Research Report No. 2002-10

What Are the Characteristics of AP® Teachers? An Examination of Survey Research

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Executive Summary

In 2001, the College Board administered 1.4 million Advanced Placement Program® (AP®) Exams to 845,000 students; these exams comprised the end-of-year assessment for 35 AP courses from 19 subject areas. A profile of AP participants, including both students and teachers, is of particular interest. Information on test-takers collected at the time of examination provides a rich description of AP students, but what are the characteristics of their teachers? Since the success of the AP Program is dependent upon the skills and talents of its secondary school teachers, these characteristics are important to know. The current study provides a glimpse into these characteristics by summarizing the results of the largest survey of AP teachers to date.

The AP Teacher Survey contained 40 questions that were organized to fit into six different sections covering the following content areas:

- Classroom characteristics
- Teacher background
- Professional development
- Training and resource needs
- Technology
- Important issues for AP teachers.

Data collection took place in three phases. During phases one and two, the survey was administered through the mail, and during phase three, the survey was administered through the Internet. The three phases yielded a total of 32,109 responses.

During phase one of data collection, which took place between November 1999 and April 2000, 100,000 surveys were mailed to 13,000 AP coordinators for distribution to the AP teachers in their schools. Phase one yielded 27,336 responses, which comprised 85.1 percent of the current sample. During phase two, teachers that did not respond to the phase one administration of the survey were targeted. Phase two took place between May 2000 and September 2000, and involved mailing 50,500 surveys to AP readings[1] and summer–fall professional development workshops. Phase two yielded 4,150 responses which comprised 12.9 percent of the current sample. During phase three, the AP teacher survey was administered via the Internet from September 2000 to February 2001. Phase three yielded 623 responses which comprised 1.9 percent of the current sample.

In order to investigate how representative the current sample was of the population of AP teachers, the characteristics of survey respondents were compared to characteristics of AP teachers registered with Educational Testing Service (ETS). The comparisons were made using an effect size measure known as Cohen's *w* (Cohen, 1988). The results of analysis suggested that the current sample is representative of *national* teachers by state and region, and only slightly different by academic subject.

Access to the AP Program, for students that have an AP program at their school, appears to be keyed to academic preparedness. An exploration of classroom characteristics revealed that students enrolled in AP classes generally enjoy a small class size. Findings also indicated that AP teachers employ a variety of educational materials in their classrooms. One problematic finding was that ethnic minority, ESL, and economically disadvantaged students seem to be underrepresented in AP classes. Despite these students being underrepresented, most schools did not have specific initiatives geared toward increasing minority student participation in the AP Program.

An examination of teacher background revealed three salient results. First, ethnic minority teachers were heavily underrepresented. Second, most AP teachers tended to hold a master's degree in the academic discipline in which they teach. Third, the majority of AP teachers anticipate retiring within the next 15 years with more than one-third anticipating retirement by 2010.

An examination of professional development activity participation revealed that a variety of education-related activities are available to teachers, and that teachers generally take advantage of these activities. Financial coverage and release time appeared to facilitate participation in these activities. Some activities appear to be underutilized, but the reason for this is unclear. Findings indicated a need for professional development training in time management, test preparation, and various teaching methods for covering difficult course material. Findings further indicated that more professional development and classroom resources are needed to make lessons more interesting and motivating.

Technology use among AP teachers revealed that only a moderate percentage of AP teachers visit the Internet for professional purposes on a weekly basis, even though most teachers have Internet access in the classroom. Younger teachers tend to use the Internet for professional purposes more frequently than older teachers, and across racial ethnic groups, Asian American and Hispanic teachers tend to use the Internet less frequently than teachers from other ethnic groups.

[1] AP readings take place each year and involve AP teachers gathering to evaluate free-response answers to AP Exams.

Important issues for AP teachers seem to surround professional development. This was evident by teachers ranking these issues highest when asked to select the five most pressing issues they face as a teacher. The list of 12 issues was diverse and included physical safety–school violence, cultural–ethnic diversity, and moral and development issues, among others.

Despite limitations encountered in the evaluation of the survey data, such as nonresponse bias, volunteer bias, and a partial lack of representativeness, the AP teacher survey provided useful information on AP teachers for determining baseline characteristics. Eventually, this information will be compared to future survey results, and trends among AP teachers will be explored. Additional future research will entail linking the survey results to student performance and school characteristics using hierarchical models. These models can be used to evaluate which school and teacher characteristics are most important to student success.

Key Words: Advanced Placement Program, AP teachers, professional development

Introduction

In anticipation of the research community's limited exposure to the College Board's Advanced Placement Program (AP), the current introduction provides a brief description of the AP Program, as well as a review of the purpose of surveying AP teachers.

AP® Program Description

The College Board's Advanced Placement Program (AP) is a cooperative educational endeavor of secondary schools, colleges, and universities. Founded in 1955, the AP Program provides motivated high school students with the opportunity to take college-level courses while still in high school. The AP Program enhances high school curricula by challenging and stimulating students with rigorous, high-quality courses in the arts, natural sciences, social sciences, mathematics, and foreign languages. AP courses provide in-depth coverage of relevant material with a focus on facilitating the development of analytical reasoning skills and disciplined study habits. The College Board's AP Program contracts with Educational Testing Service (ETS) to design, administer, and score the end-of-course AP Examinations that are administered worldwide each May. Success on AP Exams often leads to exemption from introductory courses in college and may also improve students' chances of being accepted by the college of their choice.

Nearly 60 percent of U.S. high schools participate in the AP Program. There are currently 35 different AP courses in 19 subject areas, offered by nearly 14,000 secondary schools around the world. Most U.S. colleges and universities, as well as colleges and universities in 19 other countries, grant credit, advanced placement, or both for qualifying grades on AP Examinations. In 2002, approximately 900,000 students took more than 1.5 million AP Exams.

Discipline-specific committees of college faculty and AP teachers develop each AP course and exam, emphasizing current disciplinary reforms and the best of current college practices, pedagogy, and course content. Each committee regularly produces an AP Course Description, published by the College Board, which outlines the information, skills, and assignments that are incorporated in corresponding college courses. High school AP teachers use these detailed course guidelines to develop their lesson plans. Through curriculum surveys of college courses, each AP Course Description is revised on a regular basis. These surveys verify that each AP course covers the breadth of information, skills, types of activities, and assignments found in the corresponding college courses.

Studies of the validity of AP Exam grades tend to focus on the connections between AP Exam grades, college achievement, and appropriate college placement. Morgan and Ramist (1998) conducted a study that focused on comparing success in college between AP students and non-AP students. The results indicated that AP students, whose AP Exam grades had exempted them from introductory college courses, were more successful in subsequent college courses than their classmates who took the prerequisite courses in college. Also, Gonzalez, O'Connor, and Miles (2001) found that the skills of AP Calculus and AP Physics students were similar to the skills of students who performed well on the Third International Mathematics and Science Study (TIMSS) Advanced Mathematics and Physics tests. In addition, the College Board conducts college comparability studies, in which a portion of the AP Exam is administered to college students when they complete the corresponding college course. These students' performance on the AP Exam is compared to their performance on their college tests and to their course grades. These studies allow the AP Program to set AP Exam grade boundaries. Consequently, the cut-off point for an AP Exam grade of 5 (AP Exams receive grades ranging from 1 to 5) is roughly equal to the average AP grade of college students who receive an A in the corresponding college course; the cut-off point for an AP grade of 4 is roughly equivalent to the average AP grade of college students who receive a B, and so on.

The AP Program offers a variety of professional development opportunities to its teachers throughout the country year-round principally through workshops and summer institutes. AP workshops are typically offered on weekends during the academic year and range from one to three days in length, while AP Summer Institutes are intensive courses, usually lasting a week, that provide in-depth preparation for the teaching of an AP class. Weekend workshops concentrate on teaching a specific AP subject by focusing on instructional strategies and the management of an AP course. The workshops and institutes also act as a forum for the exchange of ideas and information about the Program between teachers. AP teachers participate in these workshops and institutes to strengthen content knowledge, pedagogical skills, and to improve communication networks between fellow AP teachers. There are currently more than 110,000 AP teachers and administrators worldwide, and during the 2000–2001 school year, 1,874 workshops and summer institutes for three different experience levels were held. More than 60,000 individuals attended these workshops and summer institutes.

The AP Program conducts research continuously in an effort to develop new services and products that enhance quality education and to ensure the quality of the products it delivers. In addition, the AP Program is focusing on initiatives that target priorities like increasing the numbers of minority students that participate in AP courses, and increasing the range of professional development activities, through collaborations and partnerships with organizations outside of the College Board.

The Purpose of the AP Teacher Survey

The primary purpose of the AP Teacher Survey is to collect baseline descriptive information concerning AP teachers with regard to their training, experience, and attitudes. This information can then be used to develop a profile of AP teachers and to track changes in teacher characteristics over time. The survey also acts as a follow-up to a "census" measurement conducted during the period of March 22 through April 8, 1999, by James Spanier Associates Marketing Research and Consulting (1999). The census measurement was conducted via telephone and assessed the characteristics of 609 AP teachers who primarily taught the subjects of science, English, mathematics, and history. Major conclusions derived from the census measurement are that a sizable percent of AP teachers have taught for many years and thus may soon approach retirement, especially in New England; most AP teachers use the Internet and communicate via e-mail; and AP teachers attend and seem satisfied with workshops sponsored by the College Board. The results of this survey will address plans for future training programs and help to set new directions for the AP Program.

