belonging" or "not AP/IB material." An IB teacher noted:

> I don't know if all the kids that are in the program should be in the program. A lot of them are in it because you know, their parents want them to get that education and they are not really up to that level and they are going to struggle through it. (PA#22, Teacher Focus Group Interview, p. 18)

Many AP and IB teachers expressed the belief that AP and IB courses should be for students who were ready for and complied with the pace, challenge level, and format of the courses. They did not feel a responsibility to provide for the students who did not come to AP or IB courses equipped with those characteristics. "In an AP class, if they can't handle understanding the big picture, then they really don't belong in that class" (MHS#7, Teacher Focus Group Interview, p. 21).

Teachers indicated that they expected students to have the skills necessary for success in these courses prior to coming to the class, and did not feel it was their job to provide these skills in the context of an AP or IB class.

> For English, we had our feeder courses on the honors level provide the students with the analytical reading skills and the writing skills, but if students come into the AP class and they haven't had those—and that does happen—you can't stop and teach what they should have had coming in. (MHS#17, Teacher Focus Group Interview, p. 12)

Part of AP and IB teachers' general reluctance to make modifications for the students who were struggling in their courses was the fact that they believed that AP and IB courses were designed to provide "college-level" challenge, which many teachers defined as putting much of the burden of learning on students' shoulders. Many AP and IB teachers revealed a "sink-or-swim" attitude about student success in these courses.

> I try to at least squelch out those that don't want to work. Because I'm not one who wants to just pick up their notes and just check their notes every night that they've done their reading. But I'm not, in a college-level class I don't feel like I should have to look over their shoulders that much. (MHS#7, Teacher Focus Group Interview, p. 8)

Another AP teacher noted:

> If you are going to prepare the kids to be able to get college credit while they are in high school, then they have to be able to adapt to that. Otherwise they need to drop back and take an honors class where they are going to get more in-class instruction. (MHS#17, Teacher Focus Group Interview, p. 12)

A third AP teacher at yet another school indicated that, in her AP organic chemistry class, "I have lost about 30% [of the students] and it's probably a good thing because they were the kids that were failing" (GHS#4, Teacher Interview, p. 5).

Similarly, many AP and IB students noted that teachers' beliefs about what it meant for a course to be "college level" often led teachers to be rigid about expectations.

> Some teachers, I think, since it's an AP class, believe that it has to be college. Like you have to be, everything has to be like college. They don't realize that we're high school kids and we're taking all these AP classes, so they're trying to push all this pressure and then we have tons of stuff due, and we're in extracurricular activities and they're like, well, this is a college class and you're supposed to do everything. But we're still high school kids; we're just learning the college materials. (EDH#13, Student Focus Group Interview, p. 1)

Other AP students noted that their AP teachers tended to place the burden of learning on the student.

> They don't have to explain every little detail. They just say, "All right, here's the assignment due in a week." And they just let you take care of it, because they figure you already know how. And if you do, that's good for you, and if you don't, then that's your problem and you have to figure it out. (MHS#20, Student Focus Group Interview, p. 18)

Curriculum differentiation in schools with special programs. An exception to this reluctance to modify the curriculum to meet learners' needs occurred in schools in which increasing the representation of traditionally underserved populations in AP courses was a district-wide focus. (We did not observe in any schools that had a similar initiative to raise minority participation in IB courses.) In these schools, AP teachers were confronted with a large number of students in their courses who did not have the background skills usually assumed of AP students. AP teachers in these schools tended to be more conscious of the need to provide students with support and direct instruction on skills such as writing, study skills, and organization in addition to the content of their courses.

> If you are one of five kids living in a one bedroom apartment, where can you go to study? We came up with strategies; we talked about what to do. What many of them need is someone to say, "No, you're not going to fail, you are going to learn and these are the steps." And then you define for them what the steps are. And pretty soon, they're on the bandwagon and they're working. (WHS#35, Teacher Focus Group Interview, p. 1)

Teachers in schools with programs designed to promote successful minority participation in AP courses tended to focus on improving students' skills and preparing them for college-level work while simultaneously preparing them for end-of-course exams.

> You have to teach on a level that you do not lose the students that don't have the background and don't have the skills coming in. At the same time you have to prepare all the students to take the test and you have to present the material. (SBHS#2, Teacher Interview, p. 2)

These teachers tended to regard AP courses not necessarily as *duplicates* of college courses, but as preparation ground for the challenge and workload that students would face in college. These teachers expressed the belief that exposure to challenge—and the desire to be presented with challenge—along with the opportunity to build and develop skills were more important than the test score that a student received. An AP teacher at an urban high school described how the AP teachers at his school maintained high academic standards while giving struggling students needed supports. "We're not 'dumbing down.' What we are doing is giving support in order to make sure they can maybe believe that not all kids develop in the same way and access different intelligences" (WHS#25, Teacher Focus Group Interview, p. 4). An AP teacher in another urban school described one of her students:

> She's a musician, she's an artist, and she had to miss so many classes because of family circumstances. And yet, she's a brilliant writer . . . and I look and I say, "If we really stick to the rules, I should fail her just based on her absences." People would say that she shouldn't be in the AP program, but I make those decisions myself. She has the confidence to say, "I'm going to try this AP class and even though I have all these other barriers and responsibilities, I'll stay here until I prove that I don't belong here. . . ." I tell her, "You may not pass the AP test, but you must continue because your sense of poetry and what you can do with language and what you can understand shows a great deal of advancement." (VCH#1, Teacher Interview, p. 5)

For a more extensive look at urban schools with support structures in place for students from minority and low-income backgrounds, see Kyburg (2006).

Instruction in AP and IB Courses

Instructional Preferences of AP and IB Students

Interviews with AP and IB students probed their instructional preferences. Overwhelmingly, the students indicated that they preferred instructional techniques that involved hands-on learning, were varied, allowed students to voice opinions, and involved discussion and debate: "I like discussion and debate. Have like dialogue" (MHS#19, Student Focus Group Interview, p. 15). An AP student emphasized the importance of using a variety of teaching techniques in motivating advanced students to learn.

> If you have a teacher that just sits there and just kind of has the same agenda every day—lecture, worksheet—then it gets kind of old, and you don't want to do it anymore. But, to get us to want to learn, you have to have variety of teaching. (POHS#1, Student Focus Group Interview, p. 6)

Many AP and IB students indicated that their enjoyment of school was largely reliant upon the teacher and, in particular, upon the willingness of a teacher to make learning "fun" and interesting. An IB student reported that she found classes best suited to her needs when "the teachers are doing something interesting—not mindless work that you're doing every single day just to get through the curriculum" (PA#6, Student Focus Group Interview, p. 7).

Instruction in AP Classes

Observations of AP classes and interviews with AP teachers and students indicated that lecture was the most frequently used instructional technique in AP classes. Teachers indicated that they relied heavily upon lecture because they found it to be the most efficient method of communicating the large amount of material they were responsible for teaching to the students.

> So it's a very fast-paced curriculum. It's very fast-paced. Either they get it or they don't. They don't get it, they need to be asking questions. It's up to them. I will lecture, I will go over it with them. (EDH#8, Teacher Focus Group Interview, p. 9)

Many teachers indicated that they had tried more interactive teaching approaches in their classes, but felt the need to abandon them for the more expedient lecture mode when time got tight.

> I try to do a lot of role playing, simulations, debates. Kids love that stuff but I have to admit that it seems like every year I find myself doing more just lecture because I have to cover all the bases. (EDH, Teacher Focus Group Interview, p. 9)

Students similarly reported that their teachers used lecture frequently in class: "A lot of it is just, he's talking to us; you're sitting there for an hour-and-a-half. You're bound to get bored" (WMHS#3, Student Focus Group Interview, p. 12). AP students from all of the study sites complained that the lecture format of their AP classes became repetitive and that they preferred more hands-on, interactive teaching approaches.

> I just don't like to listen to the teacher just talk. That's all they do. I'd rather, like, learn something or actually be doing something than just sitting there, because I mean, I get really bored really easily, and I hate government because of the fact that all they do is talk. (OL#2, Student Focus Group Interview, p. 15)

Many AP teachers also indicated that they would like to use more innovative and exciting instructional approaches, but they did not feel they had the time to do so.

> Until this year, I had my students do a mock constitutional convention, which is a great activity, but it requires close to two weeks, a lot of time for just one activity. And so this year I decided to, because I'm always rushed at the end of the semester, I cut that activity. I just lecture for whatever the constitutional convention and the students took notes. (EDH#8, Teacher Focus Group Interview, p. 9)

Despite the fact that many AP students indicated that they would have preferred a more hands-on, active, and "fun" approach to learning within their AP courses, they believed that the lecture format was a better fit for their needs than the instructional methods used in their non-AP courses, which they characterized as primarily worksheet-driven.

> You don't just read, like in history, you don't just read about World War II. Your teacher goes into it a lot more in AP and talks about all the different dimensions of it. Instead of just like doing a handout or whatever. (ECH#7, Student Focus Group Interview, p. 3)

Many AP students also shared their teachers' beliefs that the lecture format was necessary in AP classes because of the vast content students were expected to learn for the end-of-course exams. "Lectures are necessary so that we can learn from the teachers who are here to teach us. And there's so much we have to learn. I guess that's how they have to teach" (OLHS#7, Student Focus Group Interview, p. 31).

Instruction in IB Classes

Lectures were also frequently observed in IB classes, but in general IB classes tended to be more discussion-centered than AP classes. Teachers who taught both AP and IB courses noted this distinction, attributing it to the difference in the content focus in AP courses as opposed to IB courses. "AP is a little bit about everything . . . IB is a lot about a little" (PA#6, Teacher Focus Group Interview, p. 3). These teachers also noted that discussion-centered instruction tended to fit better with the IB program's focus on developing thinking skills, whereas the lecture format fit better with the general tendency of AP exams to focus on recall of facts.

> In IB you want students to be able to think critically and express those ideas to an audience. And they love to talk, to debate ideas with one another. They'd talk all day, if you let them. But with AP, you don't have that luxury of time. You just can't do the discussions the way you can in IB. (WHS#6, Teacher Focus Group Interview, p. 4)

Student data echoed these findings; IB students frequently cited class discussions as being the most rewarding part of their IB experience.

> A lot of times the discussions you have in class are really stimulating. It's really fun. We have such a diverse amount of opinions, even in our smaller classes. Everyone has different opinions, so it's just fun . . . . In our classes, we have

> mature conversations. And I feel like we're almost in college. (WHS#9, Student Focus Group Interview, p. 4)

An IB student from a different school noted that the classes were primarily discussion-based.

> The classes are mainly discussion based. A lot of times there's less note-taking and more handouts because we'll discuss in a group what's going on because we've already read it the night before. We can learn from the textbook, and we don't have to have the teacher explain everything to us. (PA#34, Student Focus Group Interview, p. 2)

Differentiation of Instruction in AP and IB Classes

Just as curriculum differentiation was not apparent in either AP or IB teachers' classrooms, teachers in both programs did not generally differentiate their instructional methods to meet the unique learning needs of individual students. AP and IB teachers alike did not consider differentiation of instruction appropriate for these advanced-level classes, as all students were expected to pass the same tests at the end of the year, requiring the same skills and teaching approaches.

> If one looks broadly at learning styles, I think it's about the kids who are having difficulty with writing. Certainly, the IB program doesn't offer much flexibility in that. The kids are going to have to do a lot of writing one way or another. (PA#6, Teacher Focus Group Interview, p. 14)

Additionally, AP and IB teachers did not believe that they had time to attend to individual students' interests or learning profiles, but instead felt they had to teach all students using a single, "one-size-fits-all" mode of teaching. "The sheer volume of material that you have to cover in AP is so far above normal classes. You have to use the fire hose approach, I guess, a lot of times in AP courses" (MHS#17, Teacher Focus Group Interview, p. 10).

Many AP and IB teachers believed that they would be doing students a disservice by differentiating instruction in these advanced-level courses, as they did not believe that it would adequately prepare them for what they would face in college:

> I teach 9th grade science, so if I am introducing something, I might have to introduce it three or four different ways to get it across to my children. But in an AP class, if it is taught as a college level, I don't know any professors who introduce the same topic three or four different ways to make sure their children understand it. You expect them to be able to understand the concepts and if they don't, they are supposed to be at a maturity level that they will approach you for it. (MHS#17, Teacher Focus Group Interview, p. 10)

Many students agreed with their teachers that modifying instruction to meet the needs of individual students was not compatible with the implicit goals of AP and IB courses—to prepare students to score well on the end-of-course exams.

> I just think that they're just trying to get this information out because we only have a certain amount of time to fit it in before the IB exams, so they're trying to get it done as quickly as possible. And I don't think there's a way to consider everyone. (KG#40, Student Focus Group Interview, p. 17)

Other students indicated that, although they did not feel that the format of AP and IB courses fit their learning styles, they could not imagine the classes being conducted any other way:

> My own personal gripe with the program is, I guess, I don't like being schooled in a large classroom, reading out of a book, with required assignments. I guess that is just not the way I like to learn, but it is kind of unavoidable. (VCH#13, Student Focus Group Interview, pp. 5-6)

Summary of Results for Research Question #1

Several important themes emerged from this study related to Research Question #1. Research Question #1 asked, "How do teachers conceptualize and implement curriculum and instruction for gifted learners in AP and IB classes?" Classroom observation and teacher and student interview data indicated that AP and IB teachers tended to view their students as a homogeneous group and, as such, designed curriculum and instruction in accordance with their expectations of the class as a whole, rather than in accordance with expectations of individual students.

AP and IB Teachers' Curricular Decision-making

Most AP and IB teachers' decisions about curriculum seemed to follow a similar pattern (see Figure 1). Guided by the belief that high student performance on the end-of-course exams was the ultimate goal of the course, teachers first and foremost considered what material would be tested on the end-of-course exams. By-and-large, for most teachers, the content included on the exams determined the content to be taught in the course. Belief in the need for student exposure to the entire curriculum and constrained time limits led to one-size-fits-all curriculum.

