Research Report
No. 2003-4

Whose Grades Are Inflated?

Wayne Camara
Ernest Kimmel
Janice Scheuneman
Ellen A. Sawtell

connect to college success™
www.collegeboard.com

College Board Research Report No. 2003-4

Whose Grades Are Inflated?

Wayne Camara, Ernest Kimmel,
Janice Scheuneman, and Ellen A. Sawtell

College Entrance Examination Board, New York, 2003

Wayne Camara is vice president of Research and Development at the College Board.

Ernest Kimmel is an educational measurement consultant based in Hopewell, NJ.

Janice Scheuneman is an independent consultant in assessment.

Ellen A. Sawtell is associate director of Report and Data Product Services at the College Board.

Additional copies of this report (item #30481021) may be obtained from College Board Publications, Box 886, New York, NY 10101-0886, 800 323-7155. The price is $15. Please include $4 for postage and handling.

Printed in the United States of America.

Acknowledgments

We are grateful to Robert Majoros and Helen Ng, who assisted in the editing and production of this report. In addition, Julie Nathan, who served as a graduate intern at the College Board, assisted in structuring and matching data used in the analyses.

Contents

Figures

Abstract

There is clear evidence that the average grades earned in high school have been going up for some period of time. This study examines the question of whether students of varying backgrounds have experienced similar increases in grade point average (GPA) over a 25-plus-year period. Changes in SAT® verbal and mathematical scores for the same gender and racial/ethnic groups are also examined. Trends in the grading practices of major subjects in the high school curriculum are presented, as are changes in the GPA and test scores for students clustered by the type of community in which their school is located and whether it is public or nonpublic.

Introduction

There is a widespread perception that grades are "not what they used to be." Indeed, there is substantial factual evidence that the grades awarded in both high school and college are higher than they were two or three decades ago. Because many people understand the subjectivity of the grading process and the ambiguity inherent in the meaning of grades, there is a strong suspicion that the increase in grade averages is not related to a corresponding increase in the knowledge and skills possessed by today's students.

Information collected on the Student Descriptive Questionnaire of the College Board's SAT program provides a basis for studying trends among the college-going student population over more than two decades. Large samples drawn from several cohorts of the seniors from 1976 to those in 2002 provide a means of examining whether the increase in grade point averages over this time span has been experienced by all college-bound students or whether the increases are related to gender, ethnicity, or parental education.

The data also permit the examination of trends in SAT verbal and mathematical scores for the same subgroups of the college-bound students. Information on changes in course-taking patterns and the grades awarded in different subject areas helps illuminate changes in the academic preparation of successive cohorts of seniors—changes that may be reflected in the increased grade averages. Finally, the changes in grade averages can be related to the control (public/nonpublic) of the high school and the type of community in which it is located.

I. Literature on Grading and Grade Inflation

Grade inflation has received considerable rhetorical attention in recent years. In many cases, the data presented do show that average grades have increased. The prestigious Cooperative Institutional Research Program found that 42.9 percent of fall 2000 college freshmen reported earning A averages in high school. In 1968, the comparable proportion was 17.6 percent (Higher Education Research Institute, 2001, p. 3). The mean self-reported high school grade point average of college-bound seniors[1] has increased from 2.97 in 1973 to 3.29 in 2002. Since 1987, the College Board has also collected information on student grades in separate disciplines and across all courses. The percent of college-bound students with high school grade averages of A+, A, and A- has increased from 28 percent to 41 percent in the past 15 years. There is an ongoing dispute as to whether this means that students are working harder and learning more or whether it means that grades have increased without any corresponding increase in other indices of student academic performance—i.e., grade inflation.

Logically, grade inflation can only be said to exist when there is an increase in grades without a parallel increase in ability (Bejar and Blew, 1981). However, grade inflation is alleged in many cases where the only evidence is of a change in average grades or a shift in the distribution of grades. Such reports implicitly assume that the ability, skills, and preparation of current students are no different than those of students at some time in the past. Changes in grade distributions may stem from many factors, such as a change in grading standards, but may also result from actual changes in student proficiency, course-taking patterns, track placement, and characteristics of the student population (Koretz and Berenz, 2001).

