

The Advanced Placement Program California's 1997-98 Experience

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About This Report

This report was prepared by the California State University Institute for Education Reform, a university-based policy center focusing on elementary and secondary school issues. Located on the California State University, Sacramento campus, the Institute is supported by the California State University Chancellor's Office.

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THE CALIFORNIA STATE UNIVERSITY

Nancy Brownell, Interim Director
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August, 1999

Dear Reader,

The Advanced Placement (AP) Program, conducted by the College Board, consists of college-level courses in thirty-two subjects that high school students may substitute for the regular curriculum, followed by rigorous end-of-course examinations. The Advanced Placement Program has become a major component and integral part of high school education in California. And, while other “systemic” reforms have been debated and sporadically implemented, the AP Program—with little fanfare—has grown steadily throughout the state.

The desire for educational excellence and opportunity for every child drives much of the debate over education policy today, and underlies many of the reform proposals emanating from across the political and philosophical spectrum. Three interrelated beliefs have driven K-12 policy in recent years: the content of instruction in the public schools must be more demanding; educators must be held accountable for the performance of their students; and, “market” pressure through parental choice within public schools is needed to improve instruction and to make schools more responsible.

The Advanced Placement Program incorporates significant elements from all three beliefs about what should be done to improve schools: rigorous content and instruction, accountability and choice. By carefully examining the AP program, particularly in schools that have been most successful, we believe we can advance our understanding of how public schools can effectively respond in a standards-based, high expectations, high-stakes environment. This study spotlights the nature of AP availability, participation and test performance for a single year in California—and in so doing, provides valuable insight into the status of the program today.

It is our hope that this document will stimulate discussion and actions by educators and policymakers and serve as an important reference point as we strive to implement a standards-based, accountability-driven educational environment that is fused with equitable access and quality for our state’s diverse student population.

Sincerely,



Nancy Brownell

Executive Summary

The Advanced Placement (AP) program has enjoyed explosive growth in California high schools in the past decade with little public attention and even less analysis. During the same time, competition for admission into prestigious universities has become increasingly intense and the AP program has come to the forefront for college-bound students of ways to make their applications more alluring and weighted for success. In addition, this decade has seen a vigorous public outcry for academic reform that relies on high expectations, high standards and measurable accountability – all key elements of the AP program.

These factors make it imperative to examine the AP program, evaluate its successes and flaws, and understand the social and public policy factors that contribute to or retard its effectiveness throughout the state. This study uses state and national databases to delineate the availability of AP classes, the participation rate of students and their performance on the post-course exams. In addition, this report contains background information about the program. A summary of information about the program and the specific findings of this study follows:

BACKGROUND

The Advanced Placement program consists of college-level courses for high school students coupled with optional rigorous exams. Students who take these challenging courses gain a bonus point that increases their grade point average (GPA) and, if they choose to take the exam and do well, may earn college credit for their high school work.

The AP program has grown dramatically in California in the last decade. In 1988, 39,040 public high school students took 56,668 AP exams. By 1998, these numbers had grown to 87,683 students sitting for more than 145,000 exams. In fall 1997, AP class enrollment in California was about 210,000 (many students take more than one AP class, however, the statewide database does not allow us to determine the number of individual students participating in the AP program).

The program is designed to provide multiple benefits to individual students, teachers and the education system as a whole. High-achieving students who might otherwise find high school offerings boring instead are challenged by advanced work and are exposed to the level of study required by colleges. Students enhance their prospects for admission to select colleges and have the opportunity to earn college credits in high school, shortening their time at college and lowering tuition bills. Teachers have the opportunity to stretch their capacity, teaching college-level materials. In addition, AP exam results provide external, standardized validation of the teacher's ability to help students achieve high levels of performance. Schools can attract parents and students by offering the highly valued AP courses.

Certain key concerns have been raised about the AP program. Critics believe that the AP program is elitist in nature, favoring students who have access to the best academic preparation – essentially providing only one favored subset of students with important tools for career success. Another issue is whether AP courses are available to qualified students throughout the state – or whether there is systematic bias against students because of location (rural and low-income areas in particular), gender or ethnicity. In addition, there are questions about the variation in the quality of courses and instruction from one school to the next. And there is concern about the failure of many students to engage in the complete AP program by taking the post-course exam.

This study provides basic information to begin to address many of the concerns raised about the program.

FINDINGS

Program Availability: More than 90 percent of California's high schools offer Advanced Placement courses, but many students across all ethnicities and socio-economic strata have limited AP opportunities.

Student participation in the AP program can be driven by ambition, awareness of the opportunity and academic capability – but it also is greatly influenced by availability. The key question is do all students have access to appropriate Advance Placement courses? And if they do not, is there any discernible pattern in the lack of access? An examination of the data shows that more than 90 percent of California’s public high schools offer Advanced Placement classes, but many students are left with limited or no access.

Schools with large AP programs tend to be more suburban – but there is a large share of suburban schools in each category of AP program availability from high to low. High-availability schools tend to have fewer English learners, AFDC recipients and Free and Reduced Meal students. Higher availability of AP classes also tracks with a higher percentage of students at a particular school taking the SAT exam, earning higher SAT scores and winning admission to the University of California system.

But averages can be deceptive and within each of five levels of program availability there is wide variation in school characteristics. In sum, while there is a clear association between characteristics of schools (such as size, ethnicity and socio-economic status) and the availability of AP classes, the assertion that is sometimes made that upper-income suburban schools offer AP opportunities and low-income inner city and rural schools do not is simply not valid.

Student Participation: In schools across all levels of AP program size, Hispanics and African-Americans generally participate in AP classes at rates substantially below their share of total school enrollment.