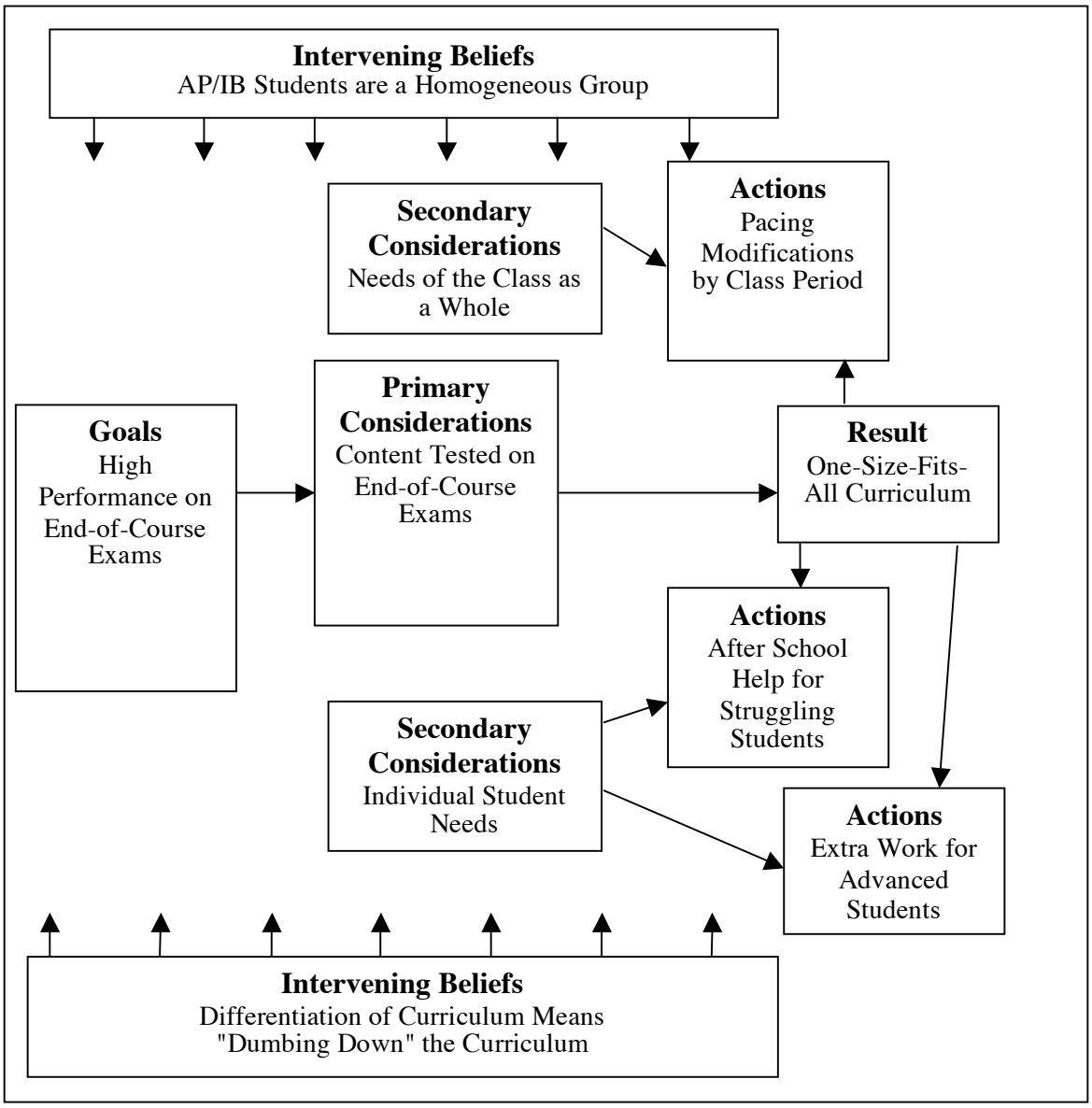

Figure 1. AP and IB teachers' curricular decision-making process.

Based on the belief that students in these classes were (or should be) a homogeneous group, teachers then generally considered the needs of the class as a whole and made some modifications to the curriculum for the whole group in setting the pace of instruction. Generally the pace at which the content was taught was set in response to the class' general level of understanding of the concept or content being taught. Finally, teachers considered individual student needs as they arose, particularly when a student seemed to be falling behind, and generally provided after school help for struggling students. Less frequently, they provided extra work for more advanced students. Teachers' beliefs that AP and IB students were a homogeneous group, and that any differentiation of the curriculum for students would entail "dumbing down" the content, led them to make few, if any, provisions for academic diversity in the classroom.

AP and IB Teachers' Instructional Decision-making

AP teachers' instructional decisions were guided primarily by the goal of "covering" a large amount of content by the time the tests were given. As a result, AP teachers tended to choose to use what they perceived to be the most expedient instructional method, lecture, and to forgo instructional methods they perceived to be more time-intensive (such as experiments, hands-on activities, and in-depth investigations). AP teachers' feelings that they needed to "cover" all of the material for the exams primarily through lecture revealed the shared belief that, in AP courses, *learning* equates with *exposure to content*, not with making meaning out of in-depth consideration of ideas (see Figure 2).

While IB teachers' instructional decisions were also largely guided by a perceived need to prepare students for the end-of-course exams, IB teachers in general felt that they had more instructional flexibility than AP teachers because they were under less restrictive time constraints due to a less fact-based and more thinking skills-focused curriculum (see Figure 3). As a result, IB classes tended to be less lecture-heavy and to include more discussions than AP classes. The focus in IB classes appeared to be more on meaning-making than on acquisition of facts.

However, despite feeling that they had some flexibility in their choice of instructional methods, IB teachers, like their AP counterparts, were never observed adjusting their instructional methods to meet the diverse needs of individual learners in their classrooms. It seems that the generally held belief among AP and IB teachers that their students were a *purposefully* homogeneous group of learners left them feeling as though they should not—and ultimately need not—make any modifications to their instructional methods to meet the various learning needs and styles of the students in their classrooms.

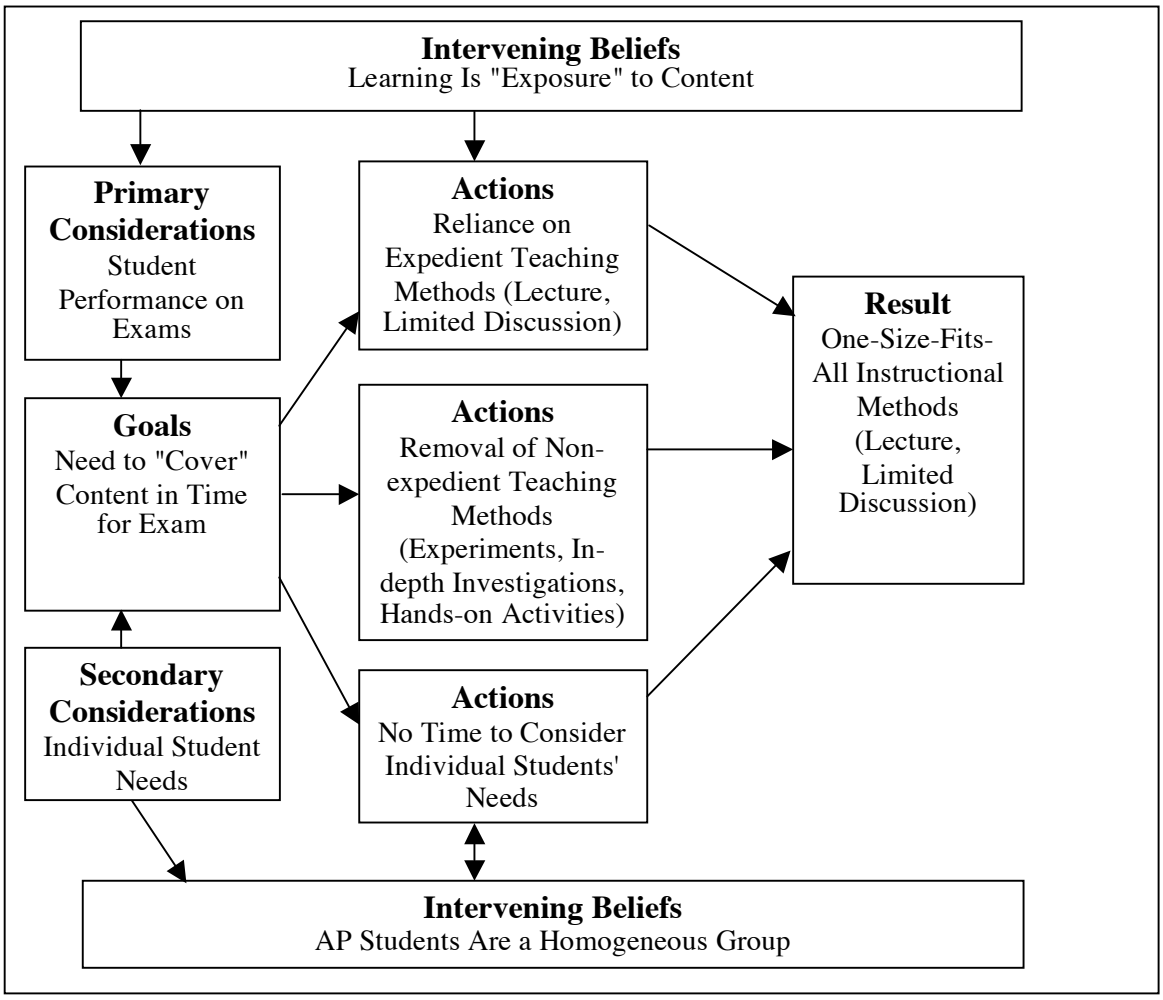

Figure 2. AP Teachers' instructional decision-making process.

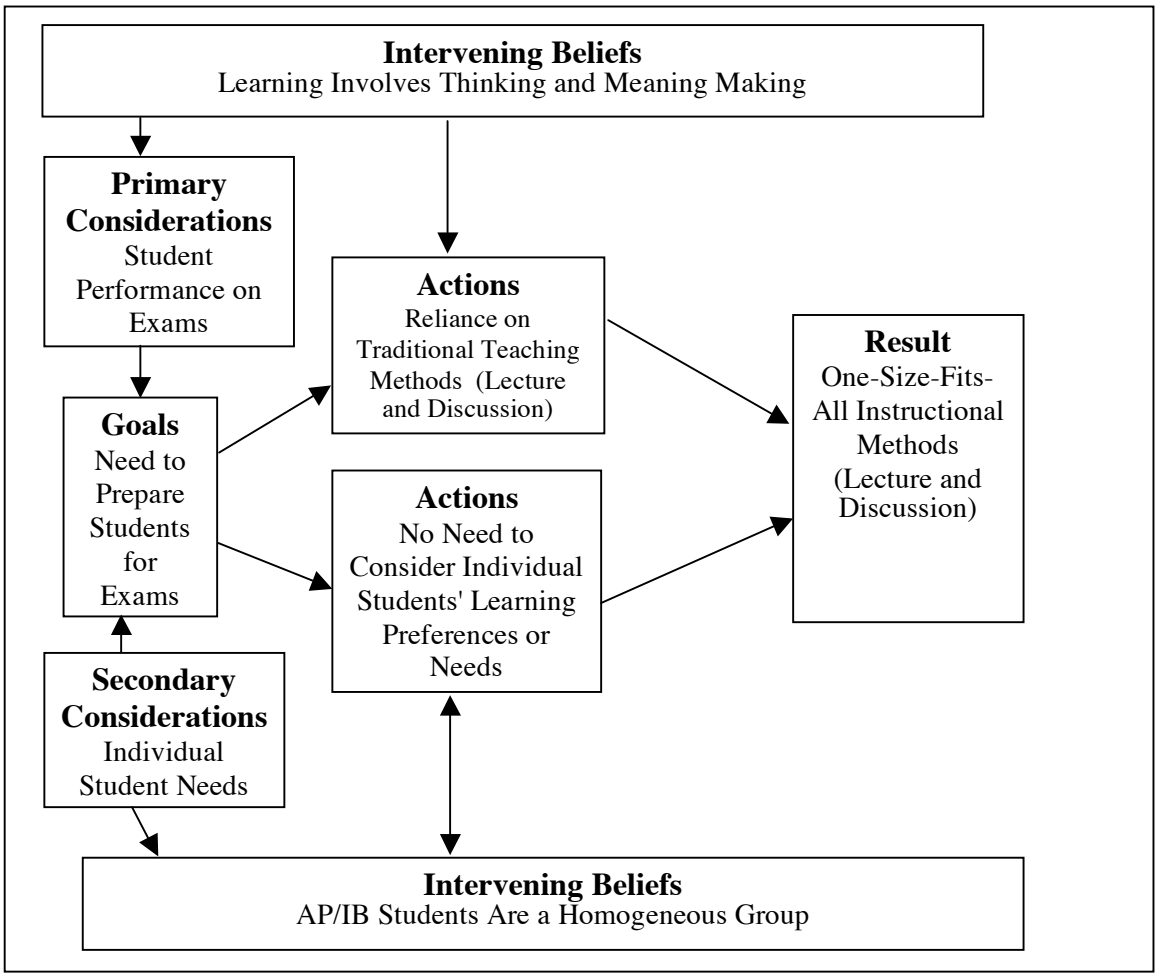

Figure 3. IB teachers' instructional decision-making process.

Research Question #2: How Do Students Enrolled in AP and IB Classes Perceive and Evaluate Their Learning Experiences in These Environments?

Most students believed that the challenge level, the quality of the teachers and the learning environments within these courses were far superior to the other courses they had taken in high school.