The AP Teacher Survey is also an attempt to provide a richer understanding of AP teacher characteristics and needs. Since the success of the AP Program is dependent upon the skills and talents of its secondary school teachers, these characteristics are important to know. The results of the current survey will be used to direct changes to the AP Program that more fully meet the needs of AP teachers. In addition, the results of the current survey will lead to future research using hierarchical linear modeling to evaluate which teacher characteristics are important for student success.

Method

Participants

A total of 32,109 AP teachers comprised the current data set. The examinees were 17,075 (53.2 percent) female and 14,736 (45.9 percent) male AP teachers that responded to the AP teacher survey. Over 99 percent of the survey respondents taught in the continental United States of America. The ethnic composition of the survey respondents is 1.8 percent American Indian or Alaskan Native, 1.3 percent African American or black, 3.1 percent Asian, Asian American, or Pacific Islander, 0.1 percent Cuban, 3.1 percent Mexican American, 0.1 percent Puerto Rican, 0.1 percent Other Hispanic/Latino(a), 95 percent white, and 2.4 percent "Other"; 2.2 percent of the survey respondents did not provide an ethnic description.[2] Survey respondents tended to be middle-aged (M = 46 years old; S.D. = 10 years).

Materials

The 40 questions included in the current survey were organized into six sections. These sections covered the following content areas:

- Classroom characteristics
- Teacher background
- Professional development
- Training and resource needs

[2] Since respondents were asked to select all ethnic categories that applied to them, the percentages listed above do not sum to 100 percent.

- Technology
- Important issues for AP teachers.

The questions on classroom characteristics focused on school information as well as on instructional materials used most frequently, background characteristics of students in AP classes, special initiatives to increase minority participation in AP classes, and requirements for participation in AP classes. The section covering teacher background included questions regarding academic background, teaching experience, courses being taught, and personal information like gender, age, race–ethnicity, and anticipated year of retirement. The professional development section contained questions that covered access to and participation in various types of professional development activities among AP teachers. The questions from the training and resource needs section addressed aspects of teachers' professional development for which further training or additional resources were needed. The technology section focused on technology usage, such as e-mail and the Internet, for professional purposes related to teaching AP classes. In the section that addressed important issues for AP teachers, respondents were asked to rate the importance of 12 issues related to teaching high school students.

Procedure

Data collection took place in three phases. During phases one and two, the survey was administered through the mail. The survey was administered through the Internet during phase three. The three phases of data collection yielded a total of 32,109 responses.

Phase one of data collection began in November 1999 and continued until April 2000. During phase one, 100,000 surveys were mailed to 13,000 AP coordinators. AP coordinators are high school staff members that manage issues related to AP Exam administration. Coordinators were asked to distribute the survey, an addressed return envelope, and an instruction letter to the AP teachers in the schools in which they worked. The instructional letter given to AP teachers included a request that the teacher complete and return the survey within two weeks of receipt of the mailing. Phase one of data collection yielded 27,336 responses, which comprised 85.1 percent of the current sample.

Phase two of the data collection began in May 2000 and continued until September 2000. During phase two, teachers that had not responded during phase one were targeted. In phase two, 50,500 surveys were sent to the annual AP readings and summer–fall workshops where AP teachers meet for professional development activities. Phase two yielded 4,150 responses, which comprised 12.9 percent of the sample.

Phase three of data collection began after September 2000 and was completed in February 2001. The survey was administered through the Internet during phase three. For the purposes of the current study, additional cases were not added to the sample if participants completed the survey after February 2001. The 2000–2001 Web-based administration of the survey yielded 623 responses, which comprised 1.9 percent of the sample.

For phase one and two of data collection, 21.9 percent of the surveys were completed and returned. It is unclear whether this percentage represents the true response rate, however, since it is uncertain how many teachers actually received the survey due to the nature of survey distribution through AP coordinators. Although the instructional letter requested that AP coordinators distribute survey packets to their AP teachers so that the survey could be completed and returned within two weeks of receipt of the mailing, some AP coordinators may have failed to distribute the packets in a timely manner. Therefore, it was necessary to investigate how representative the current sample was of the population of AP teachers.

Representativeness of Respondents

Statistical analyses were performed to evaluate whether the characteristics of the AP teachers who responded to the survey were representative of the characteristics of AP teachers that register with ETS. Approximately 75 percent of all AP teachers register with ETS via their AP coordinator. Statistical analyses focused on comparing the distributions of AP teacher survey respondents to those of ETS registrants by state, geographic region, and academic subject using an effect size measure known as Cohen's w[3] (Cohen, 1988). Values for Cohen's w that range between 0.00 and 0.10 indicate that there is a small difference between groups, values between 0.30 and 0.49 indicate a medium sized difference, and values greater than 0.50 indicate that there is a large group difference (Cohen, 1988). Table 1 provides a comparison of AP teacher registrants and AP teacher survey respondents by state, Table 2 provides this comparison by region, and Table 3 by AP course.

The results revealed that there was a small difference in the proportion of teachers and registrants by state

[3] Cohen's w was calculated instead of chi-square because of the well-known problems associated with the influence of sample size and other variables on the chi-square statistic (see Bentler and Bonnet, 1980).

TABLE 1

Frequency of AP® Teacher Registrants and AP Teacher Survey Respondents by State

	ETS Teacher Registration		*AP Teacher Questionnaire*	
State	*Frequency*	*Percent*	*Frequency*	*Percent*
Alabama	1,199	1.2	299	0.9
Alaska	251	0.2	62	0.2
Arizona	1,068	1.1	281	0.9
Arkansas	763	0.8	231	0.7
California	11,525	11.4	3,267	10.2
Colorado	1,424	1.4	458	1.4
Connecticut	1,859	1.8	344	1.1
Delaware	359	0.4	121	0.4
District of Columbia	303	0.3	71	0.2
Florida	4,155	4.1	1,379	4.3
Georgia	2,429	2.4	826	2.6
Hawaii	366	0.4	123	0.4
Idaho	390	0.4	108	0.3
Illinois	3,707	3.7	1,159	3.6
Indiana	1,732	1.7	529	1.6
Iowa	712	0.7	214	0.7
Kansas	673	0.7	224	0.7
Kentucky	1,604	1.6	440	1.4
Louisiana	822	0.8	163	0.5
Maine	660	0.7	224	0.7
Maryland	2,556	2.5	744	2.3
Massachusetts	2,986	3.0	940	2.9
Michigan	2,950	2.9	852	2.7
Minnesota	1,240	1.2	402	1.3
Mississippi	690	0.7	179	0.6
Missouri	1,370	1.4	415	1.3
Montana	308	0.3	77	0.2
Nebraska	539	0.5	124	0.4
Nevada	392	0.4	108	0.3
New Hampshire	536	0.5	170	0.5
New Jersey	3,806	3.8	1,251	3.9
New Mexico	512	0.5	175	0.5
New York	7,460	7.4	2,286	7.1
North Carolina	2,605	2.6	978	3.0
North Dakota	87	0.1	39	0.1
Ohio	3,432	3.4	1,221	3.8
Oklahoma	1,273	1.3	444	1.4
Oregon	898	0.9	223	0.7
Pennsylvania	4,321	4.3	1,487	4.6
Rhode Island	370	0.4	138	0.4
South Carolina	1,329	1.3	495	1.5
South Dakota	168	0.2	75	0.2
Tennessee	1,419	1.4	431	1.3
Texas	9,617	9.5	2,952	9.2
Utah	1,057	1.0	358	1.1
Vermont	395	0.4	100	0.3
Virginia	3,219	3.2	1,087	3.4
Washington	1,429	1.4	426	1.3
West Virginia	524	0.5	131	0.4
Wisconsin	2,052	2.0	742	2.3
Wyoming	143	0.1	33	0.1
Non-U.S.	5,354	5.3	135	0.4
Total	101,038	100.2	29,741	92.3

Note: Total percentages do not sum to 100 percent because of rounding error and missing information.

TABLE 2

Frequency of AP Teacher Registrants and AP Teacher Survey Respondents by Geographic Region

	ETS Teacher Registration		*AP Teacher Questionnaire*	
Region	*Frequency*	*Percent*	*Frequency*	*Percent*
New England	6,806	6.7	1,916	6.0
Middle States	18,805	18.6	5,960	18.6
South	19,471	19.3	6,277	19.5
Midwest	19,186	19.0	6,127	19.1
Southwest	12,165	12.0	3,802	11.8
West	19,251	19.1	5,524	17.2
Non-U.S.	5,354	5.3	135	0.4
Total	101,038	100.0	29,741	93.0

Note: Total percentages do not sum to 100 percent because of rounding error and missing information.