California has one of the most diverse student populations in the nation. Many ethnicities and nationalities are represented in schools, and the range of socio-economic backgrounds is almost as broad within some schools as it is across the state. With this diversity as a backdrop, a key question is who is participating in the AP program? Within schools, is there disproportionate participation by

ethnicity, gender or socio-economic background? The data, in fact, indicates that even when Hispanics and African-Americans are in schools with large AP programs, their rate of participation is lower than their proportionate share of school enrollment. In short, for Hispanics and African-Americans, the crucial problem is not availability (as described in the last finding) but participation in the classes that are offered.

Test Performance: Test scores are strongly linked to school socio-economic status indicators. In addition, the scores of African-Americans and Hispanics are generally lower than scores by other ethnicities. Overall, between a quarter and a third of all students fail to take the AP exam associated with courses they enroll in.

The results of AP exams are ranked on a five-point scale, where five is the highest rating achievable. Scores of three and above (often called passing scores) are recognized by many colleges as indicating that a student is qualified to take an advanced course in the first year of college. The key questions here are: Do some schools produce higher scores and, if so, why? Are there significant differences in the scores of students of different ethnicities? What are the implications of the failure of students to take the AP exam?

Examining the data reveals that, as with many other academic performance measures, results vary with socio-economic status and by ethnicity. African Americans have the lowest scores – 64.6 percent of their scores were a 1 or 2. Hispanics score almost as poorly as African Americans. In contrast, 32.7 percent of white scores and 37.4 percent of Asian scores were 1 or 2.

CONCLUSION

Despite the widespread presence of the AP program in California, there are disturbing statistical averages that indicate many students are not able to access the program – and that variations in opportunity and performance are sometimes linked to ethnicity. The generalizations do not hold true in all cases.

In addition, when the generalizations are true, the statistics do not reveal why these situations exist. Is availability uneven because of lack of resources, variations in administration awareness of the program, or incentives in some areas that have not yet been replicated elsewhere? Is participation by minorities low because of cultural attitudes, lack of solid academic preparation prior to high school, or some other factor not yet evident? Are minority test scores low because of cultural bias in the tests, less demanding expectations or poor quality courses? These and other questions are now being examined in follow-up case studies that delve deeper into schools that offer programs and achieve results outside of the statistical averages.

This study spotlights the nature of AP availability, participation and test performance for a single year in California – and in doing so provides some valuable insight into the status of the program today. Addressing the issues raised in this study, however, is not a simple matter of creating programs where they don't exist, or eliminating bonus grade points to modify college admission processes, or some other one-dimensional action. For policymakers to respond to these insights with appropriate actions, more information is needed about why the variations exist and what systemic changes would be most helpful.

Introduction

Many education reform efforts – such as charter schools, vouchers and specific reading or math approaches – have high visibility, inspire impassioned debate and struggle to gain a foothold in a resistant education system. But one program that shares many of the features of today’s touted reforms has, with little fanfare and even less analysis, grown into a major component and integral part of high school education in California. In addition, it has become a significant factor in university admission processes.

The Advanced Placement (AP) program is well known to college-bound students, but until recently has been largely ignored by researchers and policymakers alike. This program consists of college-level courses for high school students, coupled with optional rigorous exams. Students who take these challenging courses gain a bonus point that increases their grade point average (GPA) and, if they choose to take the exam and do well, may earn college credit for their high school work.

The AP program has grown dramatically in California in the last decade. In 1988, 39,040 public high school students took 56,668 AP exams. By 1998, these numbers had grown to 87,683 students sitting for more than 145,000 exams. In fall 1997, AP class enrollment in California was about 210,000 (many students take more than one AP class, however, the statewide database does not allow us to determine the number of individual students participating in the AP program).

AP’s explosive growth rate alone makes it a program worth examining, but there are other reasons as well:

- The major policy themes that top today’s education reform agenda are well represented in the AP program: high expectations, high standards, accountability through assessment and market pressure through student choice. Finding high schools with the most effective AP programs and identifying elements that contribute to their success can provide a model for all educators as we move to a standards-based, accountabil-

ity-driven environment.

- The AP program is a major force in high school education today, providing challenging educational opportunities for able students, enhancing their high school experience and providing rewards in college. But because AP availability and results vary greatly across high schools, there are many unanswered questions about equity of access and quality of courses.
- AP participation is an important factor in college admission decisions, with each AP course offering students the opportunity to accumulate the bonus points that raise their GPA – sometimes beyond the traditionally “perfect” 4.0. In addition, AP exam results can boost a student’s standing as they enter college, allowing them to leapfrog over freshman introductory courses and shorten the time it takes to obtain a degree. These two AP effects are significant in California, where the admissions process is being redefined by the ethnic blindness of Proposition 209 and where enrollment pressures are expected to explode in the early 21st Century.

It is this last factor that is bringing the AP program greater visibility in policy-making circles. With higher education widely acknowledged as an important key to launching fulfilling, lucrative careers, competition to enter prestigious universities has never been greater than it is today – and there has never been less certainty about the best way to manage this competition. In the ongoing struggle to find a balance of subjective and objective measurements that treat all students fairly in the admissions process, many of the criteria used by universities are being closely scrutinized for their equity and relevance as predictors of academic success.

While many universities tilt their admission processes to favor students who go through the AP program, they do so with little information about the program’s statewide accessibility, participation rate patterns and variations in test performance. Critics have suggested that the weight given to the AP program is unfair to students who do not

have the opportunity to participate. Their presumption that minorities and low-income students have little access to these specialized courses, however, is an intuitive rather than empirical one. Nonetheless, their belief that minorities are at a disadvantage has caused them to urge the University of California (UC) system to eliminate or modify the bonus grade points that give AP participants an edge in the admissions process. In March 1999, the UC Regents voted to retain the bonus grade point system for the time being.

The emerging debate over the AP program is occurring in a vacuum of knowledge about the status of the program in California – its effects, its limitations, its variations. Prior to the study described in this paper, there had been no comprehensive statewide evaluation that documented the availability of AP classes, the participation in those classes, the performance of students on AP exams, and how all of these factors vary among schools with diverse characteristics.