Elements of "Fit" of AP and IB Courses for Advanced High School Learners

Perceived Challenge Level

Interviews with students in AP and IB courses indicated that they believed that the content included in AP and IB courses was appropriately challenging and at a higher level of difficulty than that included in non-AP and -IB courses. Indeed, most AP and IB students seemed to view taking AP and IB courses as an opportunity to escape from the

drudgery of less challenging courses. The comments of these students painted a picture of a grave mismatch between the needs of these advanced students and the challenge offered in their high schools' general education courses.

Many AP and IB students expressed relief at having course options beyond "regular classes," which they described as largely unchallenging and "boring." "I'd rather be in AP classes than regular classes. That is why I am in AP, because I don't want to be in regular classes. Bor-ing! I'm really not bored in AP classes." (WHS#9, Student Focus Group Interview, p. 7).

Another student indicated that she chose the IB program at her school because she wanted to be challenged and did not want to be subjected to the "busy work" characteristic of other classes.

> I enrolled because I wanted the challenge, I think. I think I would have probably gotten pretty bored moving at a slow-paced curriculum, even though I might have gotten a 4.0 and just been in a regular program. I think that I enjoy the challenge, and I want to be able to think rather than to just do busy work all the time. I like learning. I'd rather not be just sitting there and being, well, stagnant. (PA#34, Student Focus Group Interview, p. 4)

Another student noted that, in her "regular" classes, students were not required to think, as opposed to AP courses, in which thinking was emphasized.

> The type of work that you do in the AP classes is more thinking, critical, and the regular class is just book reading; you just read questions, look for the answer in the book, and you really don't do much thinking. (ECH#7, Student Focus Group Interview, p. 3)

AP and IB students described a strong preference and need for challenge in their coursework, indicating that they deliberately chose AP and IB courses over others because they were seeking challenge.

> I really enjoy the challenge in the class. I enjoy having to rise to the occasion because I am constantly observing in myself that my brain picks up, like soars up so much more than I ever thought it would. (PA#11, Student Focus Group, p. 6)

Or, as another student described her reasoning for taking IB courses, "I wanted to be challenged in high school. I didn't want to just sit back and breeze through" (PA #33, Student Focus Group Interview, p. 6).

Most AP and IB students indicated that they were enjoying the challenge that AP and IB courses offered to them. An IB student said:

> I enjoy what I do, and it just seems like the challenge is worth taking. I think it's fun to go over and beyond what the regular . . . to go deeper into the material

> where another class wouldn't provide it if it were regular. (PA#33, Student Focus Group Interview, p. 3).

Like their IB counterparts, most AP students expressed feeling satisfied with the choice they made to take AP courses. "A lot of it for me is the challenge, because I'd rather be in a really hard course than a really easy one" (OL#1, Student Focus Group Interview, p. 12).

While students were largely satisfied with the qualitative differences in challenge between their AP and IB courses and other courses, they were less pleased with the quantitative differences. Many students indicated that the *amount* of work they received in AP and IB courses was too heavy. Like their teachers, AP and IB students frequently noted that the curriculum in AP and IB courses often felt rushed and overwhelming due to the hurry to cover a great deal of content in time for the exams. One AP student said, "You don't stop for anything. I mean, that's a train going one way and it's not stopping for anything" (OL #20, Student Focus Group Interview, p. 4). An IB student echoed:

> One thing I've noticed about IB or pre-IB . . . is how oriented they are in tests that we have to take . . . it seems like the teachers are always working to get us full of the knowledge that we need for the tests. So, I feel like we're always pushing for it. (WHS#5, Student Focus Group Interview, p. 6)

IB students were even more likely than AP students to complain about the amount of work they received in their classes. One IB student noted, "The workload is just overwhelming to me" (PA#11, Student Focus Group Interview, p. 8). Another IB student said, "It seems like there's just not enough hours in the day sometimes. I've got so much work to do" (PA#40, Student Focus Group Interview, p. 6). After interviewing a group of IB students at a suburban school, one researcher noted in her field notes:

> After the interview, some of them commented that they didn't apply to Ivy League colleges because they are very tired of school and they don't want to have four more years like these ones. They admitted that at some times they live drinking sodas and taking caffeine pills to be able to stay awake to finish all their work. (PA#9, Student Focus Group Interview, p. 1)

Students in both AP and IB courses indicated that they had had to make sacrifices to participate and keep up with the workload in these courses, noting that the amount of time they needed to spend on their work for these courses interfered with other parts of their lives. "They give you so much work, you don't have time to do anything" (PA#40, Student Focus Group Interview, p. 6). Some AP and IB students noted that it impacted their social lives.

> I was told if you took IB you would have no life . . . my social life is very important to me. . . . They were like, "If you take IB you're not going to have time to talk on the phone, you are going to miss your favorite TV shows. You are going to be stuck in a book all day . . . you are going to have these long papers to

> write, these big essays." I was like, "Well, it can't be that bad." So, you come here and a lot of it is true. (WHS#9, Student Focus Group Interview, p. 10)

Other students noted that the workload impacted their whole families.

> The sacrifices have just been on my part. You know, going home and doing homework and staying up until 2 in the morning every morning and then having to wake up at 5 the next morning so I can get here in time because I live 30 minutes away. For a long period of time, my parents don't see me. I mean, I'm up in my room doing work. And so it's kind of like . . . right now it's the last time I'm going to be spending with them right before college, and I have to spend it doing all this work, you know, right before I go away. I mean, to an extent, it puts a huge strain on the family. (PA#34, Student Focus Group Interview, p. 7)

Additionally, many students noted that participation in these courses impacted the amount of sleep they were able to get. One student commented, "I can't quite enjoy the material when I'm like, am I going to remember this? How much homework do I have? Am I going to sleep tonight? And it's usually no" (PA#40, Student Focus Group Interview, p. 6).

Students appeared conflicted about the workload expected in their AP and IB courses. On one hand, students generally felt that the workload in these courses was too heavy, preventing them from getting enough sleep and making having an active social life difficult. But on the other hand, they seemed to believe that if the workload were lighter, the courses would not be as challenging. While students often complained about the heavy workload, in general they seemed to believe it was worth it and many even bore the late nights they frequently put in as marks of pride. An IB student commented:

> Yes, it's a lot of hard nights. And yes, you may not get a lot of sleep. And yes, you may not have a social life. But the point of the program is to get you ready for the future and to challenge you. And for you to challenge yourself and find out who you really are and what you really can do and what your body can take and not take. (PA#35, Student Focus Group Interview, p. 11)

Overall, students in AP and IB classes seemed to believe that they were getting the best education their high schools had to offer, making the sacrifices worth it. "It's nice to know that you're getting a good education. I know that I'm getting a good education" (PA#35, Student Focus Group Interview, p. 4).

Quality of AP and IB Teachers

AP and IB students were very vocal about the generally high caliber of their teachers, describing them as dedicated, hardworking, skilled, and knowledgeable.

> It tends to be the more senior teachers who are the AP teachers which I think gives us a better level of understanding because they've been teaching the subject

> so long that it's not only something they are actually interested in, but something that they are very comfortable teaching. (FHS#12, Student Focus Group Interview, p. 10)

An AP student described her teachers, "I have enjoyed the teachers. I think they are some of the best teachers I've ever had in high school or anything. I think they're great teachers" (KG#5, Student Focus Group Interview, pp. 3-4). Similarly, many IB students described their teachers as "the best" teachers in the school. One IB student commented: "The thing I really enjoy is the teachers . . . the teachers are really supportive and I would say they are like the best" (PA#11, Student Focus Group Interview, p. 8).

While AP and IB students were generally pleased with the caliber of their teachers, many AP students indicated that not all of their AP teachers appeared to be equally suited to teaching these advanced courses. AP students noted that the caliber of the AP teacher impacted the quality and challenge level of the course.

> It's definitely the teacher, because everyone who's in my AP French class now has had the same teacher for three or four years, and we can all agree that he's a really compassionate man who makes sure that we do everything that we can to learn. (MHS#3, Student Focus Group Interview, p. 29)

Another AP student at a different school echoed this sentiment. "I would not take this course again with this teacher. But I think if it was a different teacher . . . I think the course really depends on what teacher you get" (OL#3, Student Focus Group Interview, p. 10). A third AP student commented that her AP Environmental Science teacher was not prepared to teach an AP course, which affected the challenge level.

> She uses a curriculum that is way below AP or even honors level. It's definitely not out of our book. . . . It should be more carefully screened who is allowed to teach AP classes and who isn't, because she's obviously not prepared. She's never taught it before and she does not know what she's doing now. (MHS#3, Student Focus Group Interview, p. 18)

AP students also noted that whether or not an AP course differed significantly in challenge from non-AP courses depended upon who was teaching the course.

> There are some teachers that don't expect college-level work, so it divides it into now there are regular classes, real AP classes, and like, pretend AP classes. And AP Environmental Science, everyone goes into it knowing that it's an AP credit class, but it's really not AP challenge. And that's why a lot of people take it. (MHS#5, Student Focus Group Interview, p. 19)

Other AP students noted that they sometimes deliberately took courses from the less challenging AP teachers to boost their grade point averages. "I have the easy AP U.S. History teacher, my Latin teacher's so nice, my AP Environmental teacher's a joke,

so I have three AP classes and I'm getting As or Bs" (OL#4, Student Focus Group Interview, p. 31).

AP student responses indicated that they judged the quality of their AP courses by the preparedness of the teacher teaching the course. While many AP students noted differences in teacher preparedness and the resulting challenge level of the AP courses they took, IB students did not make this distinction.

In general, however, both AP and IB students described the majority of their AP and IB teachers as knowledgeable, caring, effective, and able to provide high-level challenge.

The Learning Environment Within AP and IB Courses

Overwhelmingly, AP and IB students indicated that the learning environments within these courses were supportive and generally superior to courses in general education. An IB student commented that the learning environment in her IB classes was an improvement over other classes she had taken: "I find it much more fulfilling than I think other classes have been. More because of the experiences and the people and the teachers" (WHS#5, Student Focus Group Interview, p. 3). The majority of interviewed AP and IB students preferred the learning environments within their AP and/or IB courses over those in the general education program. Many current AP and IB students noted that their experiences in non-AP and -IB courses were a frustrating mixture of a lack of challenge, being surrounded by students who did not want to learn, and teachers who did not understand their desire for challenge.

> I was in honors and I switched to regular, and I realized what little work you had to do. Because I went in there and I was trying to do real work, and then I was asking her about something and, like, why do we have to keep writing the same thing over and over for each thing in the lab. And she said, "Don't worry about it, just write it." (MHS#7, Student Focus Group Interview, p. 34)

AP and IB students identified two primary factors characterizing the improved learning environment in AP and IB courses: (a) the opportunity to learn with students of similar ability, motivation, and academic interests; and (b) the adult-like relationships they had with their AP and IB teachers.

Working with students of similar ability/motivation level. AP and IB students repeatedly referred to being surrounded by other students who were similarly motivated as one of the primary benefits to taking AP and IB courses. "I enjoy being in a class where everyone is at the same level. . . . In middle school I would just be sitting there bored because I was done" (PA#11, Student Focus Group Interview, p. 5). An IB student said, "I knew that I wanted to be in an advanced program because I really enjoy just being around other intelligent, high-level people and conversations" (PA#33, Student Focus Group Interview, p. 6). An AP student identified the work ethic of the students in her AP class as the biggest factor distinguishing her AP class from her general classes.

> I would say that it's not necessarily that the instruction is better in the AP class, but the student environment is better in the AP class. . . . There are more intelligent students in the AP classes. Or more willing to work, not necessarily more intelligent. (MHS#5, Student Focus Group Interview, pp. 17-18)

Both AP and IB students also noted that a benefit to being in classes with other highly motivated students was that it encouraged them to work harder. An AP student commented, "I think the people around you, because we're in this accelerated program, a lot of the people who come in here just want to shoot to the stars. So why not ride their tails and go with them?" (OL#2, Student Focus Group Interview, p. 21).

Adult-like relationship with teachers. Numerous AP and IB students related at least one negative experience with a teacher in a non-AP or -IB class who did not understand their desire for challenge. An interviewed IB student described her relief at escaping what she perceived as the inappropriate, and sometimes hostile, learning environments within general classes.

> In the second week of school, the teacher came up to me and said, "Jessica, I know you think a lot of this is common sense and may already know a lot of this, but a lot of the kids in here don't think it's common sense and don't know it, so I'm asking you to keep quiet." I wasn't allowed to talk, wasn't allowed to participate in class discussions for the entire year, wasn't allowed to do other homework, wasn't allowed to sleep. I hated that class. (MHS#3, Student Focus Group Interview, p. 17)

In contrast, AP and IB students characterized their relationships with their AP and IB teachers as strong and believed that the teachers of these advanced classes understood and accepted them. Of particular value to AP and IB students was their sense that their AP and IB teachers treated them like adults. One AP student said, "They talk to you like you are old already and you know what is going on" (VCH#14, Student Focus Group Interview, p. 3). Another AP student noted that her AP teacher "relates the material to the students and she kind of has this relationship with the students where she is not really like a teacher" (VCH#12, Student Focus Group Interview, p. 2). A focus group of IB students described their close relationship with IB teachers.

> ST1: I think the teachers start to treat you as a peer sometimes.
>
> ST2: Yeah. That's the best in IB classes. You're more on their level. You can joke with them. (MHS#9, Student Focus Group Interview, p. 13)

Elements of Lack of "Fit" of AP and IB Courses for Advanced High School Learners

While the majority of interviewed AP and IB students believed that their AP and IB courses were the best courses of any they had taken, some students indicated that the "one-size-fits-all" curriculum and instruction of AP and IB courses did not match the way

they liked to learn. Interviews with gifted students who had chosen not to continue taking AP courses or who dropped out of IB programs revealed that not all talented secondary students found these courses to be a good educational fit.