TABLE 3

Frequency of AP Teacher Registrants and AP Teacher Survey Respondents by AP Course

	ETS Teacher Registration		*AP Teacher Questionnaire*	
Subject	*Frequency*	*Percent*	*Frequency*	*Percent*
Biology	7,706	7.6	2,892	9.0
Calculus	15,081	14.9	5,388	16.8
Computer Science	3,425	3.4	788	2.5
Chemistry	5,970	5.9	2,022	6.3
Environmental Science	787	0.8	318	1.0
Physics	5,598	5.5	1,453	4.5
Statistics	1,983	2.0	846	2.6
Art History	987	1.0	268	0.8
APIEL	3	–	9	–
English	18,468	18.3	5,813	18.1
French	4,352	4.3	897	2.8
German	1,284	1.3	281	0.9
Latin	1,269	1.3	337	1.0
Music	1,320	1.3	281	0.9
Spanish	6,818	6.7	1,620	5.0
StudioArt	3,994	4.0	210	0.7
Economics	2,409	2.4	492	1.5
European History	3,557	3.5	1,058	3.3
Government & Politics	4,558	4.5	1,197	3.7
Human Geography	–	–	10	–
Psychology	1,730	1.7	604	1.9
U.S. History	9,739	9.6	3,536	11.0
World History	–	–	6	–
Total	101,038	100.0	30,326	94.0

Note: Total percentages do not sum to 100 percent because of rounding error and missing information.

and region (Cohen's w = .23 and .10, respectively). However, this difference is most likely the result of AP teacher survey respondents being underrepresented in non-U.S. territories. For example, Cohen's w drops from 0.23 to 0.08 when groups are compared by state, and from 0.10 to 0.00 for the regional comparison, when non-U.S. territories are not considered in the analysis. The results also revealed that there was a slight difference between groups with respect to the proportion of teachers by academic subject (Cohen's w = 0.11). These findings suggest that the current sample is representative of *national* teachers by state and region, and only slightly different by academic subject.

Other issues may have also influenced how representative the current sample was of the population of AP teachers. For example, nonresponse bias may have decreased the representativeness of the current sample if those who responded to the survey were different than those who did not respond. Nonresponse bias is "the kind of bias that occurs when some subjects choose not to respond to particular questions and when the nonresponders are different in some way from those who do respond" (Vogt, 1999, p. 193). Similarly, volunteer bias may have decreased representativeness if those who volunteered to participate in the survey were different than those who did not volunteer. Volunteer bias is "any of several problems in drawing valid conclusions from research that arise because participation in the research is voluntary" (Vogt, 1999, p. 305). Since the characteristics of those AP teachers who did not respond or volunteer are unknown, it is unclear whether these issues affected representativeness.

Results and Discussion

The current section is organized to provide the important results of each content area covered by the AP teacher survey. When necessary, descriptive statistics, tables, and figures are provided to enhance the explanation of the results. Interpretations of these results are also briefly discussed.

Classroom Characteristics

Across all AP courses, the average class size, i.e., number of students per class, was small (M = 16.9; S.D. = 8.8). In 2000, the average secondary school class size was 23.6 (National Center for Education Statistics, 2000). Table 4 provides a description of the average number of students per class, as well as an estimate of the variability around that average, by course area[4]. The number of teachers that responded to this question is also provided. It is important to note that three AP course areas had means and standard deviations that were based on the responses of too few teachers; these course areas were Advanced Placement International English Language (APIEL), World History, and Human Geography. The smallest average class sizes were found among some language (e.g., Latin, German, and French) and fine arts (e.g., Studio Art and Music) course areas. Psychology, Economics, and Government and Politics course areas tended to have larger class sizes relative to other AP course areas. According to Finn and Achilles (1990), the number of students per class appears to be related to a host of indicators of student success, and in general, small classrooms (e.g., 13 to 17) are optimal. Based on the results provided in Table 4, it would seem that AP class sizes are optimal.

TABLE 4

Average Class Size by AP Course

Subject	*Mean*	*Standard Deviation*	*Count*
Human Geography	29	15	10
Psychology	22	9	604
Economics	21	11	492
APIEL	–	–	–
Government & Politics	21	9	1,197
Statistics	19	9	846
U.S. History	19	9	3,536
European History	19	10	1,058
Environmental Science	19	9	318
English	19	8	5,813
World History	–	–	–
Calculus	17	8	5,388
Art History	16	8	268
Biology	16	8	2,892
Physics	16	8	1,453
Spanish	15	8	1,620
Chemistry	14	7	2,022
Computer Science	14	7	788
StudioArt	10	7	210
French	10	6	897
Music	10	7	281
German	9	7	281
Latin	9	6	337
Grand Average	17	9	31,424

In order to enroll in AP courses, students must meet certain requirements outlined by their school. Student success and rigor in course taking pattern, determined by course grades, faculty recommendations, and participation in prerequisite courses, were the most widely used criteria for enrollment (see Figure 1). Exams, such

[4] The term "course area" is used here because 23 courses were used to represent the 35 AP courses. For example, the course area for calculus encompassed the Calculus AB and Calculus BC AP courses. Similarly, English Language and Composition courses comprised the English course area. A complete list of all 35 AP courses is provided in the Appendix.

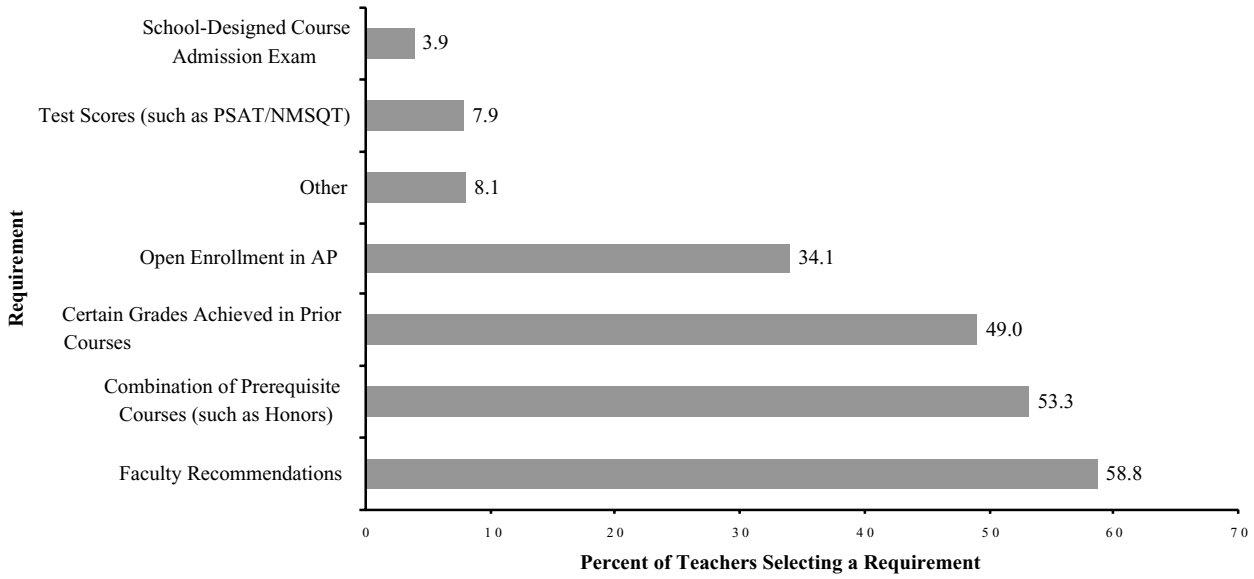

Figure 1. Requirements for enrollment in AP courses.

as the Preliminary SAT/National Merit Scholarship Qualifying Test (PSAT/NMSQT®) or a school-designed AP admissions test, were generally not required for enrollment in AP. In addition, many survey respondents (34.1 percent) worked at schools with an open enrollment policy for AP. These findings suggest that for schools with an AP program, access to AP courses is limited largely by academic preparedness.

Questionnaire responses revealed that teachers tend to expose students to a variety of educational materials in the classroom. Figure 2 provides a bar graph of materials used in the classroom. Results indicated that survey respondents use traditional materials like textbooks, the blackboard, and other course-related books most frequently, whereas technological materials like audiotapes, curriculum software, or distance learning software were used much less frequently. Despite the limited use of technology in the classroom, Figure 2 reveals that most survey respondents expose students to many different kinds of other "nontraditional" educational materials, such as articles and videos, thereby enhancing the AP students' educational experience.