The primary goal of this study is to describe in detail the reality of the AP program in California in terms of availability, participation and performance. The information should be valuable for policymakers as they work to create a standards-based, accountability-driven education environment that is fused with equitable access and quality for the state’s diverse student population.

METHODOLOGY

This study addresses the availability of AP courses in all high schools throughout the state, student participation rates by ethnicity and gender, and AP exam performance within schools, across the state and by ethnicity. The study also compares California’s AP program with national averages and programs in selected comparable states. The conclusions are based on an analysis of information from the following sources:

- The California Basic Educational Data System

(CBEDS), maintained by the California Department of Education, for Fall 1997.¹

- Educational Testing Service data tapes for the Spring 1998 AP exams in California.
- *The California and National Summary Report, 1998*, published by the College Entrance Examination Board.
- The University of California High School “a-f” Certified Course lists for March 1998.
- High School Profiles, published by the California Department of Education.
- Enrollment data and the pertinent College Board report for 20 selected comparison states.

In addition to describing the current status of the AP program in California, the study also was designed to identify noteworthy high schools for further, in-depth case studies. While this report describes outcomes, the follow-up investigation is intended to focus on the “whys” and “hows” of AP successes and failures.

This report, which describes the study results, begins with an Executive Summary and this Introduction, followed by a Background, three findings and a Conclusion.

¹ Information on the number of and enrollment in AP classes for each high school in California is contained in the CBEDS data base. Since it is self-reported by schools and districts and is not verified by the state, it is subject to error. The district-reported information has been cross-checked with the other sources and, where gross inconsistencies exist, cases have been eliminated.

Background

The Advanced Placement program was initiated by the College Entrance Examination Board in the early 1950s. The program consists of high school courses that are based on the curriculum of introductory college courses, coupled with a rigorous, standardized, post-course test called the AP exam (which is optional rather than mandatory at most California schools).

Many colleges credit students who participate in the courses with an extra point for their semester grade, which enhances their GPA (for example, a student who earns a B in an AP class gets four points instead of three, making the grade equivalent to an A in a non-AP course). In addition, many colleges give students who take the AP exams and score three or higher (on a scale of one to five with five being the top score) credit for completed units just as though they had taken the equivalent course after entering college.

AP courses cover a broad range of topics. National AP exams were administered for 31 different subjects in 1998, with nine subjects accounting for about 80 percent of all AP exams taken. These nine subjects are English Language and Composition, English Literature and Composition, Spanish, Calculus, Biology, Chemistry, U.S. Government and Politics, European History and U.S. History. Other commonly offered AP courses include Psychology, History of Art, Statistics, Macroeconomics and Physics.

Multiple Benefits

The program is designed to provide multiple benefits to individual students, teachers and the education system as a whole:

- High-achieving students who might otherwise find high school offerings boring instead are challenged by advanced work and are exposed to the level of study required by colleges.
- Students enhance their prospects for admission to select colleges.
- Students have the opportunity to earn college credits in high school, shortening their time at college and lowering tuition bills.
- Teachers have the opportunity to stretch their capacity, teaching college-level materials.
- AP exam results provide external, standardized validation of the teacher's ability to help students achieve high levels of performance.
- School systems have an incentive to upgrade their pre-AP-level curriculum so that students are academically ready for the AP challenges.
- Schools can attract parents and students by offering the highly valued AP courses.

Program Growth

Participation in the AP program has grown dramatically nationwide, as well as in California, since its inception. In 1998, 54 percent of all high schools in the nation offered at least one AP course. This compares to 35 percent only a decade earlier. In the same decade nationwide, the number of students sitting for one or more exams increased from 288,000 to 618,000.

California students have embraced the AP program enthusiastically and at a growing pace. In 1998, 87,683 public high school students took exams compared to 39,040 in 1988. This represents a growth rate that is 5.6 times higher than the growth in student enrollment during the same decade. California's AP test takers accounted for more than 14 percent of those sitting for exams nationwide – and California's number of AP exam candidates per thousand high school pupils was nearly one and a half times that in the rest of the nation as a whole. In addition, the state's students also take more tests than students from elsewhere. California's students took an average of 1.66 AP exams in 1998 compared to an average of 1.58 for the rest of the nation.

Among large states similar to California in opportunities and challenges, New York has a substantially higher student participation rate than California, California ranks substantially higher than Texas, and California and Florida are on about the same level. On test results, California generally outperforms Texas and Florida and is about equal to New York.

Growth Stimulation

It is probably fair to link the growth in the AP program to the increasingly competitive college admissions process. A sophisticated world of parents and students see a link between a degree from a prestigious college and lifetime career success. In many cases, scholarships and an extensive, complex web of financial aid mean that cost is not the deterrent it once was to ivy-covered institutions. As a result, the perceived “best” colleges have far more applicants than student spaces.

AP courses are a well-recognized mechanism (along with others, such as honors courses and concurrent enrollment in college courses while still in high school) for enhancing a student’s application. The AP program comes into play in several ways:

- The bonus points can polish a student’s sagging GPA. For instance, of the applicants to the 1997-98 freshman class at the University of California, Berkeley, 41 percent had a GPA of 4.0. While some students undoubtedly earned an A in every high school class they took, many obtained a 4.0 with the help of bonus points from AP courses.
- Few colleges today rely only on test scores and GPAs to determine who is accepted. College admission officers see participation in AP courses – even if good grades are not achieved – as a favorable sign that the student is academically oriented.
- AP exam results also tell admission officers that an applicant is serious and interested in facing challenges. Some admission officers say they are more impressed by a test-taking student even if the exam score is only a one or two (ineligible for college credit) than by a student who takes AP courses but does not sit for any AP exams.

UC and CSU Admissions

California’s two four-year public institutions of higher learning – the University of California (UC) and the California State University (CSU) systems – both take AP participation into account but with different nuances. The UC system, for instance, grants bonus points for course work done in 10th, 11th and 12th grade, while the CSU system only gives the extra points for 11th and 12th grade work. Both limit the extra bonus points to eight semester grades.