Rigidity of Curriculum and Instruction in AP and IB Courses

Many interviewed students who decided to drop out of these programs indicated that they did so because the curriculum and instruction in their AP and IB courses was rigid and did not allow for multiple pathways to learning. They believed that their teachers did not adjust the course content to meet their unique needs. One student who decided to leave the IB program at his school described the program's expectations for how his work had to be completed as inflexible and limiting.

> I felt like I was constricted to the one way they want everything done. They wanted you to write papers like this, they wanted you to answer the essays like this. This is what you're supposed to do on the project. I felt like I was in jail. And if I didn't do it their way, of course, I would fail or get points taken off. (KG#38, Student Focus Group, p. 5)

Another student who referred to himself as creative noted that AP courses were not appropriate for students who liked to think for themselves or who questioned what—and how—they were learning:

> If you are intelligent in a way that is more creative energy than being able to sit down and accept that geometry is geometry and you have to know it even though you don't plan to use it, then AP classes are probably not for you. If you question these things, then you're not going to do as well. That was my problem. I wanted to know *why*. (W#3, Student Focus Group, p. 1)

Other interviewed students indicated that they felt there was a mismatch between the way information was presented in AP and IB courses and the way they liked to learn. One student noted that his AP courses did not provide him with the sort of in-depth learning that he enjoyed: "I realized that the course wasn't for me. I have a way of learning and a way of studying that does not correlate well with the AP program. . . . This isn't a better education; this is busy work. What's the point?" (MHS#3, Student Focus Group, p. 2). Other students voiced the opinion that the AP and IB focus on "the one way of doing things" limited their abilities to perform well in the courses. One student who decided to drop out of the IB program expressed her frustration with the lack of modifications made in her IB English classes to meet her needs.

> I could tell you from front to back pretty much everything in *Romeo and Juliet*. But when we wrote these essays, like for tests and stuff, I can't write essays. I'm not good at that. I'm not good at putting my ideas down on paper. But if you were going to give me a verbal test, I would have passed with flying colors because I know what I'm talking about. And that's really frustrating that I learned

> and know all the literary themes and how they're proved, but I just can't write it out. That's really annoying. (KG#38, Student Focus Group, p. 2)

These students, along with others we interviewed, believed that the best way to ensure that their academic needs were met was to drop out of these courses. One interviewed student indicated that "regular classes" fit his need for less structure better than the AP courses he was taking. He noted, "Once I was in regular classes again, I felt free" (WHS#6, Student Focus Group, p. 5).

Lack of Opportunities to Learn Assumed Background Skills

Students who identified themselves as coming to AP and IB courses without requisite background skills (such as writing, study, and time management skills) felt that they were never given an opportunity to catch up to the other students in the class and were expected to use skills that they had never been taught. One student who left the IB program recounted her experience in a pre-IB English class:

> For English class, you have to read two books and do 10 note cards on them and pick out significant lines. We didn't do that kind of thing at my middle school, so I had no idea what I was talking about. I failed these note cards that I had no instruction on how to do. That's like walking into traffic blindfolded. You just don't know what you're doing, and there's no reason that you should have to do something that you've never had experience with or were exposed to. (KG#38, Student Focus Group Interview, p. 8)

This student's words revealed her belief that the teachers in her IB courses did not provide support for students like her who came to the courses without the necessary background skills. Another student echoed her, stating that her AP teachers, on principle, expected students to "just get it" without providing any modifications to support struggling students (FHS#12, Student Focus Group Interview, p. 2). With the desire to be challenged, but without the necessary support from teachers to fill in skill and understanding gaps, these students struggled in their courses and made the decision to drop out.

> I had an instance with my biology teacher my freshman year where he told me, he took me out into the hallway and told me I didn't deserve to be in IB. . . . And I might as well get out now before I get in over my head. . . . And then the next year I had another teacher do the exact same thing. . . . And freshman year when that happened, I thought, OK, I'm going to show him, I'm going to be better, and I'm going to stay in IB and I'm going to be OK. . . . And then another teacher did it to me and I said, OK, that's it . . . and I dropped. (KG#38, Student Focus Group, p. 7)

Interviews with many AP and IB teachers confirmed that students who struggled most in these courses were not incapable intellectually, but rather were those students who came to the courses without the appropriate time management and study skills.

> Time management is a big one for the kids who struggle. They're not good. You know they don't have a plan of study. They don't meet deadlines. They are always struggling to keep pace. A lot of it is time management. (WHS#4, Teacher Focus Group Interview pp. 5-6)

Student Make-up of Courses

The underrepresentation of minority and poor students in the AP and IB programs involved in our study created classrooms with relatively homogeneous populations. The tight-knit community of like peers within AP and IB classes that many interviewed AP and IB students described as being one of the primary benefits of taking these classes felt like a barrier to some interviewed students from minority backgrounds who did not see themselves reflected in this community. One African American female student told an interviewer that, in her AP courses, she often felt isolated and different from the other students in the class: "I feel like sometimes I'm alone in some of the things I believe" (W#17, Student Focus Group Interview, p. 14). An African American male at another school described feeling alone at times in the IB program because of the small number of minority students in the program:

> Yeah, I don't like the attitudes of the people. You feel like they are intellectual Aryans. That's one thing I don't like about IB. I'm Black, which is, you know, not hard to see. I'm in these classes which are, what, ten percent Black? In government we got into this discussion about the Ku Klux Klan, and they're like, "Why do you think it's so bad?" Somebody says, "Well, you're the only one that thinks that way." And I'm like, "I'm the only one who's Black." (PA#6, Student Focus Group Interview, p. 14)

Interviews with current and former AP and IB students painted two distinctly different pictures of the perceived "fit" of AP and IB courses for advanced high school learners. Most current students perceived the curriculum, instruction, and learning environments within AP and IB courses as providing a good fit for their learning needs. Students who did not elect to continue in these classes generally indicated that, by virtue of their preferred styles of learning, background experiences, or creativity, the rigid, one-size-fits all curriculum and instruction in AP and IB courses had not met their learning needs. Additionally, some students from minority backgrounds (both those still in the programs and those who had decided to drop out) reported feeling that the homogeneous nature of the student population in AP and IB courses created an inhospitable environment for learning.

Overall, however, with the exception of a few specific dissatisfactions with AP and IB courses—the focus on the exams, the heavy workload, instructional techniques that were not aligned with their preferences, the "one way" that many felt they were being asked to learn—students who made the choice to remain in AP and IB courses were overwhelmingly positive about their AP and IB experiences. Students indicated repeatedly that the drawbacks to AP and IB courses were well worth it because of the tangible benefits that they believed taking these courses would confer to them.

Perceived "Pay-offs" of AP and IB Courses

Interviews with AP and IB students indicated that most firmly believed that their participation in AP and IB courses would result in future "payoffs." Indeed, many of these students indicated that these future payoffs (improved chances of admission to competitive colleges, skipping introductory courses in college, preparedness for the rigors of college, and preparation for their future careers) were the reason that they took—and remained in—the courses. Several AP teachers noted this pattern in their students. One AP teacher said that many of her students view AP courses

> as a credential or as a ticket to another level, instead of being viewed in the way they should be viewed: in terms of intellectual stimulation, of being pushed to the top of their capacity, and to provide them a basis of skill level to succeed at a high level in higher education. (ECHS#9, Teacher Focus Group Interview, p. 6)

College Acceptance

Interviews with students revealed that they believed that taking AP and IB courses was crucial to getting into top-tier colleges. One student explained her rationale for being in the IB program: "This looks good on your college applications and stuff. This is what gets you into college" (OHS#5, Student Focus Group Interview, p. 2). An AP student confirmed this belief. "It's obviously already had benefits for getting into college—getting into a good college. I got accepted into Tech, and I'm waiting for MIT. That's the reason I take AP classes, right there" (MHS#19, Student Focus Group Interview, pp. 5-6).

Furthermore, many students indicated that they did not feel that they had a choice over whether on not to take AP and IB courses; they believed that one *had* to take these courses to get into a good college—and the more courses, the better.

> Nowadays you need to take these classes if you want to be competitive and you want to get into colleges that you want to get into. It's pretty much required that you have to take AP classes—and not only take AP classes, but take diverse AP classes. (MHS#7, Student Focus Group Interview, pp. 13-14)

An AP teacher commented on the motivation behind many of her students' decisions to take AP courses. "What they do have a handle on is that AP courses look good on transcripts, so they take as many as they can. And they pay quite a price for it" (OLHS#5, Teacher Focus Group Interview, p. 5). Other AP teachers echoed the concern that students were overloading on AP courses to fill up their resumes, rather than out of interest in the subject or a genuine desire for challenge. "That's a real concern of mine, when a student is taking eight AP classes and not having a lunch, just so she can look better to colleges" (OLHS#5, Teacher Focus Group Interview, p. 3).

Students repeatedly voiced the belief that taking these advanced courses was their ticket into prestigious colleges and universities.

> I think where we're looking to go to college, if you want to get in, you have to take the highest level course offering. And if they don't see at least one AP course in your high school career, they're going to wonder why they should accept you. (MHS#19, Student Focus Group Interview, p. 10)

A guidance counselor at a participating high school confirmed this belief.

> There is that perception that AP courses will catch that admission person's eyes. Whether it is true or not, I'm not sure, but we have heard that strength of schedule is important for students competing at certain levels and they are aware of this. (FHS#2, Teacher Interview, p. 4)

"Getting into a good college" was the reason students most frequently cited for taking AP and IB courses. When asked if she enjoyed her IB classes, an IB student responded, "I don't think *enjoy* is the right word. I think I just do it because supposedly it's going to help me get into college. I hope it does" (KG#40, Student Focus Group Interview, p. 3). Further, AP and IB students seemed to believe that their extraordinary efforts in high school would mean less pressure once they got to college. "You know that it will all pay off in the end when college will seem slack because I've been working so hard" (O#8, Student Focus Group Interview, p. 11).

Numerous AP and IB students mentioned that the reports they had heard of how prepared post-graduates felt for college after taking AP and IB classes had inspired them to take the courses. An IB coordinator described how "the legend" of IB courses was passed on.

> They all reported all the great things that happened to them once they got to college, so therefore the grapevine started. That they were prepared for whatever the college professor threw at them. And they knew how to handle this because with this program we teach them all of the tools they'll need in order to be successful. When they sat in the college classes and they looked around and saw that everyone else was lost or dumbfounded as to how to approach the assignment, and they could just whip it out in twenty minutes and say, "OK. What's next?" (WHS#7, IB Coordinator Interview, p. 1)

Beyond College

In general, students reported that they regarded AP and IB courses as necessary steps in their paths toward successful futures. "I want to be a doctor one day and I'm getting really prepared now, and I'm doing this for my future" (PA#35, Student Focus Group Interview, p. 8). Many talked about the hard work and time they were expending on these courses now as a type of "investment" in their futures. An AP student said of her AP course,

> I know it is going to take me where I want to go. . . . In the end, it is going to be worth it and it's not horrible or anything. I don't look forward to getting up every

> day and going to work. But it's, I mean, it's worth it. (WHS#5, Student Focus Group Interview, p. 4)

An IB student at another school also indicated that a vision of future success drove him to persist in his IB courses.

> I think that everyone that's still in IB has to see that future. Because if you can't see that, those are the nights when you know when you're up at 2 in the morning finishing a paper. And you think, ok, it will pay off. It will. (PA#35, Student Focus Group Interview, p. 8).

For many AP and IB students, motivation to take these courses appeared to be less connected to an interest in or love for a subject area than to students' desire for greater opportunities in the future. For many students, the AP or IB label (and the benefits that they believed these labels would confer) was what seemed, in the end, to be the primary reason for taking the courses.

> Interviewer: Why did you sign up for AP classes?
>
> Student: I want to opt out of 101 courses in college. I don't want to take a lot of those freshmen classes if I already know the material.
>
> Interviewer: So, was interest a factor in taking this class?
>
> Student: No. (FHS#11, Student Focus Group Interview, p. 3)

Different Stakes Attached to AP and IB Courses for Different Students

Interestingly, some notable patterns of difference emerged between groups of students according to ethnicity and socio-economic status (SES) in terms of how students hoped to benefit from taking AP or IB courses. While students from all backgrounds noted that "getting into college" and being prepared for future challenges were primary motivators for taking these courses, students from rural areas, students from low SES backgrounds and minority students discussed additional motivators not mentioned by their more suburban or affluent peers. For many rural, low SES, and/or minority students, taking and succeeding in AP or IB courses came with powerful stakes attached, including disproving racial stereotypes, being the first in a family to graduate from college, and the opportunity to escape a lifestyle they did not wish for themselves.

Several African American students indicated that they perceived a racial stereotype depicting African Americans as incapable of succeeding academically and believed that by taking the most advanced courses their school offered, they could disprove the stereotype. One African American student enrolled in the IB program at his school said, "For me, being a minority . . . people look at me and think that I can't do something like that" (WHS#9, Student Focus Group Interview, p. 6). He told the

researcher interviewing him that his primary reason for taking IB courses was to disprove this stereotype.

> The only reason I'm here is to show others that I can do stuff. I can accomplish things. Because I'm looked at all the time, like you're in the IB program? Why? Because I'm supposed to be one of those stupid ones. And I want to show others that I can succeed. (WHS#9, Student Focus Group Interview, p. 6)

Similarly, an African American student at another school told researchers that she perceived a stereotype of African American females that she wanted to fight by taking AP courses. "I think a lot of African American females are stereotyped sometimes, and I just think I have something to prove to a lot of people. So that's why I'm trying" (MHS#2, Student Focus Group Interview, p. 24).