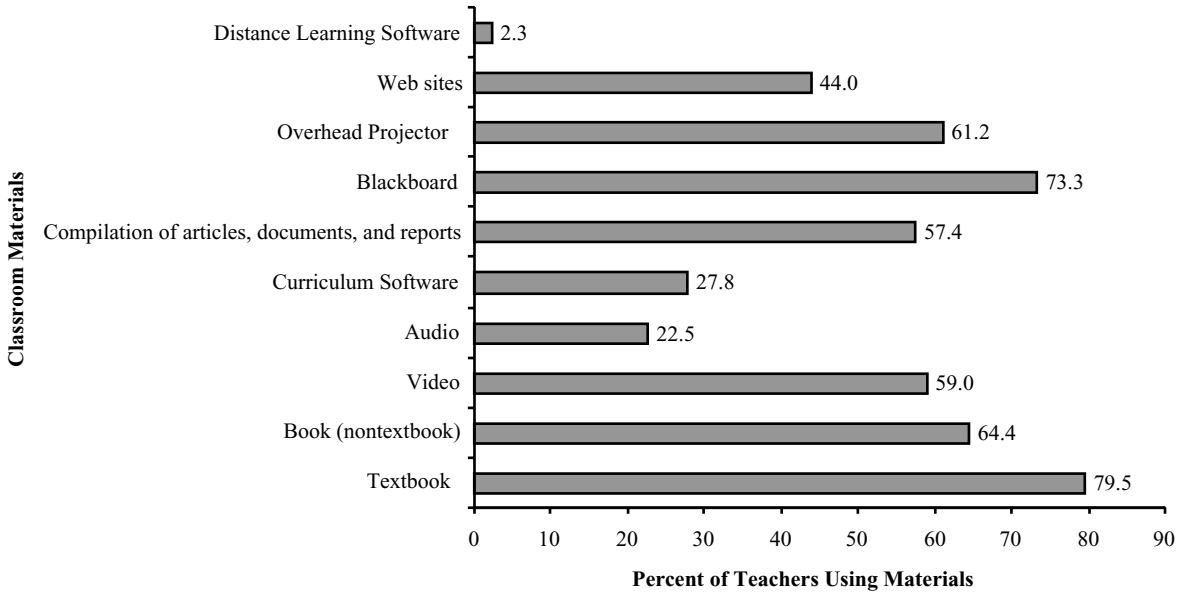

Figure 2. Classroom materials used by AP teachers.

Survey respondents indicated that most of the students in their AP classes take an AP Exam for college credit. For example, approximately 39 percent of survey respondents indicated that all of the students in their AP class took an AP Exam, 39 percent indicated that at least three-quarters of their students took an AP Exam, and 22 percent indicated that less that three-quarters of the students in their class took an AP Exam. Since most AP students take an AP Exam, it seems that AP classes are comprised of serious students who are committed to having their AP experience fulfill college requirements.

The race–ethnicity and demographic characteristics of students within AP classes were also explored. Teachers estimated the percent of students in their class by racial–ethnic groups and by demographic characteristics. Since these results are based on estimates made by teachers and not empirical data, they should be interpreted with caution.

When teachers were asked about the racial–ethnic characteristics of students in their classes, an overwhelming majority indicated that less than 10 percent of their students were part of an ethnic minority group (see Figure 3). Approximately one-third of the survey respondents reported that more than 10 percent of the students in their classes were part of an ethnic minority group. For example, 32.5 percent of the respondents indicated that 10 percent or more of the students in their classes were African American or black, and 39.4 percent indicated that 10 percent or more of the students in their classes were Hispanic or Latino(a). If there are an average of 17 students per AP class, these results show that fewer than two students per class are African American or Hispanic. In contrast to the estimates of the percent of African American and Hispanic students in AP classes made by survey respondents, national estimates[5] in Figure 3 show that 53.8 percent of secondary schools are comprised of 10 percent or more African American and Hispanic students. The opposite trend was found when teachers were asked to estimate the number of white students in their classes. Most survey respondents (64.8 percent) indicated that over 75 percent of their students were white. The results shown in Figure 4 reveal that AP classes are comprised of very few students who have English as a second language (ESL) or who receive free or reduced-price lunch on a regular basis. A fair amount of students in AP classes would be first-generation college-bound students. These findings suggest that ethnic minority and ESL students are underrepresented in AP classes. In addition, since receiving free or reduced lunch is a proximal measure for economic hardship, it seems that economically disadvantaged students are also underrepresented in AP classes. However, since national estimates of the percent of ESL or free/reduced lunch eligible students in secondary school classrooms are not available, the extent of this underrepresentation is unclear.

When explored across regions, findings suggested that Asian American students are more highly represented in AP classes in the west than in the other five regions. For example, 45.7 percent of teachers from the western region reported having less than 10 percent Asian American students in their AP classes, whereas in the

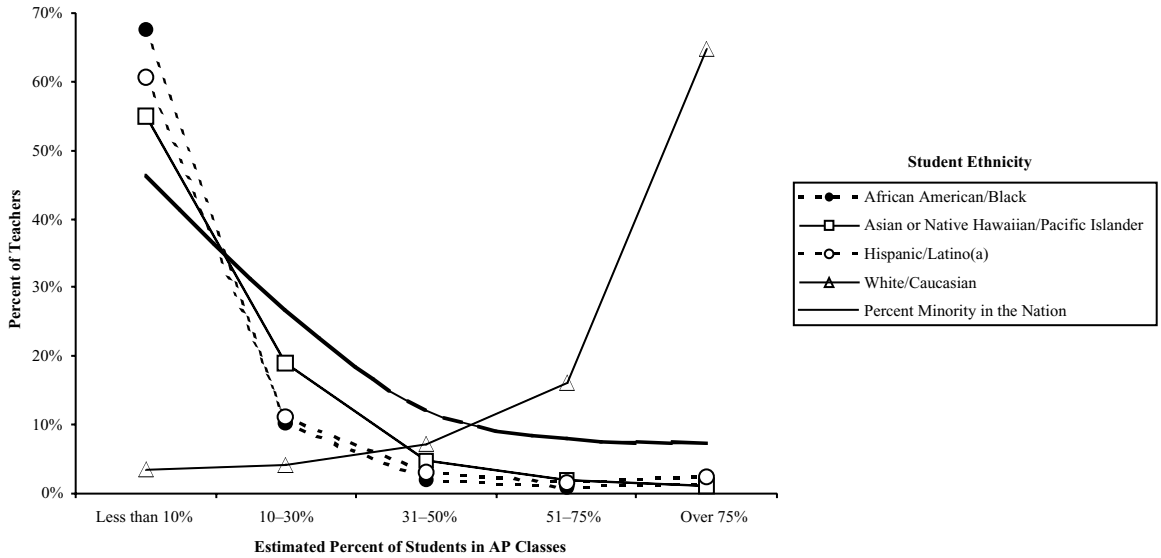

Figure 3. Estimated percent of students enrolled in AP courses by race–ethnicity.

[5] National estimates are provided by the College Board National High School Survey Report (Maucieri, Gernand, and Patelis, 2002); minority is taken to mean African American or Hispanic.

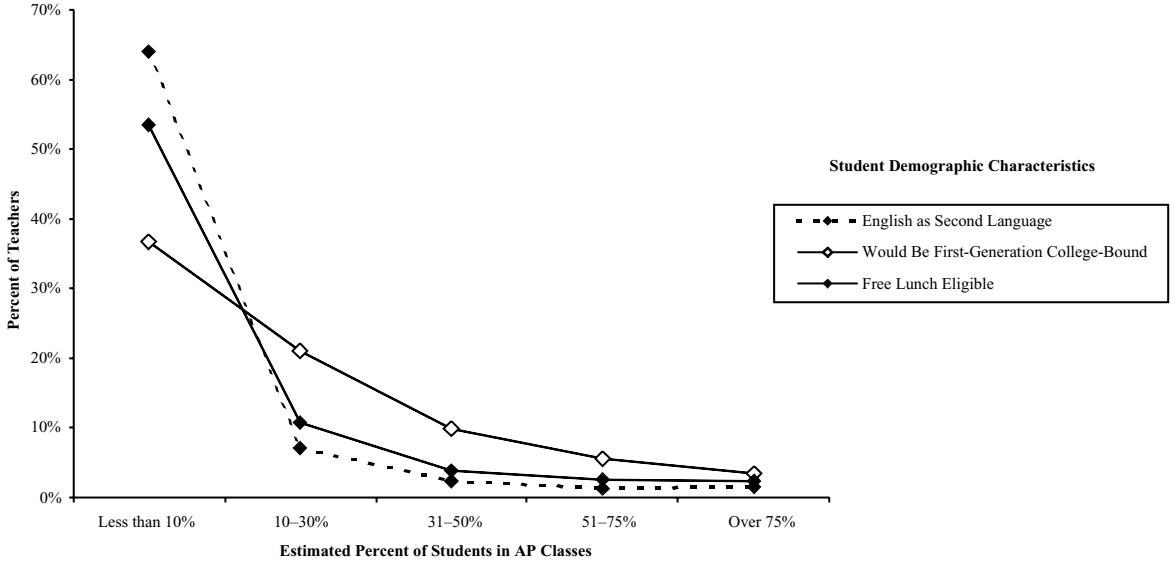

Figure 4. Estimated percent of students enrolled in AP courses by demographic characteristics.

other regions, 66.1 percent to 77.2 percent of the teachers indicated having classes comprised of less than 10 percent Asian American students. A consistently higher proportion of teachers from the west reported having classes comprised of 10 to 30 percent, 31 to 50 percent, 51 to 75 percent, and over 75 percent Asian American students than in the other geographic regions. Hispanic students appear to be more highly represented in AP classes in the southwest and western regions. For example, 52.9 percent of the teachers in the southwestern region and 59.2 percent of the teachers in the western region reported having less than 10 percent Hispanic students in their AP classes. In the other regions, 84.3 percent to 92.0 percent of the teachers reported having classes comprised of less than 10 percent Hispanic students. The southwest and west also had a consistently higher proportion of teachers reporting that their classes were comprised of 10 to 30 percent, 31 to 50 percent, 51 to 75 percent, and over 75 percent Hispanic/Latino(a) students than in the other regions. The southwest and west also had fewer teachers reporting that their classes were comprised of over 75 percent white students.