Each system has separate criteria that use a student’s GPA as a threshold for admission, linked to Scholastic Aptitude Test (SAT) scores in a reverse ratio. The higher the student’s GPA, the lower his or her SAT score can be without affecting eligibility. In the UC system, for example, a student with a 3.3 GPA is eligible regardless of SAT score. If the GPA is 3.29 – just shy of the mark – the combined verbal and math SAT score must be at least 570. If the GPA is 3.1, the student must have an SAT score of at least 1070; for a 2.82 GPA, the SAT score must be a perfect 1600.

As this illustrates, the AP bonus grade points can be critical in elevating a student’s GPA above the 3.3 threshold in the UC system so that the SAT score is irrelevant, or in leveraging a lower GPA so that the SAT score requirement is reduced.

Supporters of this system of giving AP coursework added weight believe it is a necessary incentive to – and perhaps even a just reward for – students who take on the challenging work involved in AP classes. Critics, however, believe it creates an uneven playing field if not all students have equal opportunity to take AP courses.

Program Concerns

Despite its popularity and influence, there are certain key concerns that have been raised about the AP program. Critics worry that the courses place too much emphasis on facts and memorization that can bolster scores on the AP exam, rather than on encouraging the growth of critical thinking skills that are so valuable in high-quality col-

lege courses and later in life. Others are concerned that the AP program is elitist in nature, favoring students who have access to the best academic preparation – essentially providing only one favored subset of students with important tools for career success.

Another issue is whether AP courses are available to qualified students throughout the state – or whether there is systematic bias against students because of location (rural and low-income areas in particular), gender or ethnicity. In addition, access may be limited because students happen to be in a school where the faculty opposes college-level work for high school students or believes that all students should be offered essentially the same educational program.

Finally, there are questions about the variation in the quality of courses and instruction from one school to the next. And there is concern about the failure of many students to engage in the complete AP program by taking the post-course exam.

With the AP program playing such a vital role in the gateway to post-secondary education and with the multiple concerns that have been raised, it is important to examine the program in California. The following three sections address the California experience.

Findings: Program Availability

Finding 1: More than 90 percent of California’s high schools offer Advanced Placement courses, but many students across all ethnicities and socio-economic strata have limited AP opportunities.

Student participation in the AP program can be driven by ambition, awareness of the opportunity and academic capability – but it also is greatly influenced by availability. The key question is do all students have access to appropriate Advance Placement courses? And if they do not, is there any discernible pattern in the lack of access? An examination of the data shows that more than 90 percent of California’s public high schools offer Advanced Placement classes, but many students are left with limited or no access.

In California, there are 1,653 public schools that offer classes to 10th, 11th and 12th graders. After eliminating the approximately 800 special schools that serve populations

that, in general, are not prepared to take AP courses (schools for severely disabled, juvenile detention and some continuation students), there are 868 schools that one could expect to offer the AP program. Of the 868 schools, 64 (with a total student population of 19,949) had no AP courses in October 1997 – an availability rate of 92.6 percent. Table 1 displays the characteristics of the schools that did not provide an AP program.

The generalization that can be drawn from Table 1 is that high schools offering no AP courses typically are very small, are located in rural areas and usually have a majority of white students. Other data show that they have large numbers of low-income students (as indicated by Free and Reduced Meal enrollment of 38.4 percent compared to the state average of 30.8 percent). But the generalization does not always hold true. For instance, six of the non-AP schools are in urban areas and eight have predominantly Hispanic students.

TABLE 1 Characteristics of 64 Regular High Schools with No AP Classes

Characteristics	Number of Schools
Location	
Rural	58
Suburban	0
Urban	6
9-12 Enrollment	
17-100	12
101-200	19
201-300	9
301-400	8
401-600	9
greater than 600	7
Majority by ethnicity	
White	49
Hispanic	8
African American	1
Asian	1
American Indian	1
No majority	4

Availability Linked to School Size

Among the 804 schools that participated in the AP program in 1997-98, there was a broad range in the number of AP classes offered – from 1 to 55 – and a wide differentiation in programs offered by schools of different size. Table 2 displays the number of AP courses offered broken down by school size. As would be expected, larger schools tend to have more AP classes than smaller schools. But there are exceptions at each end of the spectrum. Some small schools have large AP programs and some large schools have quite small AP programs. Overall, 28.5 percent of the schools that offered AP classes in 1997-98 had four or fewer courses, while 30.5 percent had 12 or more AP classes.

In terms of student population, the following breakdown occurs:

- About 20 percent of all high school students in California’s public schools were enrolled in schools in 1997-98 that had four or fewer AP classes.

TABLE 2 Number of AP Classes Offered Categorized by School Size

# of AP classes	Size of School Offering Different Numbers of Classes						Total schools in each AP category
	0-500 students	501-1000 students	1001-1500 students	1501-2000 students	2001-3000 students	3001+ students	
1	21	15	6	9	3	0	54
2	10	11	14	11	4	0	50
3-4	13	22	26	24	24	3	112
5-7	10	17	33	43	34	3	140
8-11	1	14	26	59	56	15	171
12-16	0	3	11	24	62	12	112
17-21	0	1	8	11	35	11	66
22-26	0	0	3	5	12	5	25
27+	0	1	0	1	16	10	28
Total for each school size	55	84	127	187	246	59	758*

* Excluded from the total count of 804 schools that offer the AP program are 46 schools that had inconsistent self-reported data that could not be reconciled.

- About 40 percent were enrolled in schools with between five and 11 AP classes.
- About 40 percent were enrolled in schools with 12 or more AP classes.

Availability and Ethnicity

The study found a complex picture when the availability of AP classes is categorized by ethnicity. Generally, Asians and whites have somewhat greater access to AP classes than Hispanics and African-Americans, but the differences are not dramatic.