Many students from rural and low SES backgrounds expressed the belief that AP and IB courses represented a pathway to achieving their dreams—a pathway that was often a detour from the routes other people in their families had chosen. For some students, this pathway involved being the first in their families to graduate from high school or college. An AP student said,

> I'm like on a mission, kind of, because I mean, like, everybody in my family has not graduated from high school, and my oldest brother, he hasn't graduated. So I'm trying like to be the first one to graduate. Trying to be something and get something out of it. (MHS#2, Student Focus Group Interview, p. 25)

An IB student from another school emphasized the role that the IB program played in his path toward graduation, college, and future success.

> Throughout my whole family history, I would say about one person in my family has gone to college. Everyone else has either joined the military or picked up a trade. I really don't want to follow that trade. Like my whole family has done something other than go to college. I just wanted to pick up that challenge, and that's why I'm taking these classes. Go to college, finish it, and be successful after that. (KG#38, Student Focus Group Interview, pp. 6-7)

For other students, particularly students living in rural areas, AP and IB courses represented an "escape" from their current lifestyles or hometowns. One AP student said, "Everyone has their (sic) dream. And I'd like to go to a nice university and get a real nice job somewhere. And not just stay here and work here" (ECH#7, Student Focus Group Interview, p. 5). Another AP student at the same rural school told the interviewer, "We are migrants and we do all that work. And I don't want to spend the rest of my life working in the fields" (ECH#1, Researcher Field Notes, p. 1). Interviews with AP students from another rural school revealed similar motivations for taking AP courses.

> What makes me want to succeed, I just want to get out of Williston. And I know I read a lot of magazines and it's real, I want to be able to go out and see it and do it

> and I think I've heard about enough tractors. . . . I don't want to hear about tractors from my dad. I'm serious, because as soon as I got home the other day from my mom's house, the first words out of his mouth were, "I'm gonna need you to help me put the wheel weight back on my tractor," and I'm like, "OK. But whenever I'm gone, I'm not coming back to help you with your tractor tires anymore." (WSHS#10, Student Focus Group Interview, p. 16)

One AP student summed up the stakes that many interviewed students from populations traditionally underrepresented in AP and IB courses attached to these courses: "AP represents a better future, a chance to succeed so that our dreams can come true" (ECH#7, Student Focus Group Interview, p. 7).

Summary of Findings From Research Question #2

Research Question #2 asked, "How do students enrolled in AP and IB classes perceive and evaluate their learning experiences in these environments?" The majority of students taking AP and IB classes were satisfied with the nature of the curriculum and instruction within these courses, perceiving the courses as challenging and as representing the "best" classes offered at their schools. Students seemed to believe that AP and IB courses were the "best" because they were taught by the most experienced teachers, required students to take on the heaviest workload, and were populated by the most advanced students. Most students did not question the importance of what they were learning, whether or not they found the content interesting, or the teachers' instructional methods. Students expressed satisfaction with the nature of these courses as they believed that the courses would ultimately provide them with benefits in the future.

Additionally, most interviewed students judged the learning environments in AP and IB programs to be the best fit for their needs of any they had encountered in school. In these classes, students described finding respite from many years of unchallenging, inappropriate, and even hostile classroom experiences. AP and IB students deeply appreciated the opportunity to work with other advanced students and the highly positive, adult-like relationship with their teachers.

The interview data from students who had dropped out of AP and IB programs told a different story, however. These students made their decisions to leave the programs precisely because they believed that the curriculum, instruction, and learning environment of the classes were inappropriate for their individual needs. All of these students indicated that they originally took the courses because they desired greater challenge than that offered in non-AP or -IB classes, but that the way AP and IB courses were taught did not allow them to succeed, feel welcome, or learn in the ways that they liked to learn.

CHAPTER FIVE: Discussion and Recommendations

This study indicated that AP and IB courses provide important educational options for students who, by their last years in our nation's public schools, are clearly starved for challenge, interaction with similarly motivated peers, and relationships with teachers who respect and understand them. One concern, however, emerging from this study's findings is the disturbing picture that AP and IB students' interview responses painted of the grave mismatch between the curriculum, instruction, and learning environments within many general education courses and the needs of gifted learners. Many AP and IB students described educational histories riddled with boredom, uninspiring instruction, and curriculum that did not stretch them. A pervasive sense of relief at being "rescued" from general education—and even Honors—classes by the option to take AP and IB courses was evident in most AP and IB students' responses.

That gifted students' needs frequently go unmet in the general classroom has been the subject of much discussion in the gifted education literature (e.g., Colangelo, Assouline, & Gross, 2004; Gross, 2000; Reis et al., 1993). With the recent push for de-tracking and inclusion, gifted students are increasingly being served in more heterogeneous classrooms. As such, we need to focus on ensuring that these environments are appropriate for the needs of advanced students by training teachers to meet the academic needs of advanced students in the evolving context of heterogeneity. Successful development of teacher skills would be characterized by an increased competence on their part in raising the challenge level of the curriculum and instruction in all classes, understanding the unique learning needs of advanced students and providing advanced students opportunities to work in a variety of grouping settings, including in homogeneous groups with similarly-motivated and able peers. Many advanced and gifted students spend much of their educational lives in general education courses and should not have to wait until late in high school to experience rigorous curriculum.

Clearly, the level of challenge and the learning environments within AP and IB courses are judged more positively by many advanced secondary students than other classroom environments these students have encountered. However, it is not enough that gifted students find the educational experiences within AP and IB classes to be "better" experiences only in comparison to the other unsatisfying courses available to them. While AP and IB courses appear to be doing the best job of any high school courses of challenging advanced secondary learners, the study results suggest numerous ways in which the learning experiences of the students populating AP and IB classes could be enriched. (See Table 1 at the end of this chapter for a summary of findings and recommendations).

Recommendation #1: Enrich the curriculum and instruction within AP courses by decreasing the breadth of content to be covered within the scope of the courses and increasing depth.

While interview data indicated that AP students were largely pleased with the curriculum, instruction, and learning environments in their AP classes when compared to other classes they had taken, many students and teachers indicated ways in which AP courses could be strengthened.

According to both AP teachers and students, the heavy focus on the end-of-course exams and the large amount of material covered in AP courses detracted from the potential depth and richness of the courses' content. The rush to get through content appeared to result in overburdened, tired students, one-size-fits-all curriculum and instruction, and teachers who felt they needed to sacrifice genuine learning opportunities to "cover" all of the necessary material. Many students expressed a desire for less lecture and more opportunities to discuss, debate, and go into depth with their learning. The discrepancy between AP students' instructional preferences and the learning experiences offered in AP courses supports Csikszentmihalyi et al.'s (1997) findings that the practices of classroom teachers often do not match the instructional methods that talented teenagers find motivating. Additionally, both teachers and students in AP classes recognized that the quality of the learning experiences in these courses was compromised by the need to address a very broad range of content.

The emphasis in most AP courses on "cramming" a great deal of content into a short period of time seemed to contribute to an overall sense—both by teachers and by students—that "more work" was equitable with "greater challenge." Students were more likely, when describing the greater challenge posed by their AP courses than other courses they had taken, to refer to the *amount* of work they were required to complete in these courses and the many hours needed to complete assignments than to the *complexity* or *depth* of the work they encountered. This finding supports the concern voiced by the panel of the National Academy of Sciences (NAS) (National Research Council, 2002) that AP and IB students may not be developing deep, conceptual understandings of the content in the courses they are taking due to the breadth of the curriculum in these courses.

Decreasing the scope of the content covered in AP courses might result in more meaningful learning opportunities for students and allow teachers to teach using instructional methods designed to promote deeper, more lasting understanding of content.

Recommendation #2: Emphasize the benefit of experiencing genuine challenge over other rewards for taking AP/IB courses.

Related to this concern over students equating "more" with "better" is a troubling pattern noted in students' motivations for taking AP and IB courses. While many students indicated that they chose to take AP and IB courses because they provided greater challenge than general education courses, most students reported that their

primary reason for seeking this challenge was the edge it would provide in the college application process. In the case of AP courses, many students indicated that they felt pressure to take as many as they could. Few AP students mentioned choosing AP courses because of a particular interest in the subject area.

Clearly, for many of the students in this study, the "AP" and "IB" labels were viewed as educational brand names, symbols with cache guaranteed to bring those students who participated in them future benefits such as increased chances of being accepted by the colleges of their choice and preparation for college courses and future careers. This promise of future benefits, combined with the relief of escape from general education classrooms, may very well be the primary reasons that, despite the mismatch between AP and IB students' self-described preferred modes of learning and those generally employed in AP and IB classes, AP and IB students expressed satisfaction with these courses.

The heavy, almost exclusive emphasis on exam scores in AP and IB courses over genuine learning might contribute to students' sense that the purpose of taking these courses (and, by extension, taking on any challenge) is *acquisition*—acquisition of content, acquisition of credentials, acquisition of college credit, acquisition of desirability in college admissions officers' eyes—rather than about understanding, wrestling with ideas, and growth.

By refocusing the goals of AP and IB courses from high exam performance onto the engagement, joy, and growth that result from experiencing genuine challenge and meaningful learning, we may develop in students an interest in pursuing further understanding of one or more disciplines, an increased appreciation of the complexities of thinking and logic within the disciplines, new career possibilities, and a deeper love of learning.

Recommendation #3: Provide AP and IB teachers with more consistent and comprehensive AP and IB training.

The study documented inconsistencies in AP and IB teacher training experiences, particularly among AP teachers. Some teachers had been assigned to teach AP classes just weeks before classes began and had had no AP training, while others had had extensive opportunities to attend workshops and institutes provided by the College Board. While the IB program provides required training for all IB teachers, some teachers in the IB program had been given minimal opportunity for staff development while others had attended many workshops. Inconsistency in preparation was at least one contributing factor in the inconsistencies in quality across AP and IB courses, including varying levels of challenge, uneven teacher knowledge of content and appropriate methods for teaching gifted students, and teacher preparedness to teach advanced-level courses.

Comprehensive and rigorous training of AP and IB teachers should result in greater consistency in the quality of AP and IB courses across schools, eliminating some of the equity issues that arise when the quality of the AP or IB education that students

receive is dependent upon the preparation of teachers and/or opportunity or lack thereof for staff development.

Recommendation #4: Make achieving equity within AP and IB courses a priority.

That AP and IB courses are populated primarily by middle class, White, achievement-oriented students with a long history of school success indicates that AP and IB courses may be perpetuating a form of sorting and serving of talented students that excludes numerous groups of gifted students, including minority students, students from low SES backgrounds, gifted underachievers, and second-language learners. Data from the study seem to indicate that there are several potential factors contributing to the on-going underrepresentation of certain groups of students in AP and IB programs that reach beyond access issues, including recruitment, one-size-fits-all curriculum and instruction within the courses and lack of commitment to scaffolding and support for the non-traditional student.

Because AP and IB programs carry with them certain advantages for the students who successfully participate in them, such as increased admission to more prestigious colleges, enhanced grade point averages, exposure to challenging curriculum and similarly motivated peers, saving money on college tuition by earning college credit in high school, and potentially enhanced performance in college courses, the underrepresentation of ethnic minorities and students from low SES backgrounds has real and grave consequences for these students and for the existence of equity in our schools and society. If we are truly committed to a vision of equity for all students in our schools, we must look not only at the performance levels of our struggling students, but also at the potential of our most advanced students. We need to focus as much attention on who is participating and succeeding in our most advanced courses as we do on comparing the pass rates of different demographic groups on minimum competency tests.

To accomplish that goal, we should first situate AP and IB courses within a broader, unified school culture focused on high expectations, coupled with a rigorous commitment to providing scaffolding and support, to enable all talented learners, regardless of background experiences, culture, ethnicity, or SES to succeed. Who enrolls in—and does not enroll in—AP and IB courses mirrors a school and community's commitment to ensuring equity and excellence for all learners. Achievement gaps between White and minority learners will only be resolved when all stakeholders within a school culture are committed to recognizing the importance of holding high expectations for all learners, while at the same time providing requisite support structures. Recognizing, responding to, and supporting talent in all populations of learners must begin at the very early years of schooling and continue throughout secondary school. This requires communication, a common vision, and a unified plan across grade levels for fostering and encouraging excellence in all populations of learners.

Second, broadened recruiting practices for AP and IB courses are necessary. For recruitment practices to broaden the scope of students served, school personnel must inform students from a wide variety of backgrounds of the existence and benefits of

taking these courses. To recruit gifted underachievers, twice-exceptional gifted learners, and students whose talents have long gone unrecognized, recruiters for these programs need to actively seek students from sources beyond honors and gifted classes, looking for academic *potential* in addition to proven academic performance. And more importantly, recruiters should make efforts to educate families and community members who may not have previous exposure to AP and IB about the programs and their potential benefits. Such efforts should involve recruiters developing trusting relationships with and bringing the information out into the community, instead of expecting community members to come to the schools. Outreach efforts for families and community members in economically disadvantaged areas that rely upon them coming to school often have low success rates, as often they feel intimidated by or unwelcome in schools (Liontos, 1992).

Recommendation #5: Provide AP and IB teachers with skills in delivering a differentiated curriculum and using varied instructional strategies to meet the needs of a broad range of gifted students.

Many teachers participating in this study indicated that they had had little or no training in gifted education. Hence, in addition to the general training suggested above, teachers need training in the needs and nature of a broad range of gifted students. Understanding the implications of these needs for curriculum and instruction may help teachers better understand and respond to the gifted students they are serving (Feldhusen, 1999; Maker, 1982; Tomlinson, 1995, 2000).

Additionally, AP and IB teachers need to be provided with the skills to deliver curriculum and instruction differentiated to meet the needs of broad range of gifted and talented learners. The most strenuous efforts to recruit a more diverse population of students into AP and IB programs are meaningless if the curriculum, instruction and learning environments offered in these courses are not appropriately differentiated for individual students' needs. Tomlinson (2000) defines differentiation as a teacher's strategic approach to curriculum and instruction that fits each individual, allows students choices about what to learn and how, involves students in setting learning goals, and connects with the experiences and interest of the individual.