Concern About Grade Inflation

Many of the articles about changing grading patterns cry that "the sky is falling." However, not all commentators perceive grade inflation negatively. The *Christian Science Monitor* reported that parents in Simsbury, Connecticut, crowded school board meetings to protest that teachers were not giving enough high grades (Newcomb, 2001). The *Yale Daily News* (March 31, 1995) argues that "Grade inflation is not bad in

[1] "College-bound seniors" are defined by the College Board as students who graduated from high school (or equivalent secondary school program) and completed the SAT. The SAT score reported is the last test taken, and all students testing between ninth and twelfth grades are included in their year of graduation only.

itself—as long as it is real." Their argument is that faculty are now grading on an absolute standard rather than the presumed "normal distribution" of past decades. Bracey (1994) even suggests that high school grades may be dropping—if one adjusts for those who drop out between sophomore and senior year. Scocca (1998) argues that where average grades have increased, it is the reflection of a change from a philosophy that emphasized the sorting function of grades to a belief that the primary "goal of education is to get everyone to master the course material." To the extent that teaching is successful, one would expect student performance and grades to move up. Falkenberg (1996) argues that grades should reflect a student's mastery of the material and that grades certify the level of mastery of the course material. He further argues that grades should have increased because pedagogy has improved due to the advances in our understanding of human learning and cognitive processes. However, such perspectives are in the minority. Most articles equate grade increases over time with grade inflation and consider it to be undesirable.

Hobart (1997) attributes grade inflation to a system and a society that are willing to accept "close enough" rather than holding students to a standard. He implies that educators can and should maintain high standards and resist the pressures on them to give higher grades. Brookhart (1998) argues that there is no simple fix to the problem and identifies four possible factors that may be causing grade inflation: pressure from students and parents; a reluctance on the part of teachers and professors to give low grades; confusion of the roles of judge and advocate in our educational system; and a shift in the underlying model of education from a "transmission-of-information" approach to an "objectives-driven" model which assumes that any motivated student can meet the objectives. Healy (1997) reports on the effect on grading practices at the University of Georgia of a single external policy initiative, a state-sponsored merit-based scholarship program. There was a significant increase in the mean high school GPA of entering freshman during the four years following the introduction of the HOPE state scholarship program (without a concomitant increase in SAT scores), suggesting that high school grades may have been increased to help ensure that graduates would qualify for the scholarship. Because college students in Georgia must maintain a 3.0 or better GPA in order to maintain their scholarship beyond the freshman year, faculty report strong student and parental pressure to award grades of A or B as well as reflecting their own qualms about being "the one" who is responsible for a student losing his or her scholarship.

Grade inflation is not unique to high schools. Much of the public discussion of grade inflation has focused on higher education and a considerable amount of the debate has occurred online. While some popular sites tell their entire story in a headline "When 'A' Stands for Average—How Grade Inflation Is Degrading Your Degree," (Puskar, 1995) others take a more nuanced look at the forces pressing toward higher grades and the consequences of a compressed grade scale. Plume (1997) argues that instructors and colleges have been lowering their standards because of:

- The pressure to retain students at the expense of academic rigor
- The role of student evaluations of instructors
- The tendency of students to shun academic rigor and avoid instructors who are demanding
- The need to accommodate inadequacies associated with some minority students, especially in their ability to write and speak proper English

Grade inflation in higher education has received even greater media attention recently than high school grading patterns. Alexander (1993) reported that in the early 1990s, 80 percent of Princeton undergraduates received no grade other than A or B, only 8 percent of students at Stanford received a C or D grade, and at Williams College nearly half the students graduated with honors. Levine (1994) found the proportion of students with GPAs of A- or higher quadrupled between the late 1960s and early 1990s, and Stone (1995) argued that the rise in undergraduate GPA was not accompanied by an increase in GRE scores (cited in Koretz and Berenz, 2001).

In their longitudinal study of grading patterns in a large, open admissions public university, McSpirit and Jones (1999) identify a number of possible explanations, in addition to grade inflation, for increased grades:

- An improvement in student aptitude
- An increase in the number of older, more serious-minded college students
- An increase in the number of women who, on average, earn higher college marks than men
- A more liberal course withdrawal policy
- A shift in student majors from low to high grading departments
- A growth in vocational programs that grade more on mastery and learning competency models

After controlling for several of these factors, they still found "an inflationary trend in graduating GPA." They also found that higher grade inflation rates occurred among low-aptitude students and concluded that "faculty might be using grades to encourage learning among marginal students."