To factor out school size when addressing the relationship between availability and ethnicity, this study defines availability by dividing the number of total school enrollment in grades 9 through 12 by the number of AP classes offered. A relatively low number signifies a higher availability of AP classes, because there is a smaller number of students per class who may be interested in participating. A large number means there are fewer opportunities for students to enter AP classes. For instance, a school with a 99 rating has more AP classes compared to the

number of students enrolled in the school than a school with a rating of 400.

Table 3 groups high schools into seven categories of availability and displays the percentage of students in each ethnicity that was enrolled in schools at each level of availability in 1997-98. For instance, the table shows that 11 percent of all African-American high school students were enrolled in schools with the highest availability of AP classes, compared to 12 percent of all whites and 19 percent of all Asians.

The information in Table 3 can be summarized as follows:

- Fifty percent of Asian students and 45 percent of white students were enrolled in schools in the three categories of highest availability of AP classes, while only 33 percent of Hispanics and African-Americans were enrolled in those schools.
- Fifty-one percent of Hispanic students and African-American students were enrolled in schools in the three lowest categories of AP class availability, while the comparable numbers for whites and Asians were 39 percent and 36 percent respectively.

TABLE 3 Range of AP Class Availability and Percentage of Statewide Student Ethnicity in Each Category of Availability

9-12 ENROLLMENT PER AP CLASS		ETHNICITY						
Status	Ratio	Amer. Indian	Asian	Pacific Islander	Filipino	Hispanic	African-Amer.	White
High avail.	<99.2	9%	19%	9%	9%	6%	11%	12%
	99.2-144.2	14%	16%	13%	14%	11%	9%	17%
Medium avail.	144.2-185.1	13%	15%	13%	15%	16%	13%	16%
	185.1-227.0	21%	13%	15%	17%	16%	15%	16%
	227.0-311.5	13%	10%	16%	10%	15%	14%	15%
Low avail.	311.5-484.3	13%	15%	19%	17%	21%	20%	11%
	>484.3	17%	11%	15%	18%	15%	17%	13%
TOTAL		100%	100%	100%	100%	100%	100%	100%

- Asian students were enrolled in high-AP-availability schools at a distinctly higher rate (19 percent) than all other ethnic groups.

A different perspective of ethnic data is shown in Table 4, which divides high schools into five equally weighted categories (about 150 schools each) of AP availability and then examines the ethnic mix at each school.

As the numbers in Table 4 indicate, schools across all AP availability ranges have similar proportions of African-American and Asian students. But higher availability schools tend to be much whiter and lower availability schools tend to be more Hispanic. In short, whites are somewhat better off in terms of the availability of AP classes compared to other ethnic groups and the low-availability schools tend to be more heavily minority than other schools. But for all ethnic groups, there are thousands of students enrolled in schools with relatively small AP programs.

Availability and Other Characteristics

In addition to school size and ethnicity, other variables show distinct patterns at schools across the range of AP class availability. Table 5 details the number of classes and subjects available across the range of availability, as well as the average AP enrollment. In addition, the table looks at type of location, socio-economic measures and higher-education indicators.

As Table 5 indicates, there is a broad range of availability of AP classes in California. Schools with very small programs on average offer three classes in a couple of subjects and have fewer than 100 students enrolled. The schools with the largest AP programs on average offer 17 classes in eight subjects and have closer to 500 students enrolled.

TABLE 4 Ethnic Proportions in Schools Across Range of AP Availability

Ethnicity	Availability of AP Classes (151-153 schools in each category)				
	Very High	High	Medium	Low	Very Low
African-Amer.	8	6	7	8	9
Asian	12	10	8	9	8
Hispanic	22	30	35	38	39
White	53	50	46	41	39
Total minority	47	50	54	59	61

TABLE 5 Characteristics of High Schools Categorized by AP Class Availability

Characteristic	Availability of AP Classes (151-153 schools in each category)				
	VERY HIGH	HIGH	MEDIUM	LOW	VERY LOW
# of AP classes	17.2	12.8	9.5	6.3	3.1
# of AP subjects	8.1	7.6	6.4	4.7	2.6
Av. AP enrolled	463.1	326.6	252.4	160.2	79.4
Location					
% urban	27	23	31	35	34
% suburban	49	55	47	41	39
% rural	25	22	23	25	27
Socio-Econ.					
% FRP meals*	24	25	32	32	35
% AFDC**	9	11	13	16	18
% LEP***	9	13	14	18	18
Higher Ed					
Av. SAT verbal	515	500	488	476	466
AV. SAT math	536	518	505	489	481
% seniors taking	52	41	37	36	32
% UC attend	12	8.9	6.5	5.6	4.6

* free and reduced price meals ** pre-welfare reform measure *** limited English proficient

Schools with large AP programs tend to be more suburban – but there is a large share of suburban schools in each category of availability from high to low. High-availability schools tend to have fewer English learners, AFDC recipients and Free and Reduced Meal students. Higher availability of AP classes also tracks with a higher percentage of students at a particular school taking the SAT exam, earning higher SAT scores and winning admission to the University of California system.

While the mean values displayed in Tables 4 and 5 depict a distinct pattern, averages can be deceptive and within each of the five levels of availability there is wide variation in school characteristics. For example, the percent of minority enrollment in the very-high availability schools averages 47 percent. But other data shows that within that availability category 20 percent of the schools have a minority enrollment of less than 21.2 percent and another 20 percent have a minority enrollment of more than 71.5 percent. In another example, when economic status is measured by the number of students receiving Free and Reduced Price Meals at urban

schools, there is no striking pattern of AP availability. There are both high- and low-availability schools in all categories of economic status.

In sum, while there is a clear association between characteristics of schools such as size, ethnicity and socio-economic status and the availability of AP classes, the assertion that is sometimes made that upper-income suburban schools offer AP opportunities and low-income inner city and rural schools do not is simply not valid. A few examples from many of the documented exceptions make this clear:

- Woodcreek High School in the Roseville Joint Union High School District is a mid-size (1,738 students) school in a fairly affluent (1 percent AFDC and 4 percent FRP meals) suburban area (north of Sacramento). The school is predominantly white (72 percent) and has few students not fluent in English (1 percent). These indicators could lead one to expect a school with a robust, successful AP program. Instead, Woodcreek High, 1997-98, offered only two AP classes, with an enrollment of 54 students.