Additional analyses suggested that there were a larger proportion of AP students who are eligible for free or reduced lunch in the southwest and the west. Of the teachers from the southwest, 58.8 percent reported having classes comprised of less than 10 percent free or reduced lunch eligible AP students; similarly, 64.5 percent of the teachers from the west reported having classes comprised of less than 10 percent free or reduced lunch eligible students. In other geographic areas, the proportion of teachers who reported that their classrooms were comprised of less than 10 percent free or reduced lunch eligible students was higher, ranging from 76.6 percent to 80.0 percent, which indicated that more free or reduced lunch students attend AP classes in the southwest and west.

When asked if their schools have any special initiatives to increase minority participation, 12.1 percent of survey respondents indicated their schools did have such initiatives. These initiatives[6] included AP teachers recruiting students (9.1 percent), teachers of prerequisite courses to AP recruiting students (8.1 percent), guidance counselors recruiting students (7.7 percent), meetings held with parents (3.8 percent), and special school mailings or communications (2.5 percent). Other initiatives (2.2 percent) included a magnet program, the school paying for 50 percent of costs for taking the AP Exam, and vertical teaming.

Figure 5 provides a plot that depicts the relationship between the percent of students within AP classrooms from various ethnic groups and the average number of years of teaching experience held by their teachers. As the percent of white students in AP classes increases, the average number of years of teaching experience increases. As the percent of Asian or Hawaiian-Pacific Islander, African American or black, and Hispanic/Latino(a) students increases, the average number of years of teaching experience decreases. The average number of years of teaching

[6] Respondents were asked to select all the initiatives that applied to their school. Therefore, percentages by type of initiative do not sum to the percent of respondents that indicated that there were any initiatives at their school.

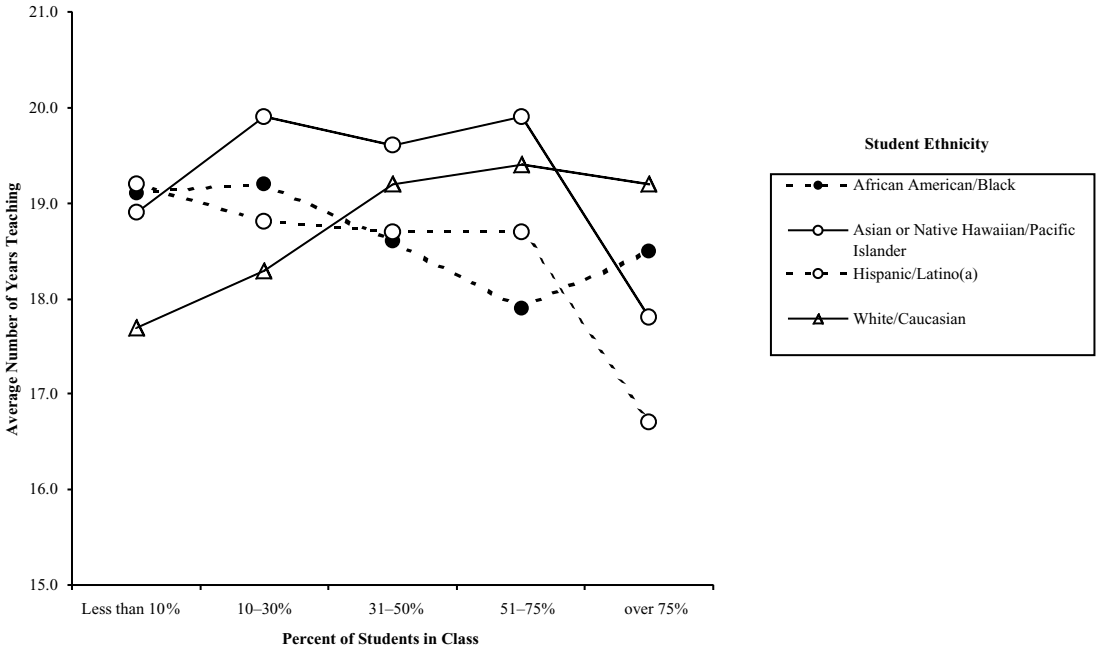

Figure 5. Student ethnicity by average number of years teaching.

experience decreases at a faster rate as the percent of African American or black and Hispanic/ Latino(a) students within AP classrooms increases, however. It is important to note that the estimates for the average number of years of teaching experience for classrooms comprised of 51 to 75 percent and over 75 percent ethnic minority students are not as stable as other estimates included in Figure 5. This is because not very many teachers had classrooms that were comprised of 51 to 75 percent and over 75 percent ethnic minority students, so the standard deviations around these averages were large. These results show that teachers whose AP classrooms are comprised of mostly ethnic minority students tend to have slightly fewer years of teaching experience on average.

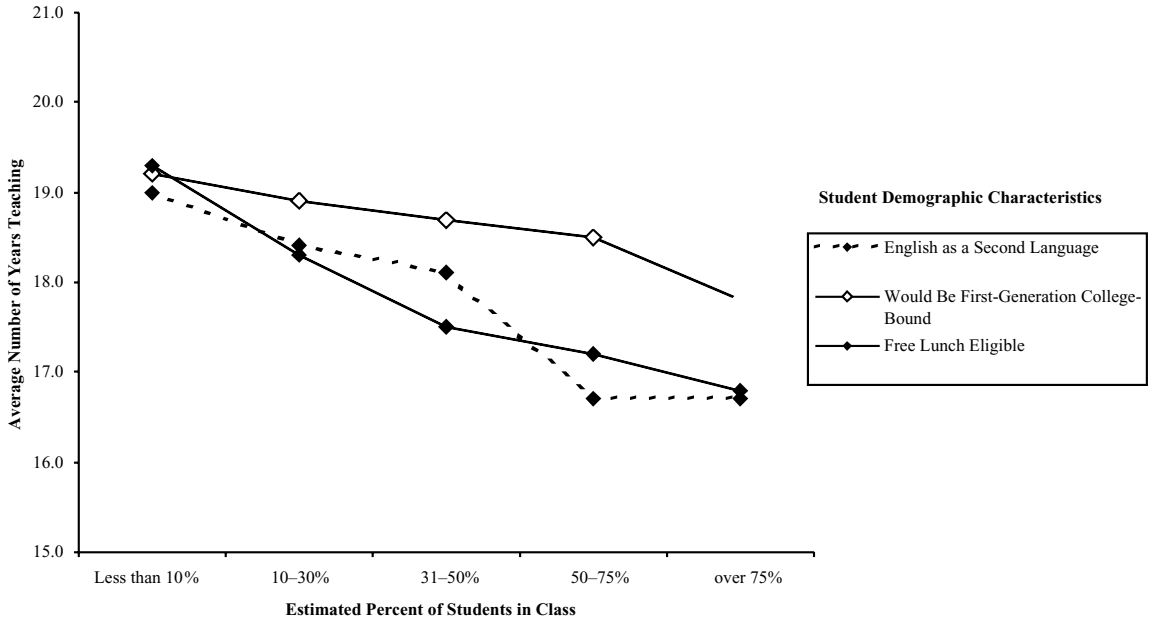

Figure 6. Student demographic characteristics by average number of years teaching.

Figure 6 provides a plot that depicts the relationship between the percent of students within AP classrooms that meet various demographic characteristics and the average number of years of teaching experience held by their teachers. The plot shows that as the percent of ESL, first-generation college-bound, and free lunch eligible students within the classroom increases, the average number of years teaching decreases. The average number of years teaching experience decreases at a faster rate as the percent of ESL or free lunch eligible students in the classroom increases, however. Also, the decrease in average number of years teaching experience as the percent of first-generation college-bound students increases was very slight, involving less than a one and a half year difference across the interval for the percent of first-generation college-bound students. Since there were only a few teachers whose classrooms were comprised of more that 50 percent ESL or free lunch eligible students, the standard deviations around the estimates of average number of years teaching were large; therefore, these estimated averages should be interpreted with caution. These results show that teachers whose AP classrooms are comprised of mostly ESL or free lunch eligible students tend to have slightly fewer years of teaching experience on average.

Teacher Characteristics

The following subsections provide a detailed description of background characteristics, professional development experiences, training and resource needs, and technology use among AP teachers. These sections help to shed light on demographic and professional qualities, as well as experiences common to AP teachers.

Background

Personal information collected on AP teachers revealed that the distribution of AP teachers by gender was nearly equal, with female teachers representing slightly more of the sample. The distribution of AP teachers across ethnic groups was not equal, however. Almost all of the AP teachers in the current sample were white. To the extent that the current sample is representative of the population of AP teachers, this finding suggests that ethnic minority AP teachers are heavily underrepresented. This finding suggests that recruiting efforts may need to be initiated if an increase in the distribution of ethnic minority AP teachers is to occur.