Landsberg (1999) complains about the loss of information, particularly at the upper end, because virtually all college grades are B or better. He argues that because of this compression of grade averages, employers and graduate schools cannot distinguish the best students from the average students and thus tend to devalue the degrees of all. He further argues that college professors face perverse incentives that lead them to be easy graders—even though this practice depresses the reputation of the college (with employers and graduate schools) and devalues the degree. He suggests some modest steps to remedy this problem.

Stone (1995) believes that the funding formulas used to finance public higher education provide a major incentive for lowering standards. He argues that enrollment-driven funding has caused institutions to stress graduation and retention of students. He cites a number of other studies that have warned against the temptation for colleges and departments to generate the maximum number of student credit hours without regard to the quality of learning. This, he argues, has created incentives within institutions to award grades that will keep students enrolled, whether they have accomplished anything or not.

Wilson (1999), the executive director of the National Association of Scholars, reports finding "substantial and credible information that grades have been inflating over a 30-year period at American campuses of every variety." He takes issue with those who criticize the heavy reliance of American education on assessment and grading and claims that the "highest purpose served by the grading system…is that of making distinctions, distinctions between excellence and competence, and between competence and incompetence."

A central theme among those who bemoan the perceived increase in grades is that it reduces the usefulness of grades as a sorting mechanism—making it harder to determine how students compare with one another and whether colleges are maintaining high standards from year to year. The increase in high school GPAs has made the job of college admissions officers more difficult. The increase in collegiate GPAs has made grades less useful to the admissions officers of graduate and professional schools and to would-be employers. The decreasing utility of grades as a sorting mechanism seems to most affect situations where there are many applicants/candidates for only a very limited number of openings. As the dean of the college at Princeton University was reported (Archibold, 1998) to have said "The real key is distinguishing the competent from the really excellent and we do not do a good enough job if all the grades are A's."

Many causes are suggested for the increase in the level of average grades. These range from a perceived shift toward "consumerism," where students are viewed as customers to be kept happy, to pressures on faculty to obtain good student evaluations to enhance their chances of gaining tenure, to systemic pressures created by the nature of how schools and universities are funded or how merit scholarships are awarded, to shifts in philosophy from perceiving education as a Darwinian mechanism for identifying the "fittest" to perceiving education as helping every motivated student to master academic skills and knowledge. Do any of these alleged causes of grade inflation have any relationship to the ways in which grading is done?

Most research on grading patterns across multiple institutions has focused on high school grades rather than college grades. A few studies have examined grading patterns across different types of schools. Using data collected in the National Educational Longitudinal Study of 1988 (NELS:88), the Office of Educational Research and Improvement (U.S. Department of Education, 1994) documented a large discrepancy between grades reported by eighth-grade students in reading and mathematics courses across schools with varying "poverty" levels (i.e., percent of students on free and reduced lunch). Students in high-poverty schools who reported receiving A's in English had, on average, the same reading scores as did students with C's and D's who attended more affluent schools (U.S. Department of Education, 1994). Adelman (1982) found that grades increased slightly between 1975 and 1981, especially in math, science, and foreign languages for students in academic tracks. For example, there was a 16.5 percent increase in grades in Algebra 1, Latin, and general science, yet grades remained stable or declined in sociology and literature courses. Ziomek and Svec (1995) examined grades of students who completed the ACT Assessment at over 5,000 public schools between 1989-90 and 1993-94. Whereas the ACT Composite scores remained constant, HSGPA increased during this five-year interval. Decile ranks of grades were computed for each school and each year, and average GPAs were also calculated. They found evidence of grade increases across schools, especially for 1992-94, with the largest increases in the standardized differences of average GPAs for students in the seventh through tenth deciles. Approximately 63 percent of students in the tenth decile on the ACT had high school GPAs over 3.0 in 1993-94 compared to 54 percent four years earlier.