- Templeton High School in San Luis Obispo County is a small rural school (734 students) that is predominantly white (87 percent) and slightly less affluent than Woodcreek (1 percent AFDC and 14 percent FRP meals). Templeton High comes close to the profile of rural schools that offer no AP program. Instead, Templeton offered eight classes in six subjects, with an enrollment of 91 students.
- Westchester High School in the Los Angeles Unified School District is a large urban school (2068 students) with a large African-American population (69 percent) and moderate affluence (15 percent AFDC and 20 percent FRP meals). The school offered 23 AP classes in 11 subjects with 434 students enrolled.

- Downey High School, a Southern California suburban school that is quite large (2,819 students), is heavily Hispanic (56 percent). It is not affluent (12 percent AFDC and 33 percent FRP meals) and has a large number of limited English students (22 percent). These factors might predict a small AP program, but the school offered 20 classes in 13 subjects. Enrollment is 543.

In a state where 90 percent of the high schools offer AP classes, one could presume that access is not a problem. In a state where statistics show that AP schools tend to be suburban, affluent and white, one could suspect that AP availability is biased rather than equitable. But reality is much more complex – for every classification variable

Findings: Student Participation

and value (such as high percentage AFDC, high percentage Asian), there are schools across the spectrum of availability, from high to low. And simply because a student is low-income, not white or living in a rural area does not mean he or she will not have the opportunity to take an AP class.

Finding 2: In schools across all levels of AP program size, Hispanics and African-Americans generally participate in AP classes at rates substantially below their share of total school enrollment.

California has one of the most diverse student populations in the nation. Many ethnicities and nationalities are represented in schools, and the range of socio-economic backgrounds is almost as broad within some schools as it is across the state. With this diversity as a backdrop, a key question is who is participating in the AP program? Within schools, is there disproportionate participation by ethnicity, gender or socio-economic background? The data, in fact, indicates that even when Hispanics and African-Americans are in schools with large AP programs, their rate of participation is lower than their proportionate share of school enrollment. In short, for Hispanics and African-Americans, the crucial problem is not availability (as described in the last finding) but participation in the classes that are offered.

The following sections examine AP participation by

ethnicity and by gender. The statewide databases used in this study include enrollment in AP classes by gender. However, they do not break out ethnicity. This report, therefore, uses AP exam test-taking statistics, which are kept by ethnicity, as a proxy for participation in the AP program.²

Participation by Ethnicity

In the spring of 1998, one or more AP exams were taken in California by 32,250 whites, 23,413 Asians, 18,601 Hispanics and 2,044 African Americans. For each ethnicity, the rate of participation increased dramatically during the past decade, as demonstrated in Table 6.

The table shows significant and similar growth for whites and Asians between 1988 and 1998 in the rate of exams taken per thousand students by ethnicity. During the same period, rates accelerated greatly for both African Americans and Hispanics – but both started from a very low rate per thousand and even growth of 105 and 162 percent could not bring the rates on par with whites and Asians.

TABLE 6 AP Exam Takers Per 1,000 Students in Grades 9-12 by Ethnicity

ETHNICITY	1988	1998	% INCREASE
White	30.55	49.42	61.7%
African American	7.63	15.67	105.2%
Hispanic	12.25	32.16	162.5%
Asian	18.47	32.28	67.5%

² Using test-taking data is an imperfect proxy. It is unknown whether the rates of exam and class participation by ethnicity differ significantly. In most schools, students are not required to take the AP exam. There are many reasons students may not take the test: They or their teacher (who plays a pivotal role in encouraging students to take tests) may fear they will do poorly based on classroom performance. They may already have been accepted to the institution of their choice and feel no need to take the test. They may be satisfied with the extra point added into their grade point average and have no interest in sitting through yet another test (at a time when SAT tests, Golden State exams and many others occupy their time). They may not want to pay the \$75 cost. There may be cultural attitudes that discourage test taking. Nevertheless, test-taking is a meaningful indicator for two reasons: 1) the differences in exam rates among the ethnicities are so great that even relatively large differences in the propensities of different ethnicities to take the exams would not significantly alter the picture of AP class participation; and 2) taking the exam is an integral part of the AP model – so the number of students who take the AP exam is, in itself, as meaningful an indicator of participation within schools as enrollment in classes

TABLE 7 Ethnic Participation in AP Program (expressed in ratio of % of AP exams taken to % of school ethnic enrollment)

ETHNICITY	AVAILABILITY OF AP CLASSES (151-153 schools in each category)				
	Very High	High	Medium	Low	Very Low
African-Amer.	.53	.55	.42	.27	.40
Asian	2.41	2.41	2.45	2.64	2.59
Hispanic*	.35	.37	.41	.43	.40
White	.98	.93	.98	1.06	1.21

*The Hispanic figures exclude the Spanish Language exam. Their participation in this specific exam is disproportionately high because of the large number of native-Spanish speakers living in California. Including the Spanish Language exam, the participation rates would be (in order from very-high to very-low availability): 1.41, 1.16, 1.24, 1.49 and 1.47.

While the rate of participation has grown, other figures need to be examined to determine if ethnic participation is proportionate in schools with varying AP program availability. Table 7 uses five categories of AP program availability and displays the ratio of students enrolled by ethnicity compared to their population share in the overall student body. Numbers close to one show a direct proportional match, while numbers smaller than one show a low participation rate and numbers greater than one show a high participation rate.

Table 7 clearly demonstrates that:

- Whether it is a high- or low-availability school, the participation of African-Americans and Hispanics is substantially less than proportional to the school enrollment of each ethnicity.
- Asian participation is disproportionately high across all levels of program size, and white participation is about proportional to their school enrollment.