Such curriculum and instruction is a necessity not only in traditional classrooms, but in AP and IB classes as well. This study's findings suggest that AP and IB classes are not homogeneous; students come to AP and IB courses with a broad range of educational experiences, preferred learning styles, cultural backgrounds, interests, and readiness levels. Some interviewed students came to their AP and IB courses without the skills necessary for successful participation in the courses—others came ready for greater challenge than that offered in the curricula. Any program that seeks to serve all of these students appropriately must recognize and respond to this diversity. Differentiating the curriculum and instruction within AP and IB courses—including providing adequate scaffolding for struggling students, opportunities for growth for the most advanced students, and multiple pathways to learning for all learners—could go a long way in ensuring that the environments within these courses are hospitable to and supportive of the success of a broad range of gifted learners.

Recommendation #6: Investigate options for gifted and talented secondary learners beyond AP and IB courses.

It is important to recognize that AP and IB courses alone do not constitute a comprehensive gifted program that will sufficiently address the needs of a broad range of gifted learners. Students we interviewed who still attended and were successful in AP and IB classes represented a largely self-selected group, fitting a student profile of long-term success, self-motivation, drive to succeed, and conformity to school expectations. While this profile accurately describes many gifted secondary students, it also excludes many gifted secondary students—including those who come to high school with limited exposure to academic challenge and rigorous instruction, ethnically diverse students, gifted underachievers, twice-exceptional students, creative and non-conforming students, and students whose preferred learning styles do not match the highly verbal approach to learning dominating most AP and IB courses.

Despite a vast body of literature on gifted learners that indicates that gifted students are a diverse lot with diverse learning needs (e.g., Clark, 1992; Ford, 2004; Gándara, 2005; Neihart, Reis, Robinson, & Moon, 2002; Olenchak & Reis, 2002), most of the high schools in our study provided AP and/or IB courses as their only options for gifted learners. Best practice in gifted education suggests that to meet the needs of a broad range of learners, we need to provide a spectrum of services (Landrum, Callahan, & Shaklee, 2001; Landrum & Shaklee, 1999). While AP courses provide opportunities for accelerated coursework in specific content areas, they do not provide for other needs of gifted learners, including opportunities to work as and with professionals in a discipline, to explore ideas of interest in depth and over a long period of time, and to engage in creative thought and production in real-world settings (Kaplan, 1986; Maker, 1982; Renzulli & Reis, 1997; Tomlinson et al., 2002; VanTassel-Baska & Stambaugh, 2006). And while the IB program does include an in-depth essay on a topic of independent interest, the approach to the essay is standard and the essays are assessed in the same way. The essays accommodate student interests, but do not address different student readiness levels.

AP and IB courses can be powerful and necessary *components* in a continuum of services for gifted and talented learners. Meeting the needs of a broad range of gifted high school students requires the provision of a range of service options that address the needs of groups of gifted students beyond those who fit the "AP and IB mold." Mentorships, internships and externships, independent studies, enrichment opportunities, dual-enrollment, and weekly special interest seminars have been suggested as possibilities for meeting gifted and talented learners' needs for cognitive challenge, developing and expanding areas of interest, investigating potential college and career options, and exploring social issues and concerns (Callahan & Kyburg, 2005; Renzulli & Reis, 1997; VanTassel-Baska, n.d.).

The dominance of AP and IB offerings in secondary schools may be a result of the lack of clear specifications of strategies for ensuring the development of high-level curriculum and significantly challenging experiences beyond these options. Until the

field—in theory, research, and practice—can provide models that hold equal appeal in the dimensions that have been identified as attractive within the AP and IB paradigms, those options will probably dominate, and perhaps totally eclipse, other options for challenging advanced secondary learners.

Conclusion

For many years, there has been a dearth of opportunities at the secondary level for curriculum and instruction that meets the needs gifted students. The College Board and International Baccalaureate Programs have stepped in to fill this void with options designed to provide challenge and stretch students.

However, these programs should be considered only as two *options* for gifted and talented students at the secondary level, not as the sole offerings for these students. In their current format, these programs only fit those students with a "model student" profile. The AP program and, to some extent, the IB program, have made recent, commendable attempts to include students who traditionally have not participated in these courses and to extend these offerings into rural and urban schools. Despite these attempts, minority students remain woefully underrepresented and those who do participate in the programs under-perform on the end-of-year exams. As this study's results indicate, the current curricula offered in these courses do not meet the needs of students without the writing, study, time management, and other background skills necessary for success in AP and IB courses, and for students who learn in ways incompatible with the largely lecture-based instruction and exam-focused curriculum. Further, these programs, particularly the AP program, do not provide students opportunities for innovative and creative production as it applies to real-world, professional investigation, but instead focus on the acquisition of knowledge and skills for performance on the end-of-course exams.

Therefore, schools need to consider what other opportunities and options can provide an alternative—or supplement—to these programs so that all secondary gifted and talented students can experience challenging educational experiences appropriate for their unique learning needs.

Table 1

Summary of Findings and Recommendations

On the one hand…	**On the other hand…**	**Recommendations**
AP and IB classes offer curricula with higher levels of challenge, broader coverage, and, particularly in IB classes, greater complexity of concepts than those found in other high school courses.	. . . Students and teachers in AP and IB courses often define challenge as "more work," equating increased quantities of work and exhaustion with challenge. . . . Emphasis on covering the material tested on the end-of-course exams causes teachers to emphasize breadth over depth in AP courses.	**1. Enrich the curriculum and instruction within AP courses.** -Ensure increased depth and complexity—not just increased quantities—of content in AP and IB courses. -Modify the AP curriculum to reflect the needs for efficiency and effectiveness in curriculum delivery. Work with the College Board to reflect appropriate changes in curriculum.
Perceived rewards associated with AP and IB courses motivate students to challenge themselves. Students perceive AP and IB courses as worth the effort they expend on them.	Students tend to choose AP and IB courses because of the perceived rewards, rather than because of an interest in the content. Interest does not evolve through involvement in the courses. The strong reputation of these courses as being the most challenging, "best" high school courses offered prevents students from questioning what and how they are learning.	**2. Emphasize the benefit of experiencing genuine challenge.** Work to stress the importance of learning in the AP and IB experience and de-emphasize the importance of earning a particular score on the exam. Expand teaching strategies to engage students in the understanding of the discipline and encourage interest. Involve students in thinking about the purposes of school and the ways in which they learn best.

Table 1 (continued)

Summary of Findings and Recommendations

On the one hand…	**On the other hand…**	**Recommendations**
AP and IB are among the only well-articulated programs and courses for advanced high school students, providing structured curriculum and teacher training. Teachers and schools do not have to create their own programs or curricula.	AP and IB teacher training experiences are varied and inconsistent across teachers and schools, and do not include a focus on working with gifted students from a variety of backgrounds, ultimately contributing to underrepresentation of certain gifted students in these courses. Inconsistencies in training lead to inconsistencies in the way courses are taught and the challenge level provided.	**3. Provide AP and IB teachers with more training.** Provide more in-depth and consistent training of AP and IB teachers with a focus on the learning needs of a broad range of gifted secondary students.
Students enjoy and value the opportunity to work with similarly motivated students. Open admissions policies for AP and IB courses provide potential for great diversity in students taking the courses.	Limited recruiting practices lead to underrepresentation of minority students and students from low-SES backgrounds. Uniformity and cohesiveness of students in AP and IB classes can create an environment that feels unwelcoming to students who are different.	**4. Make achieving equity within AP and IB courses a priority.** Make concerted efforts to include a greater diversity of student in AP and IB courses through expanded recruiting practices and support structures. Modify the instructional strategies to provide the supportive framework necessary for success of a broad range of students.

Table 1 (continued)

Summary of Findings and Recommendations

On the one hand…	**On the other hand…**	**Recommendations**
Students perceive AP and IB teachers as providing the best, most challenging instruction in the school.	Curriculum and instruction in these courses are geared toward motivated students with a history of school success—few modifications are made for students who do not fit the AP or IB "mold." The "fit" between many successful students' learning styles and offered modes of instruction (one-size-fits-all lecture, drill and practice) reinforces teachers' beliefs that they are teaching appropriately.	**5. Train AP and IB teachers to differentiate instruction.** Train teachers to recognize and respond to academic and cultural diversity in the classroom through appropriate scaffolding and varied instructional approaches.
AP and IB courses are generally perceived by teachers, administrators, colleges, policymakers, and the public as the pinnacle of academic rigor and challenge at the high school level.	AP and IB courses do not meet the academic needs of all high school gifted students, but high school faculty and administrators do not seem to be considering or developing a range of other options for advanced students.	**6. Develop a range of services and options which accommodate a broad range of gifted secondary students' needs.** It is important to recognize that AP and IB courses alone do not constitute a comprehensive gifted program that will sufficiently address the needs of a broad range of gifted learners.

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APPENDIX A

Demographics by School

DEMOGRAPHICS BY SCHOOL				
School	**Program Type** (i.e. AP, IB, AP & IB, and Other)	**General SES Level of the Population** (i.e. Low, Medium, High)	**Student Demographics**	**Urban Status**
Western	AP	Low	White: 18% Black: 25% Hispanic: 47% Asian: 10% Native American: <1%	Urban
Montclair	AP	Medium	White: 86% Black: 13% Hispanic: <1% Asian: <1% Native American: <1%	Rural
Petersburg	IB	High	White: 68% Black: 22% Hispanic: 4% Asian: 6% Native American: <1%	Suburban
Anderson	AP & IB	Medium	White: 35% Black: 15% Hispanic: 26% Asian: 21% Native American: <1%	Suburban
Hollow Tree	AP	Medium	White: 99% Black: <1% Hispanic: <1% Asian: <1% Native American: <1%	Rural
Riverside	AP	High	White: 72% Black: 3% Hispanic: 15% Asian: 7% Native American: 2%	Suburban
Greendale	AP	Low	White: 2% Black: 42% Hispanic: 49% Asian: 7% Native American: <1%	Urban

DEMOGRAPHICS BY SCHOOL				
School	**Program Type** (i.e. AP, IB, AP & IB, and Other)	**General SES Level of the Population** (i.e. Low, Medium, High)	**Student Demographics**	**Urban Status**
Oleander	AP	High	White: 65% Black: 22% Hispanic: 5% Asian: 5% Native American: <1%	Suburban
Bridgeton	AP	Low	White: 8% Black: 87% Hispanic: 1% Asian: 3% Native American: <1%	Urban
Mathers	AP	Medium	White: 38% Black: 58% Hispanic: 2% Asian: 2% Native American: <1%	Suburban
Walters	AP & IB	Medium	White: 40% Black: 51% Hispanic: 5% Asian: 3% Native American: <1%	Suburban
Jasper's Creek	AP	Medium	White: 71% Black: 21% Hispanic: 4% Asian: <1% Native American: <1%	Suburban
Simmons	AP & IB	Medium	White: 20% Black: 41% Hispanic: 20% Asian: 19% Native American: <1%	Suburban
Palamino	AP	Low	White: 31% Black: 44% Hispanic: 14% Asian: 7% Native American: <1%	Urban

DEMOGRAPHICS BY SCHOOL				
School	**Program Type** (i.e. AP, IB, AP & IB, and Other)	**General SES Level of the Population** (i.e. Low, Medium, High)	**Student Demographics**	**Urban Status**
Highview	AP	Medium	White: 46% Black: 32% Hispanic: 14% Asian: 6% Native American: <1%	Suburban
George Washington	IB	Medium	White: 35% Black: 31% Hispanic: 24% Asian: 8% Native American: <1%	Suburban
Falls Run	AP	High	White: 86% Black: 9% Hispanic: 4% Asian: 1% Native American: <1%	Rural
Esterbrook	AP	Low	White: 1% Black: <1% Hispanic: 98% Asian: <1% Native American: <1%	Suburban
Ellensville	AP	Low	White: 3% Black:<1% Hispanic: 96% Asian:<1% Native American: <1%	Urban
Earlysville	AP	Low	White: 4% Black: <1% Hispanic: 95% Asian: <1% Native American: <1%	Suburban
Queen Mary	AP	High	White: 54% Black: 16% Hispanic: 13% Asian: 17% Native American: <1%	Suburban

DEMOGRAPHICS BY SCHOOL				
School	**Program Type** (i.e. AP, IB, AP & IB, and Other)	**General SES Level of the Population** (i.e. Low, Medium, High)	**Student Demographics**	**Urban Status**
Middleton	AP	Medium	White: 44% Black: 54% Hispanic: <1% Asian: 1% Native American: <1%	Suburban
Vista	AP	Medium	White: 51% Black: 2% Hispanic: 40% Asian: 2% Native American: 1%	Suburban

APPENDIX B

Observation Protocol

OBSERVATION PROTOCOL

Observer _____

Teacher Code Number _____ Date of Observation _____

Is observation being conducted during:

____ first 1/3 of year **____ second 1/3 of year**

____ the month prior to state testing **____ following AP/IB exam**

Antecedent Behaviors	**Response**	
	of target students:	**of class as a whole:**
1. Teaching activities / Instructional strategy: (Traditional? Innovative?)	(for example: level of interest, engagement in task, motivation, affective responses?)	
3. Presentation of curriculum (Method of presentation, sequencing?)	(for example: differentiated, challenging, in-depth, engaging?)	
4. Disruptions to classroom (Disruption preceded by what? Teacher's response to disruption?)	(for example: announcements on the loudspeaker, students misbehavior?)	

APPENDIX C

AP Teacher Interview Questions

AP TEACHER INTERVIEW QUESTIONS

I. Personal information from teacher

1. How long have you been teaching this AP courses?

2. What is your training for working with gifted learners or students of high ability?
   - Have you received gifted certification/endorsement?
   - Have you taken classes in working with gifted students?
   - How long have you worked with such students?