Koretz and Berenz (2001) examined high school grading standards in math between 1982 and 1992 using the High School and Beyond surveys and the NELS:88. Descriptive statistics showed small increases in mean grades (.07 on a scale ranging from 0 to 4.3) and the percent of grades of B or better (3.1 percent). More substantial increases were found for Hispanic students, high-income students, and students in urban schools. Performance on the math tests included in HSB and NELS, which were linked to be on the same scale, increased by about 1/3 of a standard deviation and the correlation between grades and test scores increased from .47 to .58. When controlled for the increase in math test scores and for the increase in the students taking more rigorous math courses, mean grades in math actually declined for all but high-scoring students. The authors point to several limitations with the two math tests and their comparability, but even descriptive statistics show only small changes in grade patterns among this more homogeneous population of students during these years.

How Is Grading Done?

Teachers have been assigning grades to students for many generations, and research shows that the teacher is the major determinant of grades irrespective of subject, school, or state dictates. In 85 percent of 18,000 high schools surveyed by the College Board (Camara, 1998) the distribution of grades is left entirely to teachers.

Educational researchers have been studying the grading process for nearly a century, beginning with the work of Starch and Elliot on the reliability of grading high school work in English (Starch and Elliot, 1912) and mathematics (Starch and Elliot, 1913). A review of the literature on grading practices and the meaning of grades suggests that grades have different meanings in different settings and are difficult to compare across settings. Variation in meaning is introduced by the teachers who determine the grades, by the content areas in which they are awarded, by the schools, districts, or institutions of enrollment, and by the time frame under consideration. The literature on classroom grading is extensive and only a few articles can be cited here. Extensive reference lists can be found in Baron (1999) and in Robinson and Craver (1989).

Over a half-century ago, Wrinkle described four functions of assessment and grading: administrative, guidance, information, and motivation/discipline (Wrinkle, 1947). These functions, frequently less well delineated, continue to be cited by educators in justifying their grading practices. Brookhart (1993) argues that it is this very multiplicity of uses that leads to teachers' ambivalence and inconsistency in grading practice. Teachers would more likely limit grades to measures of achievement if they could guarantee that grades would be interpreted and used only in that way. Because grades are interpreted and used for a variety of other purposes, teachers base grades on several factors in addition to achievement.

Most measurement experts would argue that "grades should reflect student learning, not behavior or effort, and that they should mean the same thing for all students—amount learned, not amount learned against potential or ability to learn" (Blount, 1997). However, Blount's interviews with practicing teachers suggests that teachers use grades for a variety of purposes, some of which are inconsistent with others. These teachers seemed unready to accept that "grades were their teachers' evaluation of student performance." Rather, grades were seen as a form of motivating students to learn. The grades frequently reflected whether a teacher perceived a student as cooperative and trying. Blount concluded that among these teachers, the importance of grades had transcended the importance of learning. In grades 10–12, approximately one-third of school districts report including student effort, attendance, student growth, and to a lesser extent, student behavior and attitude in grade determinations (Brookhart, 1993; Feldman, Kropf, and Alibrandi, 1996; Robinson and Craver, 1989).

Stiggins, Frisbie, and Griswold (1989) also studied in depth the grading practices of high school teachers. They found that the practices of teachers did not conform to the recommendations of educational evaluation experts in several ways. The teachers did not clearly and publicly state their criteria for evaluation; they did not base their expectations on students' individual knowledge and skills; and they did not base their grades solely on achievement, or the acquisition of knowledge and skills. In fact, 80 percent of the teachers felt that although achievement was a primary consideration in grading, effort should be considered as well. Most of the teachers gave significant weight to effort (measured in terms of homework completion, extra-credit work, etc.) as a grading variable. In practice, teachers include a number of nonachievement factors in grading, such as effort, ability, motivation, improvement, participation, and attendance (Baron, 1999). Student characteristics such as gender and race/ethnicity have also been shown to influence high school grades (Dwyer and Johnson, 1997; Robinson and Craver, 1989). Half of the teachers in this study reported using different procedures for grading high-

ability and low-ability students. The most able students are often graded solely on achievement and less able students are graded on achievement and effort. They also found that while most texts recommended that learning ability not be considered in assigning grades, the teachers were divided in practice—grading the most able students solely on achievement while seeking to consider both achievement and ability in grading the least able. The teachers expressed considerable uncertainty and frustration about the grading process.