Another way of looking at the proportionality data is in terms of percentiles of schools. Other study data not included in the table shows that:

- In more than 95 percent of the high schools, the share of AP tests taken by Hispanics is less than their share of school enrollment. In 50 percent of the schools, the percentage of Hispanic exam-taking is less than one-third of their proportion of school enrollment.
- Similarly, in 90 percent of schools the proportionality rate for African-Americans is less than 1.0.

- In about 50 percent of the schools, Asians take exams at a rate greater than twice their share of school enrollment – and in 25 percent of the schools, their test-taking rate is greater than three times their enrollment proportion.

To illustrate that minority participation is low even when availability of AP classes is high, one can look at the two high schools highlighted in the first finding, Westchester and Downey. As noted previously, Westchester High School in Los Angeles is dominated by African-American students. But despite their 69 percent of the student body enrollment, they account for only 30 percent of the exam candidates (the proxy being used to approximate AP class enrollment). Not only is the 30 percent figure well below their school enrollment percentage, but it also provides a participation rate (.43) that is well below the statewide average for African-American participation (.53) at high-availability schools.

Similarly, Downey High School bears out the evidence that Hispanic participation does not keep pace with enrollment proportionality. The school has a student population that is 56 percent Hispanic. When Spanish Language exams are excluded, Hispanic students account for only 17 percent of the exams taken. The resulting ratio of .30 is lower than the statewide average for high availability schools (.37).

TABLE 8 Statewide Enrollment in Major AP Classes by Gender

Subject*	Percentage Female	Males per Thousand Males	Females per Thousand Females
English Lang. & Comp.	61%	10.65	16.92
English Lit & Comp.	61%	18.98	30.26
Spanish Lang.	61%	17.74	28.30
Calculus AB	49%	17.38	17.04
Biology	55%	12.22	15.49
Chemistry	47%	8.10	7.58
U.S. Gov. & Politics	55%	10.68	13.31
European History	54%	6.79	8.36
U.S. History	56%	23.45	30.79

* These subjects comprise about 80 percent of all AP exams taken.

Participation and Gender

When it comes to gender, females dominate in all but a few courses – a somewhat surprising finding in view of prior and much-publicized claims that girls are at an academic disadvantage once the middle and high school years are reached. Table 8 shows enrollment by gender for the major AP subjects.

As Table 8 indicates, females have between 54 percents and 61 percent of enrollment in seven of the nine most popular AP classes. Males have slight majorities only in calculus and chemistry.

Across schools, the median percentage of female enrollment in AP classes is 56.6 percent. Ten percent of all schools with AP programs had more than two-thirds female enrollment in the AP classes. In almost 80 percent of all AP schools, the majority of AP enrollment was female. In addition, heavily Hispanic schools tended to have substantially more females than males in AP classes.

Overall, the data on participation (as measured by the test-taking proxy) shows that Asians and females participate at disproportionate rates. African-Americans and Hispanics participate at far below their proportionate numbers in school enrollment – and this holds true across all variations in AP class availability.

Findings: Test Performance

Finding 3: Test scores are strongly linked to school socio-economic status indicators. In addition, the scores of African-Americans and Hispanics are generally lower than scores by other ethnicities. Overall, between a quarter and a third of all students fail to take the AP exam associated with courses they enroll in.

The results of AP exams are ranked on a five-point scale, where five is the highest rating achievable. Scores of three and above (often called passing scores) are recognized by many colleges as indicating that a student is qualified to take an advanced course in the first year of college. The key questions here are: Do some schools produce higher scores and, if so, why? Are there significant differences in the scores of students of different ethnicities? What are the implications of the failure of students to take the AP exam? Examining the data reveals that, as with many other academic performance measures, results vary with socio-economic status and by ethnicity.

Overall Performance

In the spring of 1998, California students took 145,341 AP exams in all subjects. Almost 65 percent scored three or above (15.2 percent received 5, 20.9 percent received 4 and 28.1 percent received 3). Almost a quarter of those taking the test received a score of 2 (23.7 percent) and another 12.1 percent received a 1.

California's performance is virtually identical with the AP results in all other states combined. Excluding the Spanish Language exam, the percentage of scores of 5 and 3 and higher were identical – both California and the rest of the nation had 12.5 percent 5s and 61.9 percent passing scores. Including the Spanish Language exam boosts California's percentage of 5s to 15.2 percent.

California students outperform pupils in the two most similar states, Texas and Florida, by a small margin. But California students scored slightly lower than the nation and the similar large states in physical science subjects.

Test Performance and School Characteristics

In California's public schools, there is a well-recognized correlation between socio-economic and performance variables, including family income and SAT scores. As Table 9 shows, performance on AP exams can be added to that list. The table displays the characteristics of the lowest performing quintile of high schools – those that had below 35 percent passing rates – and the highest performing quintile – those with passing rates exceeding 74 percent.

As Table 9 indicates, when schools have low levels of passing rates on the AP exam, they typically have small AP programs and have students with disadvantaged socio-economic backgrounds and lower SAT results. The top-scoring schools have larger AP programs, are more affluent and have students who take the SAT tests at higher rates and score better.