3. What is your training for teaching AP courses?
   - Have you received an endorsement?
   - Have you taken classes for teaching these courses?
   - How long have you taught AP courses?

4. Do you personally feel challenged teaching AP courses? Why or why not?
   - What makes you enjoy it?
   - What do you like most and least?
   - Would you prefer an AP class, an honors class, or a regular class? Why?

II. Procedures for enrollment in AP

5. What strategies, if any, are used in your school to attract students to the AP courses?
   - Have they been successful? In your opinion, why or why not?

6. Is there specific recruiting of minority, low socio-economic status, ESL, or female students by you? By counselors? By principals? By others?
   - What does that recruiting consist of? Has it been successful?
   - What seems to be the biggest draw for these students?
   - In your opinion, how could these students be recruited to AP classes?
   - Once enrolled, what degree of success do these students generally achieve in the program?
   - Which factors most influence the degree of success they achieve?

7. How is enrollment handled?
   - Is permission of the teacher required?
   - What process must a student go through to enroll?
   - Are only certain students invited to join and told how the process works or are all students aware of the process?

III. Characteristics of AP students

8. In general, how would you describe students in your AP classes?
   - Are the students motivated? Interested? Challenged?
   - Why do you think they are in your class? What attracted them to your specific class?

AP TEACHER INTERVIEW QUESTIONS

9. In your opinion, are there any common student characteristics regarding high achievement? What?
    - Are there any common student characteristics regarding low achievement? What?
    - Are there any similarities amongst the groups in goals, home life, peer group?

10. What factors contribute most to student success and/or achievement in AP courses?
    - What makes students successful in your class?
    - Can that be learned or is some of it due to outside factors?
    - What role do you see parents or peers playing in student success and/or achievement?

IV. Issues of content in AP courses

11. What is your content knowledge training?
    - Does that training make it helpful for you to teach your AP class?
    - Did you receive training from AP in this area?

12. How do you select the content?
    - Do students have a voice in what will be taught?
    - How big is the influence of the test and the school's administration on the selection of the content?
    - How does the content outlined in the AP course guide match the abilities of your students? (Is it too easy? Too tough?)

13. How do you organize the content for your AP class?
    - Do student interests drive the content or is it test-driven?
    - Is the content arranged as the book suggests, chronologically, or by concept?
    - Do you purposefully arrange the content differently for your AP class than for other classes you teach that aren't AP?

14. How do you determine the pacing of material for the class?
    - Do you feel pressure to cover everything for the test?
    - Do you have time to pursue students' questions?

15. How do you adapt course content or instruction to meet the needs of your students?
    - Does this require you to modify the AP course guide?
    - Give examples of the modifications you might make.
    - Are you making it harder? Easier?
    - Are you making it more to cover? Less to cover?
    - Do you increase the amount of content you cover?
    - Do you decrease the amount of content you cover?
    - If yes, how does the AP curriculum promote depth of knowledge and understanding?

AP TEACHER INTERVIEW QUESTIONS

16. How does AP curriculum promote depth of content and genuine understanding of knowledge?
    - Do you encourage students to pursue class topics that interest them?
    - Do you utilize articles and guest speakers?
    - Do you ask students to become an expert in an area?

17. Do you relate the content to real life situations? If so, how?
    - Do you use examples from current events or students' lives?
    - Are students asked to make these connections?

18. Do you integrate this subject with other subjects the students study? If so, how?
    - Do you ask the students to make connections between this class and others?
    - Do you role model this for them?

V. Teachers' instructional strategies

19. What training have you had in assessing student learning styles?
    - Are student interests and learning styles something you incorporate into your teaching style and lesson plans? How?

20. How do you give students opportunities for independent learning such as generating and investigating a topic of study without direct teacher intervention, if any?
    - Are there opportunities for experiments and pursuit of individual interests?
    - Are there choices in assignments?
    - Do projects require out of class study?

21. Do you encourage students to participate in problem solving? If so, how?
    - Do you ask open ended and essay questions?
    - Do you use case studies?

22. What percentage of your class time is lecture?
    - What instructional strategies do you employ or what other kinds of classroom activities do you use? Why?
    - Are you influenced at all by current trends in instructional practice?
    - Are you able to integrate strategies recommended for gifted learners? Which ones? How?

V. Issues of assessment in AP courses

23. How do you determine preconceptions of students toward content?

24. How do you determine the prior level of student knowledge, skill, and understanding?
    - Do you ever do any type of pre-assessment?
    - Do you ever feel students are inappropriately placed in your class? How so?

AP TEACHER INTERVIEW QUESTIONS

25. What strategies do you use to assess students?
    - Do you mostly rely on tests or other more nontraditional methods?
    - Do you leave room for personal choice in how students would like to be assessed: write a paper, make a poster, make a video?
    - If you design your own test, do you try to make it like the one in the AP course guide?

APPENDIX D

IB Teacher Interview Questions

IB TEACHER INTERVIEW QUESTIONS

I. Personal information from teacher

1. How long have you been teaching in the IB program?

2. What is your training for working with gifted learners or students of high ability?
   - Have you received gifted certification/endorsement?
   - Have you taken classes in working with gifted students?
   - How long have you worked with such students?

3. What is your training for teaching IB courses?
   - Have you received an endorsement?
   - Have you taken classes for teaching these courses?
   - How long have you taught IB courses?

4. Do you personally feel challenged teaching IB courses? Why or why not?
   - What makes you enjoy it?
   - What do you like most and least?
   - Would you prefer an IB class, an honors class, or a regular class? Why?

II. Procedures for enrollment in IB

5. What strategies, if any, are used in your school to attract students to the IB courses?
   - Have they been successful? In your opinion, why or why not?

6. Is there specific recruiting of minority, low socio-economic status, ESL, or female students by you? By counselors? By principals? By others?
   - What does that recruiting consist of? Has it been successful?
   - What seems to be the biggest draw for these students?
   - In your opinion, how could these students be recruited to IB classes?

7. How is enrollment handled?
   - Is permission of the teacher required?
   - What process must a student go through to enroll?
   - Are only certain students invited to join and told how the process works or are all students aware of the process?

III. Characteristics of IB students

8. In general, how would you describe students in your IB classes?
   - Are the students motivated? Interested? Challenged?
   - Why do you think they are in your class? What attracted them to your specific class?

IB TEACHER INTERVIEW QUESTIONS

9. In your opinion, are there any common student characteristics regarding high achievement? What?
    - Are there any common student characteristics regarding low achievement? What?
    - Are there any similarities amongst the groups in goals, home life, peer group?

10. What factors contribute most to student success and/or achievement in IB courses?
    - What makes students successful in your class?
    - Can that be learned or is some of it due to outside factors?
    - What role do you see parents or peers playing in student success and/or achievement?

IV. Issues of content in IB courses

11. What is your content knowledge training?
    - Does that training make it helpful for you to teach your IB class?
    - Did you receive training from IB in this area?

12. How do you select the content?
    - Do students have a voice in what will be taught?
    - How big is the influence of the test and the school's administration on the selection of the content?
    - How does the content outlined in the IB course guide match the abilities of your students? (Is it too easy? Too tough?)

13. How do you organize the content for your IB class?
    - Do student interests drive the content or is it test-driven?
    - Is the content arranged as the book suggests, chronologically, or by concept?
    - Do you purposefully arrange the content differently for your IB class than for other classes you teacher that aren't IB?

14. How do determine the pacing of material for the class?
    - Do you feel pressure to cover everything for the test?
    - Do you have time to pursue students' questions?

15. How do you adapt course content or instruction to meet the needs of your students?
    - Does this require you to modify the IB course guide?
    - Give examples of the modifications you might make.
    - Are you making it harder? Easier?
    - Are you making it more to cover? Less to cover?

IB TEACHER INTERVIEW QUESTIONS

16. How do you ensure depth of content knowledge?
    - Do you encourage students to pursue class topics that interest them?
    - Do you utilize articles and guest speakers?
    - Do you ask students to become an expert in an area?

17. Do you relate the content to real life situations? If so, how?
    - Do you use examples from current events or students' lives?
    - Are students asked to make these connections?

18. Do you integrate this subject with other subjects the students study? If so, how?
    - Do you ask the students to make connections between this class and others?
    - Do you role model this for them?

V. Teachers' instructional strategies

19. What training have you had in assessing student learning styles?
    - Are student interests and learning styles something you incorporate into your teaching style and lesson plans? How?

20. How do you give students opportunities for independent learning, if any?
    - Are there opportunities for experiments and pursuit of individual interests?
    - Are there choices in assignments?
    - Do projects require out of class study

21. Do you encourage students to participate in problem solving? If so, how?
    - Do you ask open ended and essay questions?
    - Do you use case studies?

22. What instructional strategies do you employ? Why?
    - Are you influenced at all by current trends in instructional practice?
    - Do you use strategies recommended for gifted learners?

V. Issues of assessment in IB courses

23. How do you determine preconceptions of students toward content?

24. How do you determine the prior level of student knowledge, skill, and understanding?
    - Do you ever do any type of pre-assessment?
    - Do you ever feel students are inappropriately placed in your class? How so?

IB TEACHER INTERVIEW QUESTIONS

25. What strategies do you use to assess students?
    - Do you mostly rely on tests or other more nontraditional methods?
    - Do you leave room for personal choice in how students would like to be assessed: write a paper, make a poster, make a video?
    - If you design your own test, do you try to make it like the one in the IB course guide?

APPENDIX E

AP Student Interview Questions

AP STUDENT INTERVIEW QUESTIONS

Remember to have students answer the questions for the designated AP course. For example, if this focus group is Biology, they should answer all the questions based on the AP Bio course. Also, you do not need to ask the probing questions after each question if students have already responded to it.

I. Decision to participate in AP

1. What AP courses are you taking?

II. Impressions of AP class and teachers

2. What courses did you take to prepare you for taking this AP **[insert the designated AP course name]**?
   - Were there prerequisites? If not, did you take some classes that you thought would lead up to this?
   - Did anyone advise you on what to take?
   - Were your choices good ones? Why or why not?

3. How would you describe the content you are learning in this course? (Probe for indicators of depth, complexity, abstractness, etc.)
   - Is it challenging? In what ways?
   - When you finish class, does your mind feel tired? Do you really have to think in class?
   - In class do you find the answers to questions you've always wondered about?
   - Do you make connections in class between new areas of study and prior learning?
   - Do you now feel like a specialist in _____ (whatever the AP subject area is)?
   - Do you feel better informed now?
   - Do you feel that you have gained skills or knowledge you could apply to other areas?

4. Do you enjoy what you are doing in AP classes? Why or why not?
   - Do you enjoy (or not enjoy) it because of the teaching? The assignments? What you're learning? The people in your class?

5. In AP, are you given opportunities in class to practice or apply what you are learning to real life situations or to apply the knowledge in solving new problems?
   - How do you think you could use what you've learned in class in the real world?
   - Do you see how professionals solve problems with this knowledge?

AP STUDENT INTERVIEW QUESTIONS

6. Contrast the instruction you receive in AP classes with other classes you are taking.
   - Do you find a significant difference in the instruction you receive in AP courses than the instruction you receive in other classes? Explain.
   - Do you find the AP teachers offer a faster pace of instruction in their classes compared to your other courses? Explain.
   - Do you find the AP teachers offer more or less or equal amounts of independent learning in their classes? Explain.
   - Why did you decide to take AP courses? (What was appealing, what did you hope to gain. . . .?)
   - When did you decide AP was right for you?
   - What was the biggest factor motivating you to take AP courses? (Ask about the specific AP courses they are enrolled in.) What nonacademic and academic factors increase or decrease your motivation to learn?
   - Are there other options for gifted or advanced students? What? Why choose AP over those options?
   - Are you taking any other college level courses in another setting at this time? Have you in the past?
   - Would you consider yourself to be a high achiever? What has led you to that conclusion?

7. Were there any negative factors that discouraged you from taking certain AP courses? What?
   - Did the work, the course content, peers, parents, teachers ever make you think twice about taking AP?

8. What nonacademic and academic factors contribute to your continued enrollment in AP courses?
   - Are your friends and family supportive? If so, how? If not, why do you continue to take them?

9. Who or what has the biggest influence on you regarding educational decisions? Explain how.
   - Think about your peers, parents, and teachers and talk about their influence on you.

10. Are there any changes that need to occur in your AP course to better reflect your learning?

11. Have you dropped out of any AP courses and if so, why?

12. How does the grading factor into your decision of taking AP courses?
    - Do you consider the weighting of grades at all when you are registering for courses?

AP STUDENT INTERVIEW QUESTIONS

III. General educational achievement/motivation/attitude

13. What are the greatest contributors to your educational achievement? Why?
    - What makes you want to do well?
    - What helps you do well?
    - What do you consider to be your biggest school-related achievement so far? (Were you proud to tell your parents? What things do your friends congratulate for?)

14. What are the greatest limitations to your achievement? Have there been people or programs that have helped you address those limitations? Were they effective? Why or why not?
    - What makes it hard for you to do well?
    - What do you do then?
    - Whom do you go to for help?

15. What are the best educational experiences you have had? [This can be in middle or high school.] What characterizes a good learning experience for you?

16. What is your definition of success? [Note: don't guide students to say in school—this answer can be for any aspect of their life.]
    - What nonacademic and academic factors contribute to your successes?
    - What about school helps you succeed?
    - What outside of school helps you succeed?
    - What about you helps you succeed?

17. There is research on teenagers that says even when teens are experiencing great academic success in a class, they don't want to be there. Do you agree or disagree with this statement? Does it apply to you and explain why?
    - Have you ever felt this way? Do you feel this way about AP courses you are taking now?
    - Have you ever had friends who felt this way?

18. What is your attitude toward school? Toward particular courses?
    - Overall, how do you feel about school? Good, bad?
    - Are you learning a lot in class?