Research has demonstrated that grades are not comparable across courses and that there is considerable variation in grades that different instructors assign for the same papers and work (Willingham, Pollack, and Lewis, 2000). Grading standards have consistently been stricter in courses like mathematics and science, which attract students with stronger academic preparation, than in courses like education and sociology (Bridgeman, McCamley-Jenkins, and Ervin, 2000; Willingham et al., 2000).

Camara (1998) reported that 91 percent of high schools use traditional A–F or numeric grades, but 8 percent of schools use another grading system. About 74 percent of districts report using the same grading policies across high schools. Ninety percent of high schools compute a GPA, but only 81 percent of schools calculate a student rank. The largest differences concerned the use of A+ (39 percent of schools use this grade), excluding courses from the computation of HSGPA (43 percent exclude courses), and the lowest grade for which credit is given (53 percent say D- and 38 percent use a higher grade). Nearly 85 percent of schools allow teachers to award any grade distribution they desire, 7 percent of schools issue general guidelines about the proportions of grades given (e.g., about 1/5 A…), and 3.5 percent of schools have strict guidelines.

Spady's conclusions seem to sum up the current state of grading practices. He observed that traditional grades can mean almost anything because each teacher has her or his own grading system which rests on different things in different combinations with different weightings (Spady, 1982). The variability and ambiguity in grading practices underlies the demand for state-imposed tests to ensure the quality of education.

Grading and Test Scores

Grades are typically the dominant or sole criterion used for validating a high-stakes test and justifying its use. Willingham et al. (2000) contrast the different expectations and assumptions about grades and test scores, as well as the amount and rigor of research devoted to educational tests and school grades. For example, they note that many national agencies and special commissions have given careful attention to technical quality and proper use of tests in high-stakes decisions, but seldom to grades. However, noncomparable course grades will lower correlations between test scores and grades within an institution. Increasing the correlation between test scores and grades by using a more comparable grade criterion occurs because one source of grade–test discrepancy has been removed. They note that studies have similarly demonstrated that underprediction of women's grades is partly due to differences in grading standards across courses that are typically taken by males and females in college, and that using a more comparable grade criterion reduces this underprediction and error. Numerous studies also document that grading standards vary from school to school and can lower the observed interinstitutional validity coefficients for tests used in predicting college grades (Astin, 1971; Willingham, et al., 1990; Willingham et al., 2000).

Willingham et al. (2000) found that most of the observed differences in grade performance and test performance could be explained by inclusion of four composite variables: a test covering a similar academic domain, adjustments for school variations, student engagement, and an overall teacher rating. The correlation between the National Educational Longitudinal Study Test and HSGPA was improved from .62 to .90 based on the test plus such variables and corrections for unreliability and grading variations (accounting for 89 percent of the variance). The multiple correlations for all gender and ethnic groups were similarly increased to between .84 and .89. They note that typically anything less than a strong correspondence between test results and grades has been taken as evidence of invalidity and unfairness of the test scores—seldom of the grades. This "interpretation seems oddly inconsistent with the results (in their study). Given a grade and a test score based on generally similar subject matter, discrepancies between the two appear to have less to do with mysterious sources of invalidity or defects in the test than with errors in the grades and incomplete information about the students and their approach to schooling" (p. 133).

The present study examines longitudinal grading patterns of college-bound seniors. Grading patterns are examined by student and school characteristics, by discipline, and in relation to SAT scores.

II. Design and Methodology

Data

All of the data collected for this study came from the SAT Student Descriptive Questionnaire's (SDQ) history files for years spanning 1975 to 2002. As a self-report instrument, the SDQ is an optional service that students complete when registering for the SAT and then update as necessary if they register for subsequent tests. Aside from providing demographic information, students completing the SDQ have the opportunity to describe their academic interests, extracurricular activities, and high school grades.