TABLE 9 Characteristics of Schools with Lowest and Highest Passing Rates on AP Exams

Characteristics	School % of Scores 3 or Higher	
	0-35%	74-100%
# of AP classes	7.1	12.4
# of AP subjects	4.6	6.5
Socio-Econ.		
% FRP meals*	49%	15%
% AFDC**	25%	6%
% LEP***	24%	8%
Higher Ed		
Av. SAT verbal	430	525
AV. SAT math	446	549
% seniors taking	33%	53%
% UC attend	3.5%	11.7%

* free and reduced price meals ** pre-welfare reform measure
*** limited English proficient

TABLE 10 AP Exam Scores Received by Percentage of Each Ethnicity

Characteristics	% of 1s	% of 2s	% of 3s	% of 4s	% of 5s
American Indian/Alaskan	14.1	29.6	33.9	14.4	8.0
African-American	30.9	33.7	21.5	10.5	3.5
Chicano/Mexican American	17.6	20.9	20.8	19.3	21.5
Excluding Spanish Lang. Exam	27.5	32.1	24.9	11.6	3.5
Asian/Asian American	13.5	23.9	28.2	20.3	14.1
Puerto Rican	12.9	26.5	31.2	16.7	12.6
Other Hispanic	13.6	17.8	20.6	21.2	26.7
Excluding Spanish Lang. Exam	22.3	28.3	27.7	15.2	6.5
White	8.3	24.4	31.4	22.4	13.5
Other Ethnicity	12.1	24.6	30.0	20.6	12.8
Not Stated	9.5	22.8	29.0	22.6	16.1

Test Performance and Ethnicity

The AP exam asks students to self-report their ethnicity. More than 10,000 students (7.1 percent of the test takers) did not state their ethnicity. Another even larger contingent marked “other.” Table 10 displays the achievement of different ethnicities on the test.

The key findings from this table are:

- African Americans have the lowest scores – 64.6 percent of their scores were a 1 or 2. Other data not shown on the table indicates that in about 25 percent of the schools two out of three African-Americans achieve a score of 3 or higher (however, many of these schools had only a handful of African-American test takers). In contrast, 32.7 percent of white scores and 37.4 percent of Asian scores were 1 or 2.
- When the Spanish Language results are removed, Hispanics score almost as poorly as African Americans. For the Chicano category, 59.6 percent of the scores without the Spanish Language tests are 1 or 2. For Other Hispanics, the comparable figure is 50.6 percent. When the Spanish Language test is included, Chicanos and Other Hispanics greatly outpace all other ethnicities proportionately for scores of 5 and parallel Asians for scores of 4.
- The scores of whites and Asians are quite similar, except that Asians had significantly more scores of 1 than whites (13.5 percent versus 8.3 percent). Other data not

shown on the table indicates that the schools in which Asian students score the lowest appear to have a relatively high percentage of students who are Limited English Proficient.

The data from the two high-availability, minority-dominated high schools highlighted in the previous two findings indicates the wide variations that are found in test performance. At Westchester High School, where African-Americans are 69 percent of the enrollment and take 30 percent of the tests, only 16 percent of African-American scores were 3 or higher. The statewide statistics show that 35.5 percent of African-Americans receive 3 or higher. Thus, Westchester has a high-availability AP program where African-Americans do relatively poorly.

The figures tell a different story at Downey High School, where Hispanics make up 56 percent of the student body and take 17 percent of the non-Spanish Language exams. At Downey, 67 percent of the Hispanic scores were 3 or higher compared to the statewide statistics of 40 percent for Chicanos/Mexican Americans and 49.4 percent for Other Hispanics. These higher-than-state-average scores hold true at Downey across all AP test takers. Clearly the program at Downey is working well for all students, including minorities, in terms of test results.

The AP Exam

In addition to looking at scores, it should be noted that there is a high rate of students who opt out of the exam

process. In the nine most popular AP subjects, test-taking percentages range from 60 to 75 percent of AP class enrollment. As the AP program was designed, the exam is an integral part of the process, providing outside standardized validation that courses cover the same material and are of similar quality. When students fail to take the exam, there is no external check on quality and no way to determine if students have mastered the material.

Overall, the performance data indicates that African Americans and Hispanics do more poorly on AP tests than whites and Asians. Also the data shows that schools in affluent areas show better results than schools in low-income areas. But there are enough anomalies in all categories of data to make the reasons for the disparities unclear.

Conclusion

The Advanced Placement program is flourishing in California – there has been a high rate of growth and more than 90 percent of high schools offer the programs to students. But these positive, on-the-surface statistics gloss over the more negative aspects of program availability, student participation and test results. This in-depth study of data for the 1997-98 school year in California indicates that:

- Despite the widespread nature of the program, California's high schools are not offering AP opportunities to all qualified students. In many areas, the program is slender at best and competition for seats in AP classrooms even when they are available means that not all interested students can be admitted to the program. Although critics often presume that low-income, inner city and rural areas lack AP programs, statistics show all levels of availability – from low to high – across all socio-economic, ethnic and geographic settings.
- African-Americans and Hispanics do not participate in the AP program, even when it is highly available, at rates that reflect their proportionality in the school student enrollment figures. Conversely, Asians participate heavily, often at more than double their rate of school enrollment.
- As with many other school performance indicators, AP test scores rise and fall in rough parity with socio-economic indicators. In addition, African-Americans and Hispanics do far worse than other ethnicities in obtaining scores of 3 and higher – the passing rate that provides the opportunity to receive college credit for the coursework.

As this report indicates, these generalizations do not hold true in all cases. Throughout the state, there are exceptional programs in both directions – affluent areas where one would expect vibrant AP programs with only limited availability and low-income, inner city areas where the AP program is robust.

In addition, when the generalizations are true, the statistics do not reveal why these situations exist. Is availability uneven because of lack of resources, variations in administration awareness of the program, or incentives in some areas that have not yet been replicated elsewhere? Is participation by minorities low because of cultural attitudes, lack of solid academic preparation prior to high school, or some other factor not yet evident? Are minority test scores low because of cultural bias in the tests, less demanding expectations or poor quality courses? These and other questions are now being examined in follow-up case studies that delve deeper into schools that offer programs and achieve results outside of the statistical averages.

This study spotlights the nature of AP availability, participation and test performance for a single year in California – and in doing so provides some valuable insight into the status of the program today. Addressing the issues raised in this study, however, is not a simple matter of creating programs where they don't exist, or eliminating bonus grade points to modify college admission processes, or some other one-dimensional action. For policymakers to respond to these insights with appropriate actions, more information is needed about why the variations exist and what systemic changes would be most helpful.

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