Figure 7 presents a plot depicting the percent of students in AP classes by ethnicity for teachers of different ethnic groups. Lines within the plot provide the estimated percent of students in AP classes by different ethnic groups for African American or black teachers, American Indian or Alaskan Native teachers, and so on. Since the percentages are estimated, the points within the individual lines do not sum to 100 percent, as they would had student ethnicity been measured empirically. This plot reveals that ethnic minority AP teachers tend to teach a greater proportion of ethnic minority students. For example, African American AP teachers tended to have classes with approximately 40 percent African American students, whereas white AP teachers tended to have classes with fewer than 10 percent African American students. This

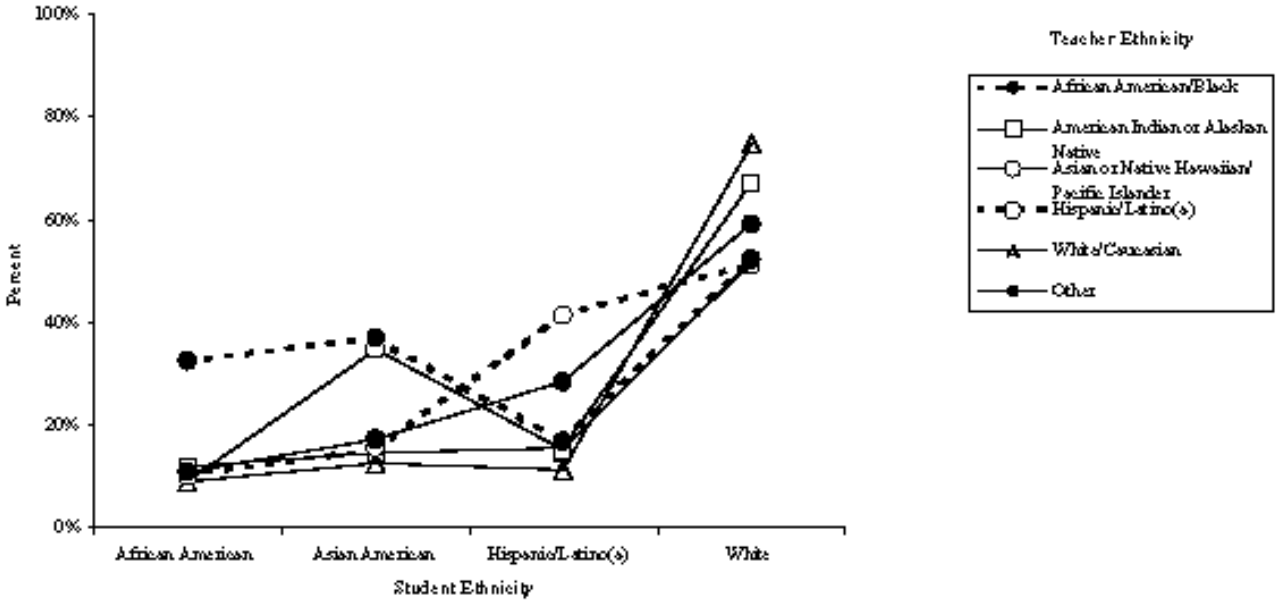

Figure 7. Ethnicity of AP teachers and their students.

finding seems to suggest that an added benefit of increasing the number of ethnic minority AP teachers may be an increased amount of ethnic minority AP students. However, the relationship between teacher and student ethnicity is not clear-cut. Other factors may account for why ethnic minority AP teachers tended to have more ethnic minority students in their classes, such as the fact that minority teachers are more likely to teach in schools that have a high percent of ethnic minority students.

The educational background of AP teachers was also investigated. Analyses revealed that 82.3 percent of the survey respondents hold a bachelor's degree, 69.7 percent hold a master's degree, and 6.2 percent hold a Ph.D. Figure eight shows the percent of English, fine arts and music, foreign/classical language, math and computer science, physical/natural science, and social science teachers that earned a bachelor's, master's, or Ph.D. degree in an academic subject that was consistent with the AP course that they teach. The results in Figure 8 show that consistency between academic subject of degree held and AP course taught depends on the academic subject. For example, 80 percent of survey respondents who teach a course in the social sciences earned a bachelor's degree in the social sciences, but only 35 percent of the fine arts or music teachers earned a bachelor's in fine arts or music. Inspection of Figure 8 reveals a distinct pattern; math and computer science, physical/natural science, and social science teachers appear to be more likely to earn a bachelor's degree in a matching academic discipline while English, fine arts and music, and foreign/classical language teachers seem more likely to earn a master's degree in a matching academic discipline. For those teachers with a Ph.D., concordance between the academic subject of their degree and the AP course that they teach is less clear, mainly because only a small percentage of AP teachers (6.2 percent) hold a Ph.D.

The distribution of survey respondents across type of teaching certification status showed that AP teachers are well trained and prepared to teach AP courses. Most survey respondents (81.1 percent) have permanent certification status, and a very small proportion of survey respondents have emergency (0.3 percent) or provisional/temporary (5.6 percent) certification status. Only 8.3 percent of survey respondents are not certified in their subject area. This finding suggests that almost all AP teachers undergo state requirements for certification.

AP teachers tended to teach between one and two AP courses each semester. Of the AP teachers sampled, 62.3 percent indicated that they teach one AP class a year, 25.0 percent teach two AP classes a year, 7.3 percent teach three AP classes a year, 2.7 percent teach four AP classes a year, 1.1 percent teach five AP classes a year, and 0.3 percent teach six AP classes each year. The results seem to indicate that most AP teachers also teach non-AP courses.

The majority of AP teachers (approximately 59 percent) anticipate retiring by 2015. More than one-

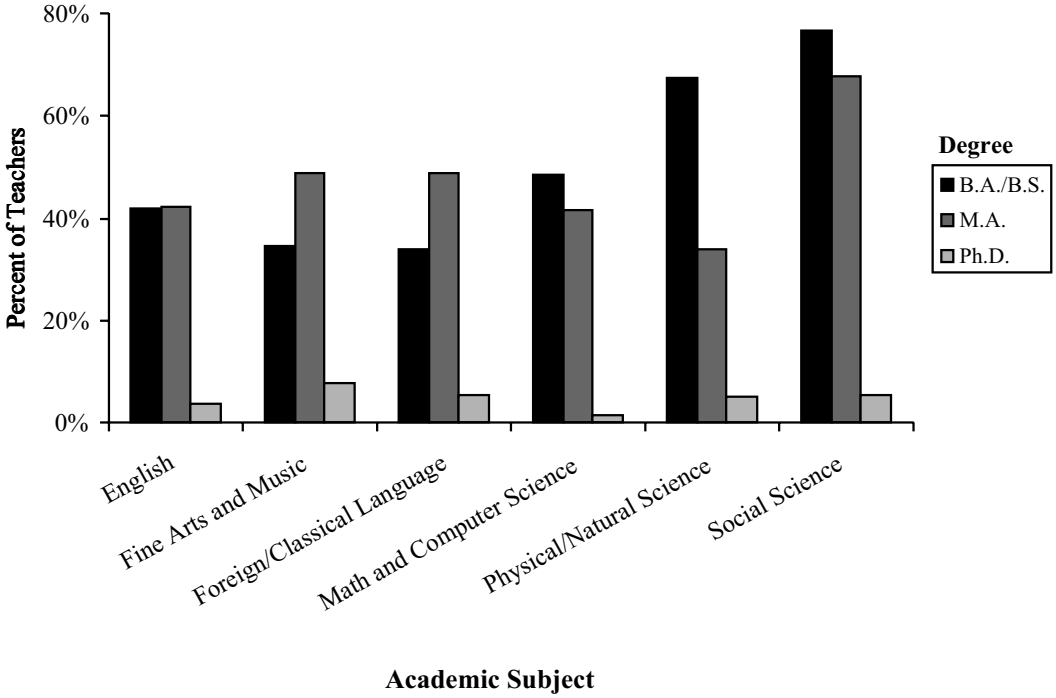

Figure 8. Concordance between academic subject of degree earned and AP course taught.