A substantial majority of all students respond, at least partially, to the Student Descriptive Questionnaire. In 1976, 77 percent of the students responded; in 2002 the response rate was 95 percent (Table 1). In both years, a higher proportion of women responded. While the proportion of students responding to the SDQ over the last 26 years has appeared to substantially increase, the biggest increase in respondents happened between 1976 and 1978. As noted in *College-Bound Seniors* (1978, p.5), "…the strong increase in the SDQ response rate from 77 percent in 1976, to 83 percent in 1977, to 90 percent in 1978 means that the ATP Summary Reports [now known as the College-Bound Seniors Reports] are becoming nearly a complete description of the ATP participants" (College Board, 1978). Beginning in the mid-1990s registration was offered on the Web. Some of the questions on the Web are currently pre-filled, adding to an increase in the percentage of students responding to the SDQ. As online registration grows, we potentially lose respondents answering the items needed for this study.

To better serve the transition between school and college, the SDQ has evolved over the years to reflect societal trends and changes in the information sought by college admissions offices. Several of the variables used in this report have been altered during the time under consideration, while additional questions have been included over the years to obtain student responses in areas of then-current interest. For example, a question about a student's experience with a hand-held calculator was added beginning with the 1996 senior cohort. The addition of or changes to the SDQ questions about characteristics examined in this study are outlined below.

TABLE 1

Proportion of Students Responding to SDQ

	Men	*Women*	*Total*
1976	75%	79%	77%
2002	94%	96%	95%

Parental Education

Information on this variable was not collected prior to 1981. The list of possible responses was modified in 1988 and has remained the same since then. For purposes of this report, the responses were combined as shown in Table 2.

Racial/Ethnic Self-Identification

Students have been asked to indicate the racial/ethnic group with which they identify since 1971-72. This information has been particularly useful to colleges in seeking to recruit a more diversified applicant pool. Students in the four largest racial/ethnic groups have been included in the analyses in this study. The responses that have been mapped into these four categories are shown in Table 3. Students who described themselves as "American Indian or Alaskan Native" and "Other" are not included in any analyses related to race/ethnicity because the small number of students reduces the power of the analyses to detect changes in the dependent variables.

Type of Secondary School

Prior to 1985, students were asked on the SDQ to indicate whether they attended a public or a nonpublic secondary school. From the 1986 cohort onward, information about a student's school has been gathered

TABLE 2

Parental Education

Categories Used in Report	*Possible Responses for 1981 and 1984 Samples*	*Possible Responses for 1988 and Subsequent Samples*
Less than Bachelor's Degree	(a) Grade school	(a) Grade school
	(b) Some high school	(b) Some high school
	(c) High school diploma	(c) High school diploma or equivalent
	(d) Business or trade school	(d) Business or trade school
	(e) Some college	(e) Some college
		(f) Associate or two-year degree
Bachelor's Degree	(f) Bachelor's degree	(g) Bachelor's or four-year degree
More than Bachelor's Degree	(g) Some graduate or professional school	(h) Some graduate or professional school
	(h) Graduate or professional degree	(i) Graduate or professional degree

TABLE 3

Racial/Ethnic Self-Identification

Categories Used in Report	*Possible Responses for 1976 Sample*	*Possible Responses for 1981 and 1984 Samples*	*Possible Responses for 1988 and 1991 Samples*	*Possible Responses for 1994, 1998 and 2002 Samples*
African American	(b) Black or Afro-American or Negro	(b) Black or Afro-American or Negro	(c) Black or African American	(c) African American or Black
Asian American	(d) Oriental or Asian American	(d) Oriental or Asian American or Pacific Islander	(b) Asian, Asian American or Pacific Islander	(b) Asian, Asian American or Pacific Islander
Hispanic	(c) Mexican American or Chicano (e) Puerto Rican	(c) Mexican American or Chicano (e) Puerto Rican	(d) Mexican American or Chicano (e) Puerto Rican (f) Latin American, South American, Central American, or other Hispanic	(d) Mexican or Mexican American (e) Puerto Rican (f) Latin American, South American, Central American, or other Hispanic or Latino
White	(f) White or Caucasian	(f) White or Caucasian	(g) White	(g) White

through a report completed by each secondary school. Schools have been able to classify themselves as public, independent, religiously affiliated, or other. Student data were matched to secondary school data to complete analyses based on school type and type of community.