19. Do you feel any social pressure from peers who are or are not in the same program as you? If yes, who exerts that pressure? In what way?
    - For the peers who aren't in the same program, do you feel your school experience is the same or different from theirs?
    - Do you have brothers or sisters? If yes, explain how your school experiences are the same or different from theirs. Parents?

AP STUDENT INTERVIEW QUESTIONS

IV. Other

20. In what ways do your teachers consider your interests and learning styles when they teach? Explain.
    - Do your teachers lecture as well as write on the board and use overheads?
    - Do they show movies or pictures?
    - Do you ever have a choice of how you can turn in an assignment: write a paper, make a poster, make a video, etc?
    - Are the AP teachers' styles ones that do or don't suit you better?

21. What kind of extracurricular activities do you enjoy?
    - What do you do for fun?
    - Do you ever get a chance to do anything like this in class? Which class and how?

APPENDIX F

IB Student Interview Questions

IB STUDENT INTERVIEW QUESTIONS

Remember to have students answer the questions for the designated IB course. For example, if this focus group is Biology, they should answer all the questions based on the IB Bio course. Also, you do not need to ask the probing questions after each question if students have already responded to it.

I. Decision to participate in IB

1. Which IB courses are you taking?

II. Impressions of IB class and teachers

2. What courses did you take to prepare you for taking this IB course?
   - Were there prerequisites? If not, did you take some classes that you thought would lead up to this?
   - Did anyone advise you on what to take?
   - Were your choices good ones? Why or why not?

3. How would you describe the content you are learning in this course? (Probe for indicators of depth, complexity, abstractness, etc.)
   - Is it challenging? In what ways?
   - When you finish class, does your mind feel tired? Do you really have to think in class?
   - In class do you find the answers to questions you've always wondered about?
   - Do you make connections in class between new areas of study and prior learning?
   - Do you now feel like a specialist in _____ (whatever the IB subject area is)?
   - Do you feel better informed now?
   - Do you feel that you have gained skills or knowledge you could apply to other areas?

4. Do you enjoy what you are doing in IB classes? Why or why not?
   - Do you enjoy (or not enjoy) it because of the teaching? The assignments? What you're learning? The people in your class?

5. In IB, are you given opportunities in class to practice or apply what you are learning to real life situations or to apply the knowledge in solving new problems?
   - How do you think you could use what you've learned in class in the real world?
   - Do you see how professionals solve problems with this knowledge?

IB STUDENT INTERVIEW QUESTIONS

6. Contrast the instruction you receive in IB classes with other classes you have taken.
   - Do you find a significant difference in the instruction you receive in IB courses than the instruction in other classes? Explain.
   - Do you find the IB teachers offer a faster pace of instruction in their classes compared to other courses? Explain.
   - Do you find the IB teachers offer more or less or equal amounts of independent learning in their classes? Explain.

7. Why did you decide to enroll in the IB program? (What was appealing, what did you hope to gain. . . .?)
   - When did you decide IB was right for you?
   - What was the biggest factor motivating you to enroll in the IB program?
   - What nonacademic and academic factors increase or decrease your motivation to learn?
   - Are there other options for gifted or advanced students? What? Why choose IB over those options?
   - Are you taking any other college level courses in another setting at this time? Have you in the past?
   - Would you consider yourself to be a high achiever? What has led you to that conclusion?

8. Were there any negative factors that discouraged you from taking certain IB courses? What?
   - Did the work, the course content, peers, parents, teachers ever make you think twice about enrolling in IB?

9. What nonacademic and academic factors contribute to your continued enrollment in the IB program?
   - Are your friends and family supportive? If so, how? If not, why do you continue to take them?

10. Who or what has the biggest influence on you regarding educational decisions? Explain how.
    - Think about your peers, parents, and teachers and talk about their influence on you.

11. Are there any changes that need to occur in the IB program to better reflect your learning?

12. How does the grading factor into your decision of taking IB courses?
    - Do you consider the weighting of grades at all when you are registering for courses?

IB STUDENT INTERVIEW QUESTIONS

III. General educational achievement/motivation/attitude

13. What are the greatest contributors to your educational achievement? Why?
    - What makes you want to do well?
    - What helps you do well?
    - What do you consider to be your biggest school-related achievement so far? (Were you proud to tell your parents? What things do your friends congratulate for?)

14. What are the greatest limitations to your achievement? Have there been people or programs that have helped you address those limitations? Were they effective? Why or why not?
    - What makes it hard for you to do well?
    - What do you do then?
    - Whom do you go to for help?

15. What are the best educational experiences you have had? [This can be in middle or high school.] What characterizes a good learning experience for you?

16. What is your definition of success? [Note: don't guide students to say in school—this answer can be for any aspect of their life.]

17. What nonacademic and academic factors contribute to your successes?
    - What about school helps you succeed?
    - What outside of school helps you succeed?
    - What about you helps you succeed?

18. There is research on teenagers that says even when teens are experiencing great academic success in a class, they don't want to be there. Do you agree or disagree with this statement? Does it apply to you and explain why?
    - Have you ever felt this way? Do you feel this way about IB courses you are taking now?
    - Have you ever had friends who felt this way?

19. What is your attitude toward school? Toward particular courses?
    - Overall, how do you feel about school? Good, bad?
    - Are you learning a lot in class?

20. Do you feel any social pressure from peers who are or are not in the same program as you? If yes, who exerts that pressure? In what way?
    - For the peers who aren't in the same program, do you feel your school experience is the same or different from theirs?
    - Do you have brothers or sisters? If yes, explain how your school experiences are the same or different from theirs. Parents?

IB STUDENT INTERVIEW QUESTIONS

IV. Other

21. In what ways do your teachers consider your interests and learning styles when they teach? Explain.
    - Do your teachers lecture as well as write on the board and use overheads?
    - Do they show movies or pictures?
    - Do you ever have a choice of how you can turn in an assignment: write a paper, make a poster, make a video, etc?
    - Are the IB teachers' styles ones that do or don't suit you better?

22. What kind of extracurricular activities do you enjoy?
    - What do you do for fun?
    - Do you ever get a chance to do anything like this in class? Which class and how?

APPENDIX G

Former AP Student Interview Questions

FORMER AP STUDENT INTERVIEW QUESTIONS

I. Decision to participate in a particular AP course

1. Why did you decide to leave the AP designated course or courses?

2. Which courses are you taking currently?

3. How do they compare to the AP courses and program?

4. If you had to make the decision to leave or stay in the AP designated course or other AP courses again, what would you do?

5. Why did you initially enroll in AP courses?

II. Impressions of AP class and teachers

6. What courses did you take to prepare you for taking AP courses?
   - Were there prerequisites? If not, did you take some classes that you thought would lead up to this?
   - Did anyone advise you on what to take?
   - Were your choices good ones? Why or why not?

7. Did you enjoy what you are doing in AP classes? Why or why not?
   - Did you enjoy (or not enjoy) it because of the teaching? The assignments? What you learned? The people in your class?

8. In AP, were you given opportunities in class to practice or applied what you are learning to real life situations or applied the knowledge in solving new problems?
   - How do you think you could use what you've learned in class in the real world?
   - Do you see how professionals solve problems with this knowledge?

9. Contrast the instruction you received in AP classes with other classes you are taking.
   - Do you find a significant difference in the instruction you received in AP courses than the instruction you receive in other classes? Explain.
   - Do you find the AP teachers offer a faster pace of instruction in their classes compared to your other courses? Explain.
   - Do you find the AP teachers offer more or less or equal amounts of independent learning in their classes? Explain.

FORMER AP STUDENT INTERVIEW QUESTIONS

10. Why did you decide to take AP courses? (What was appealing, what did you hope to gain. . . .?)
    - When did you decide AP was not right for you?
    - What was the biggest factor motivating you to take AP courses? (Ask about the specific AP courses they are enrolled in.) What nonacademic and academic factors increase or decrease your motivation to learn?
    - Are there other options for gifted or advanced students? What? Why did you choose AP over those options?
    - Are you taking any other college level courses in another setting at this time? Have you in the past?
    - Would you consider yourself to be a high achiever? What has led you to that conclusion?

11. What nonacademic and academic factors contributed to your leaving the AP program?
    - Were your friends and family supportive? If so, how?

12. Who or what has the biggest influence on you regarding educational decisions? Explain how.
    - Think about your peers, parents, and teachers and talk about their influence on you.

13. Are there any changes that need to occur in your AP course to better reflect your learning?

14. How does the grading factor into your decision of taking or dropping AP courses?
    - Do you consider the weighting of grades at all when you are registering for courses?

III. General educational achievement/motivation/attitude

15. What are the greatest contributors to your educational achievement? Why?
    - What makes you want to do well?
    - What helps you do well?
    - What do you consider to be your biggest school-related achievement so far? (Were you proud to tell your parents? What things do your friends congratulate for?)

16. What are the greatest limitations to your achievement? Have there been people or programs that have helped you address those limitations? Were they effective? Why or why not?
    - What makes it hard for you to do well?
    - What do you do then?
    - Whom do you go to for help?

FORMER AP STUDENT INTERVIEW QUESTIONS

17. What are the best educational experiences you have had? [This can be in middle or high school.] What characterizes a good learning experience for you?

18. What is your definition of success? [Note: don't guide students to say in school—this answer can be for any aspect of their life.]

19. What nonacademic and academic factors contribute to your successes?
    - What about school helps you succeed?
    - What outside of school helps you succeed?
    - What about you helps you succeed?

20. There is research on teenagers that says even when teens are experiencing great academic success in a class, they don't want to be there. Do you agree or disagree with this statement? Does it apply to you and explain why?
    - Have you ever felt this way?
    - Have you ever had friends who felt this way?

21. What is your attitude toward school? Toward particular courses?
    - Overall, how do you feel about school? Good, bad?
    - Are you learning a lot in class?

22. Do you feel any social pressure from peers who are or are not in the same program as you? If yes, who exerts that pressure? In what way?
    - For the peers who aren't in the same program, do you feel your school experience is the same or different from theirs?
    - Do you have brothers or sisters? If yes, explain how your school experiences are the same or different from theirs. Parents?

IV. Other

23. In what ways do your teachers consider your interests and learning styles when they teach? Explain.
    - Do your teachers lecture as well as write on the board and use overheads?
    - Do they show movies or pictures?
    - Do you ever have a choice of how you can turn in an assignment: write a paper, make a poster, make a video, etc.
    - Are the AP teachers' styles ones that do or don't suit you better?

24. What kind of extracurricular activities do you enjoy?
    - What do you do for fun?
    - Do you ever get a chance to do anything like this in class? Which class and how?

APPENDIX H

Former IB Student Interview Questions

FORMER IB STUDENT INTERVIEW QUESTIONS

I. Decision to participate in IB

1. Why did you decide to leave the IB program?
   - What nonacademic and academic factors contributed to your leaving the IB program?
   - Were your friends and family supportive? If so, how?

2. Which courses are you taking currently?

3. How do they compare to the IB courses and program?

4. If you had to make the decision to leave or stay in the IB program again, what would you do?

5. Why did you decide to join the IB program?

II. Impressions of IB class and teachers

6. What courses did you take to prepare you for taking IB courses?
   - Were there prerequisites? If not, did you take some classes that you thought would lead up to this?
   - Did anyone advise you on what to take?
   - Were your choices good ones? Why or why not?

7. Did you enjoy what you were doing in the IB program? Why or why not?
   - Did you enjoy (or not enjoy) it because of the teaching? The assignments? What you learned? The people in your class?

8. In IB, were you given opportunities in class to practice or applied what you are learning to real life situations or applied the knowledge in solving new problems?
   - How do you think you could use what you've learned in class in the real world?
   - Do you see how professionals solve problems with this knowledge?

9. Contrast the instruction you received in IB classes with other classes you are taking.
   - Do you find a significant difference in the instruction you received in IB courses than the instruction you receive in other classes? Explain.
   - Do you find the IB teachers offer a faster pace of instruction in their classes compared to your other courses? Explain.
   - Do you find the IB teachers offer more or less or equal amounts of independent learning in their classes? Explain.

FORMER IB STUDENT INTERVIEW QUESTIONS

10. Why did you decide to take IB courses? (What was appealing, what did you hope to gain. . . .?)
    - When did you decide IB was right for you?
    - What was the biggest factor motivating you to take IB courses? (Ask about the specific IB courses they are enrolled in.) What nonacademic and academic factors increase or decrease your motivation to learn?
    - Are there other options for gifted or advanced students? What? Why did you choose IB over those options?
    - Are you taking any other college level courses in another setting at this time? Have you in the past?
    - Would you consider yourself to be a high achiever? What has led you to that conclusion?

11. Who or what has the biggest influence on you regarding educational decisions? Explain how.
    - Think about your peers, parents, and teachers and talk about their influence on you.

12. Are there any changes that need to occur in the IB program, to better reflect your learning?

13. How does the grading factor into your decision to enroll or leave the IB program?
    - Do you consider the weighting of grades at all when you are registering for courses?

III. General educational achievement/motivation/attitude

14. What are the greatest contributors to your educational achievement? Why?
    - What makes you want to do well?
    - What helps you do well?
    - What do you consider to be your biggest school-related achievement so far? (Were you proud to tell your parents? What things do your friends congratulate for?)

15. What are the greatest limitations to your achievement? Have there been people or programs that have helped you address those limitations? Were they effective? Why or why not?
    - What makes it hard for you to do well?
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    - Whom do you go to for help?

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    - Do they show movies or pictures?
    - Do you ever have a choice of how you can turn in an assignment: write a paper, make a poster, make a video, etc.
    - Are the IB teachers' styles ones that do or don't suit you better?

24. What kind of extracurricular activities do you enjoy?
    - What do you do for fun?
    - Do you ever get a chance to do anything like this in class? Which class and how?

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