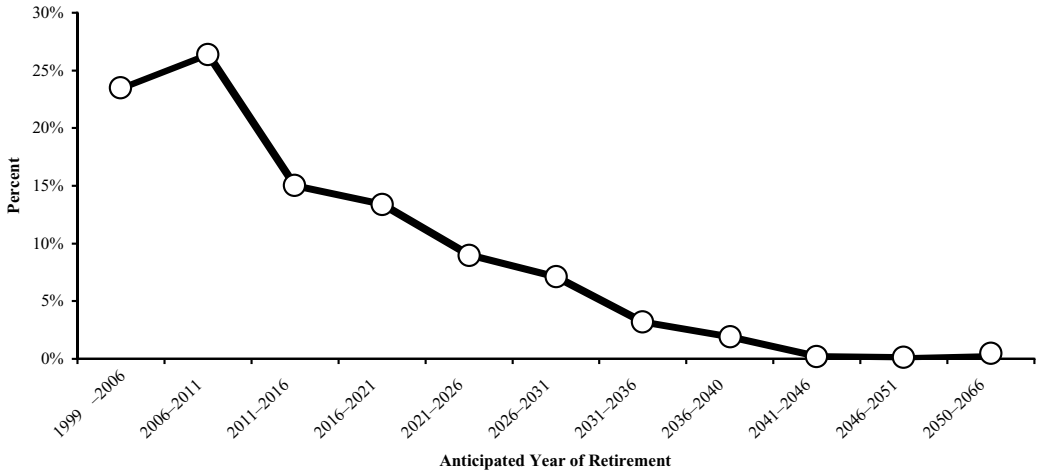

Figure 9. Anticipated year of retirement of AP teachers.

third anticipate retiring by 2010. Figure 9 provides a plot of the percent of survey respondents by the year they anticipate retiring. The points on these plots sum to 100 percent since teachers could only choose one year of retirement interval. The scale of the y-axis has 30 percent as its maximum since this value is just above the percent for the year of retirement interval that was endorsed most by survey respondents. Additional analyses revealed that there were no significant differences in the percent of teachers by anticipated year of retirement across teacher ethnicity or geographic region. However, the high rate of retirement anticipated in the next 15 years suggests that the College Board continue to support school and district recruitment of new AP teachers so that those jobs vacated by retiring teachers are filled.

Professional Development

A variety of professional development activities, both within and outside of the Advanced Placement Program, are available to AP teachers. With a few exceptions, most survey respondents indicated that they participated in these activities prior to teaching AP courses, within the last five years, or more than five years ago (see Table 5). Very few survey respondents participated in AP readings–scoring of free-response essay questions from AP Exams (most likely because only a few teachers are selected for this activity each year), having a mentor teacher, or taking a university course in an AP discipline. Survey respondents that did participate in professional development activities rated them as effective or very effective to their professional endeavors related to teaching AP classes (see Table 5). Of the professional development activities shown in Table 5, survey respondents rated AP institutes as most effective. Very few of the teachers who responded to the questionnaire ever participated in an AP workshop as a consultant (4.6 percent) or taught at an AP institute (2.3 percent). The pattern of professional development participation and ratings of professional development effectiveness were found consistently among teachers, regardless of the percent of students by racial–ethnic groups or by demographic characteristics enrolled in AP classes.

TABLE 5

Participation and Ratings of Professional Development Activities

	Percent of Respondents Who Participated in an Activity			
Activity	*Prior to Teaching AP*	*Within Last 5 Years*	*More than 5 Years Ago*	*Mean Rating*
1. AP workshop	69.9	72.4	44.4	3.4
2. AP institute (summer, week or longer)	52.2	44.9	22.1	3.7
3. Have a mentor teacher	23.2	16.4	10.1	3.3
4. Review AP teacher manuals	89.0	89.9	48.8	3.4
5. Review AP course description books	92.5	93.4	50.9	3.3
6. Review released AP Exams	89.4	92.5	49.9	3.6
7. Take university course in AP discipline	32.4	19.0	23.7	3.5
8. Participate in AP reading	12.1	14.9	7.4	3.6

Note: The rating scale ranged from one to four with one representing "very ineffective," two representing "ineffective," three representing "effective," and four representing "very effective."

Teachers were also asked about release time and financial responsibility for professional development. Results indicated that 51 percent of survey respondents have between one and three release days for professional development, 28.3 percent have more than three release days, and 20.7 percent do not have any release days for professional development. For 86.2 percent of survey respondents, the school or school district with which the teachers are affiliated covers expenses for professional development.

These results suggest a pattern of financial access, but limited time to participate in professional development activities among AP teachers. This finding is in keeping with the results of Table 5 that showed that a large proportion of AP teachers participate in professional development activities. When this pattern was explored across groups of students from different racial–ethnic or demographic groups, the results revealed, on average, that classrooms comprised of a small percent of ethnic minority or economically disadvantaged students tended to have at least two release days for professional development, but that when the percent of ethnic minority or economically disadvantaged students in classrooms was high, teachers tended to have no release days. Funding for professional development activities was also explored across student racial–ethnic and demographic groups. Across all groups, most teachers reported that the school or school district provided funding for such activities. Only a small proportion of teachers, regardless of the ethnicity or demographic characteristics of their students, reported that they were financially responsible for their own professional development.

Training and Resource Needs

In order to better serve AP teachers and their students, it is important to understand teachers' training and resource needs. The needs expressed by teachers can help to inform the development of the AP Program. It is also important to understand the relationship between teaching experience and training and resource needs so that professional development activities can be tailored to meet the needs of AP teachers at different levels of experience.

AP teachers were asked to rate the professional development and professional resource needs that they felt required further attention within their subject area. Table 6 depicts the most frequently endorsed resource and training needs by years teaching AP classes. Each cell in Table 6 contains the top three most commonly endorsed needs, presented in that order. The results indicated that "preparing students for the AP Exam," "accurately assessing student performance and proficiency levels during an AP course," and "alternative methods for presenting specific content or skills" were the most frequently endorsed training needs across all years of AP teaching experience. The most frequently endorsed critical training need was "covering the course content in the time available." Table 6 also shows that "integrating new technologies into their AP teaching" becomes both a critical and important training need for survey respondents who have taught for three or more years. This need for training in technology use among teachers with more than three years of teaching experience may be the result of a time lapse between formal education and teaching, a generation gap in technological proficiency, or that these teachers have learned to cover the content in the time available and have turned to other issues such as integrating new technologies into their AP teaching.

Frequently endorsed resource needs across AP teaching experience included "materials to keep up-to-date in the field," "good quality readings, graphics, effective lessons, etc.," and "good quality relevant supplementary texts, workbooks, etc." The most critical resource need was "AP exam essay topics, scoring rubrics, rationales, and concepts measured."

For the most part, the trends in Table 6 were also found when training and resource needs were examined across (a) teacher certification status, (b) number of courses taken in the last five years, (c) highest academic degree earned, and (d) student demographic characteristics (e.g., race–ethnicity, English as a second language [ESL], and would be first-generation college-bound students). There were a few exceptions, however. First, survey respondents with emergency teacher certification status viewed "communicating the AP content and skills to students with different levels of relevant preparation" as an important training need. This need was also critical for survey respondents with a large proportion of students involved in a free or reduced lunch program. Second, "example syllabi and/or calendars of what to present, when" was an important resource need for survey respondents with over 75 percent African American students in their class, over 75 percent students involved in a free or reduced lunch program in their class, and among survey respondents with a large proportion of English as a second language students in their class.

When taken together, these results seem to suggest that most teachers need training in managing the time allotted to them to cover the breadth of AP coursework, preparing their students for AP Exams, and methods for teaching difficult material. Teachers also need resources to further their professional development within their academic field and resources to make course content more interesting and informative to students. Teachers with limited experience or who teach classes with a large proportion of ethnic minority students, ESL, or

TABLE 6

Importance of Training and Resource Needs by Years Teaching AP Courses

Years AP Teaching Experience	*Important Training Need*	*Critical Training Need*	*Important Resource Need*	*Critical Resource Need*
0–2	• Preparing students for the AP Exam • Accurately assessing student performance and proficiency levels during an AP course • Alternative methods for presenting specific content or skills	• Covering course content in the time available • Preparing students for the AP Exam • Accurately assessing student performance and proficiency levels during an AP course	• Materials to keep up-to-date in the field • Good quality relevant readings, graphics, effective lessons, etc. • Good quality relevant supplementary texts, workbooks, etc.	• AP Exam essay topics, scoring rubrics, rationales, concepts being measured • Good quality relevant supplementary texts, workbooks, etc. • Good quality relevant readings, graphics, effective lessons, etc.
3–5	• Integrating new technologies into their AP teaching • Alternative methods for presenting specific content or skills • Accurately assessing student performance and proficiency levels during an AP course	• Covering course content in the time available • Integrating new technologies into their AP teaching • Preparing students for the AP Exam	• Good quality relevant supplementary texts, workbooks, etc. • Materials to keep up-to-date in the field • Good quality relevant readings, graphics, effective lessons, etc.	• AP Exam essay topics, scoring rubrics, rationales, concepts being measured • Good quality relevant supplementary texts, workbooks, etc. • Materials to keep up-to-date in the field
6–10	• Integrating new technologies into their AP teaching • Alternative methods for presenting specific content or skills • Accurately assessing student performance and proficiency levels during an AP course	• Covering the course content in the time available • Integrating new technologies into their AP teaching • Preparing students for the AP Exam	• Good quality relevant supplementary texts, workbooks, etc. • Materials to keep up-to-date in the field • Good quality relevant readings, graphics, effective lessons, etc.	• AP Exam essay topics, scoring rubrics, rationales, concepts being measured • Good quality relevant supplementary texts, workbooks, etc. • Materials to keep up-to-date in the field
More than 11	• Integrating new technologies into their AP teaching • Alternative methods for presenting specific content or skills • Covering the course content in the time available	• Integrating new technologies into their AP teaching • Covering the course content in the time available • Preparing students for the AP Exam	• Good quality relevant supplementary texts, workbooks, etc. • Materials to keep up-to-date in the field • Good quality relevant readings, graphics, effective lessons, etc.	• AP Exam essay topics, scoring rubrics, rationales, concepts being measured • Materials to keep up-to-date in the field • Good quality relevant supplementary texts, workbooks, etc.

economically disadvantaged students tend to need training in more fundamental skills and basic scheduling resources, i.e., calendars, syllabi, etc.