Type of Community

Beginning with the 1986 cohort, secondary schools have also reported the type of community in which they are located. The choices have been large city, medium-size city, small city or town, suburban, or rural.

Educational Aspirations

Since the inception of the SDQ, students have been asked to indicate the highest level of education beyond high school that they expect to complete. The original categories were modified in 1988. The responses that map into the four categories reported in Table 8 are shown in Table 4.

Grades in High School Subject Areas

Students are asked to indicate on the SDQ the average grade (A through F) they received in each high school subject area from a specified list of standard high school courses. Prior to 1988, the six subjects were English, Mathematics, Foreign Languages, Biological Sciences, Physical Sciences, and Social Studies. For the 1985 and earlier cohorts, students reported the grade in the latest course taken in the subject; subsequently, they reported the average grade in all courses taken since ninth grade.

Beginning in 1988, Arts/Music was added to the list. In addition, Biological Sciences and Physical Sciences were combined and called Natural Sciences. Therefore, from 1988 to the present, the six academic subjects were English, Mathematics, Foreign and Classical Languages, Natural Sciences, Social Sciences and History, and Arts and Music. Also beginning in 1988, the SDQ prompted students to indicate their cumulative grade point average (GPA) for all academic subjects in high school (A+ to F).

For the sake of consistency over the time period of interest, students' self-reported grades in courses in English, Mathematics, Foreign Languages, Science, and Social Sciences and History as shown in Table 5 were used in the current study. The use of students' self-reported grades as a substitute for transcript-reported grades in research is a common practice (Bridgeman et al., 2000; Morgan, 1990). Studies assessing the accuracy of student self-report for the SDQ have found it to be of sufficient accuracy for research purposes

TABLE 4

Educational Aspirations

Categories Used in Report	*Possible Responses for 1976–1984 Samples*	*Possible Responses for 1988–2002 Samples*
Less than B.A./B.S.	(a) Two-year specialized training program (b) Two-year Associate in Arts degree (A.A.)	(a) Specialized training or certificate program (b) Two-year associate in arts or sciences degree (A.A., A.A.S. or A.S.)
B.A./B.S.	(c) Bachelor's degree (B.A. or B.S.)	(c) Bachelor's degree (B.A. or B.S.)
More than B.A./B.S.	(d) Master's degree (M.A. or M.S.) (e) Doctoral or other professional degree (such as M.D. or Ph.D.)	(d) Master's degree (M.A. or M.S.) (e) Doctoral or related degree (such as Ph.D., J.D., M.D., D.V.M.)
Undecided	(f) Undecided	(f) Other

TABLE 5

Grades in High School Subject Areas

Categories Used in Report	*Possible Responses for 1976 Sample*	*Possible Responses for 1981 & 1984 Samples*	*Possible Responses for 1988–2002 Samples*
Arts & Music	—	—	Average Grade of All Courses Taken — A or excellent (usually 90–100) — B or good (usually 80–89) — C or fair (usually 70–79) — D or passing (usually 60–69) — E or F or failing (usually 59 or below) — Pass [not for 94 or 98 sample]
English	Latest Grade — Excellent (usually 90–100) — Good (usually 80–89) — Fair (usually 70–79) — Passing (usually 60–69) — Failing (usually 59 or below) — Only "pass-fail" grades were assigned and I received a pass — The grade reported was in an advanced, accelerated, or honors course	Latest Grade — Excellent (usually 90–100 or A) — Good (usually 80–89 or B) — Fair (usually 70–79 or C) — Passing (usually 60–69 or D) — Failing (usually 59 or below or F) — Only "pass-fail" grades were assigned and I received a pass — The grade reported was in an advanced, accelerated, or honors course	Average Grade of All Courses Taken—English
Foreign Language	Latest Grade	Latest Grade	Average Grade of All Courses Taken—Foreign and Classical Languages
Mathematics	Latest Grade	Latest Grade	Average Grade of All Courses Taken—Mathematics
Science	Latest Grade—Biological Sciences Latest Grade—Physical Sciences	Latest Grade—Biological Sciences Latest Grade—Physical Sciences	Average Grade of All Courses Taken—Natural Sciences
Social Science	Latest Grade—Social Studies	Latest Grade—Social Studies	Average Grade of All Courses Taken—Social Sciences and History

(Freeberg, Rock, and Pollack, 1989). In fact, Pearson product-moment correlations between school- and student-reported. grades have ranged from .79 to as high as the mid-.90s (Freeberg, 1988).