Technology

With the amount of resources for AP teachers on the Internet increasing (see http://apcentral.collegeboard.com), and the potential for more effective communication through e-mail growing, it becomes important to understand technology use among AP teachers. The current section describes how AP teachers incorporate e-mail and the Internet into their professional development and teaching.

A moderate percentage (39.4 percent) of survey respondents indicated that they visit the Internet for professional purposes related to teaching AP at least once a week. Despite the infrequent use of the Internet, most survey respondents (approximately 65 percent) indicated that they had Internet access in the classroom. Internet access was provided by a dial-up modem for 44.2 percent of survey respondents.

There are a number of reasons why survey respondents use the Internet for professional purposes. These reasons, as well as the percent that they were endorsed, were to do research (57.7 percent), to get materials to use in class (54.9 percent), to get news (45 percent), to stay current in one's academic field (32.4 percent), to get lesson plans (19.3 percent), and to get information from or about one's professional association (16.8 percent). These findings show that of the AP teachers who use the Internet for professional purposes most do so for a wide variety of reasons.

Use of the Internet for professional purposes related to AP across course area and teaching experience was roughly equal, but across race–ethnicity and age it was not. Younger survey respondents tended to use the Internet for professional purposes more frequently than older survey respondents. In addition, 28 percent of survey respondents over 65 indicated that they never use the Internet for professional purposes. Across racial–ethnic groups, Asian American and Hispanic survey respondents tended to use the Internet less frequently than survey respondents from other groups.

Most survey respondents indicated they use e-mail during the school year; only a few survey respondents (8.5 percent) indicated that they never use e-mail. The frequency with which survey respondents use e-mail was mixed, with 62.8 percent using e-mail daily, 19.5 percent weekly, 3.9 percent monthly, and 4.4 percent once or twice a semester. For the most part, all AP teachers use e-mail regardless of the course area in which they teach, their teaching experience, their race–ethnicity, or their age.

In conclusion, the following recommendations are warranted in light of these results. First, initiatives by the AP Program to increase Internet use may need to be made in order to bring full usefulness of services like AP Central™ (http://apcentral.collegeboard.com) and other College Board Web pages (see www.collegeboard.com). AP Central is the College Board's official online destination for teachers, coordinators, and education professionals offering unique tools and resources, and containing the most current exam and program information. Second, most survey respondents indicated that their classrooms have Internet access; therefore, Web sites relevant to AP lesson plans are an underutilized resource that can potentially function as an enhancement for the classroom learning experience. It may be worthwhile to explore these possibilities for improvement.

Important Issues for AP Teachers

As part of the questionnaire, AP teachers were given a list of twelve issues facing our high schools today and were asked to rate the five most pressing issues they face as a teacher. The list of issues included:

- Physical safety/school violence,
- New teaching methods in my discipline,
- Keeping up with changing discipline content,
- Access to good professional development,
- Managing issues of cultural–ethnic diversity,
- Preparing students for state assessments,
- Providing good advice regarding college to students,
- Working with moral and developmental issues,
- Using new technologies,
- Status of teaching profession,
- Isolation of teachers from other teachers and professionals, and
- Lack of family involvement.

Survey respondents rated keeping up with changing discipline content, new teaching methods in my discipline, preparing students for state assessments, lack of family involvement, and access to good professional development as the five most pressing issues they face. The other issues listed above did not appear to be as important.

Survey respondents viewed issues surrounding professional development as most important. Important issues related to professional development included training in new trends within one's discipline, training in new teaching methods, increasing test preparation skills, and increasing access to professional development for teachers. These issues paralleled the training and resource needs expressed by survey respondents (see previous section). Activities currently offered by the College Board, such as the AP and Pre-AP® initiatives that are geared toward enhancing teaching skills, cover the professional development needs expressed by AP teachers. In addition, summer institutes and workshops from AP, as well as "Building Success" and "Setting the Cornerstones" programs from Pre-AP, address the issues identified by AP teachers as important to professional development. Additionally, the PSAT/NMSQT and Pacesetter program offer a variety of professional development activities for all teachers. However, it may be that the AP Program needs to increase access, exposure, and marketing of these programs in order to inform teachers of their existence and utility. AP Central (http://apcentral.collegeboard.com) may improve the communication of the availability of these professional development programs.

Conclusions

The current report summarized 32,109 responses to a survey administered to AP teachers. Relevant information on classroom characteristics, teacher background, professional development experiences, training and resource needs, technology use, and important issues for AP teachers was provided. This information represents a comprehensive description of

AP teacher characteristics as well as the characteristics of their students and classrooms. It is useful not only as a description of AP teachers, but also as a source of data for future research on trends in AP teacher characteristics over time and for identifying the teacher characteristics that are most important to student success in AP.

With regard to the survey results on classroom characteristics, several important conclusions can be drawn. First, AP classes tend to be small, which is optimal for facilitating the AP students' learning experience. Second, for schools with an AP program, access to AP courses is limited largely by academic preparedness, which suggests that other irrelevant factors do not interfere with access to AP classes. Third, AP students seem to have an eclectic classroom experience, as indicated by the teachers tendency to expose students to a variety of material, including nontraditional materials, i.e., articles, videos, etc., in the classroom. Fourth, since the overwhelming majority of AP students are white and do not receive free or reduced-price lunch, it seems that the AP Program is not reaching enough ethnic minority or economically disadvantaged students. This finding is even more alarming in view of the fact that only 12.1 percent of the survey respondents reported that there were special initiatives to increase minority participation in AP classes at their schools. It is also important to note that as the proportion of ethnic minority, ESL, or free lunch eligible students in AP classes increases, the average number of years teaching experience tends to decrease.

Information on teacher background also yielded several important conclusions. First, the results showed that ethnic minority teachers are heavily underrepresented. Second, since ethnic minority teachers tend to teach a greater proportion of ethnic minority students, it seems that one way to increase ethnic minority student enrollment in AP classes would involve recruiting more ethnic minority AP teachers. Additional research is needed to more fully support this conclusion however. Third, analyses supported the conclusion that most survey respondents tend to have either a bachelor's or master's degree in an academic discipline that is consistent with the AP course that they teach. Fourth, since the majority of AP teachers surveyed anticipate retiring by 2015, there may need to be efforts to recruit additional teachers by schools and districts.

With regard to professional development, most survey respondents reported that they participated in professional development activities prior to teaching AP classes. The most popular professional development activities involved reviewing AP course description books, released AP Exams, and AP teacher manuals. Teachers tended to rate the effectiveness of these activities highly. Most teachers appeared to have financial access, but limited time, to pursue professional development. Curiously however, teachers whose classrooms were comprised of a high proportion of ethnic minority or economically disadvantaged students tended to have fewer release days for professional development. This finding suggests that the students of these teachers may not have the same opportunities to benefit from teacher professional development as other students.

Teacher training needs seemed to surround issues of time management and test preparation. Resource needs included materials to enhance the students' educational experience with AP classes. At the moment these needs do not seem to be adequately addressed by the current professional development activities offered by the College Board. Perhaps College Board activities could be modified to meet these needs in the future.

Findings on technology usage among AP teachers show that weekly Internet use for professional purposes related to teaching AP was surprisingly low. Most teachers reported infrequent use of the Internet for teaching AP classes. Therefore, the College Board Web site (www.collegeboard.com), especially AP Central (http://apcentral.collegeboard.com), seems to be an untapped resource at this time.

Teachers reported keeping up with changing discipline content, new teaching methods in one's discipline, preparing students for state assessments, lack of family involvement, and access to good professional development as the five most pressing issues they face. With the exception of a lack of family involvement in the student's educational experience, issues surrounding professional development appeared to be the most important for AP teachers.

Possible limitations encountered in the evaluation of survey data included nonresponse bias, volunteer bias, and a slight lack of representativeness by course subject. Despite these limitations, the AP Teacher Survey provided useful information on AP teachers.

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Appendix

Advanced Placement Courses

Art

Art History

Studio Art (Drawing Portfolio)

Studio Art (2-D Design Portfolio)

Studio Art (3-D Design Portfolio)

Biology

Calculus

Calculus AB

Calculus BC

Chemistry

Computer Science

Computer Science A

Computer Science AB

Economics

Macroeconomics

Microeconomics

English

English Language and Composition

English Literature and Composition

International English Language (APIEL)

Environmental Science

French

French Language

French Literature

German

Government and Politics

Comparative Government and Politics

United States Government and Politics

History

European History

United States History

World History

Human Geography

Latin

Latin Literature

Latin: Vergil

Music Theory

Physics

Physics B

Physics C: Electricity and Magnetism

Physics C: Mechanics

Psychology

Spanish

Spanish Language

Spanish Literature

Statistics