One limitation of this study is that slightly different wording has been used about self-reported grades during this time period. Prior to 1988 students were asked to report their last course grade in each academic discipline (e.g., English, social science). Beginning in 1988 students were asked to report the average of all course grades in a discipline. A comparison of self-reported grades in 1987 and 1988 indicates only slight changes in self-report grades so one may conclude the wording change had minimal effect on trend data. On the other hand the last course grade in a subject may be significantly different than the average course grade for some portion of students. We have no choice but to treat self-reported grades as equivalent given available data, and assume the lack of noticeable changes in grades between 1987 and 1988 support this assumption. However, it is also possible that the change of wording had some impact on trend data that has not been detected in the analyses.

Sampling

Given the availability of SDQ data from 26 different years, it was decided *a priori* that only selected years would be included in the analyses in order to make the amount of data manageable. Further, only those students who were in the graduating cohort were included—regardless of when they had taken the SAT. Thus there were data for 26 separate cohorts of high school seniors.

Initially, data from every fourth year were selected; however, certain other years were chosen for additional reasons. For example, 1988 was chosen because a newly revised SDQ was put into place that year. Also, 2002 was chosen because it was the most recent year for which data were available at the inception of this study. Data from 1980 were not used because some of the self-reported data had been corrupted years earlier. The following years were retained for this study: 1976, 1981, 1984, 1988, 1991, 1994, 1998, and 2002. These choices resulted in the inclusion of eight years, or rather, eight cohorts of seniors, in the longitudinal analyses with an average of approximately 1,156,819 student records per year. For all data analyses, a 10 percent random sample was taken from each year for computational efficiency. Once a 10 percent sample was drawn, only student records containing reported high school grades were retained, yielding an average of just under 100,000 student records in each sample. Some small percentage of the students who completed the SDQ took only Achievement Tests, now called the SAT II: Subject Tests, and did not take the SAT verbal and mathematical tests (now called the SAT I).

Consequently, SAT I scores are missing for a small portion of the students in each sample.

In 2002, 81.2 percent of college-bound seniors who took the SAT I reported their high school GPA. In 1998, "no response" to GPA was 10 percent (9.6 percent). By 2002, "no response" to GPA nearly doubled to 19 percent (18.8 percent). The 19 percent of students who do not report their GPA differ in some meaningful ways from the total cohort. As noted in the College-Bound Seniors (1978, p. 7), "…students with low high school rank (and lower GPA) were the students who did not respond to the SDQ in 1976. Because they are now [in 1978] responding in greater numbers, they are reducing both the median percentile high school rank and the average high school GPA." By 2002, those students not reporting GPA tend to have lower SAT scores, are more likely to be male, and typically do not complete other items on the SDQ such as ethnicity, family income, and educational aspirations. In 2002, females were 54 percent of SAT I test-takers but only 48 percent of students not providing their high school GPA. The SAT means for all students in the 2002 cohort were 504 on the verbal section and 516 on the mathematical section. Students providing their high school GPA had average scores of 507 and 517, respectively on the verbal and mathematical sections; nonrespondents had mean scores of 495 and 512. Table 6 illustrates the mean SAT I scores for college-bound seniors, as well as the sample of students randomly selected for this study from each respective cohort. The mean SAT scores for students in the sample were restricted to students who reported their high school GPA and are generally 2–5 points higher than the mean scores for each cohort.

When the SAT was renormed in April 1995, mean scores were set at or near the midpoint of 500 of the 200–800 score scale, a process called recentering. All scores in this table reflect that process. Means after 1996 are recentered, and those for 1996 are based on recentered scores plus scores converted from the original to the new scale. Means for 1987–1995 were recomputed after individual scores were converted from the original to the new scale; means for 1972–1986 were converted to the new scale after a formula was applied to the original mean and standard deviation.

Computation of GPA

The self-reported course/grade information was used to compute each student's overall grade point average, or GPA. This is the average of students' self-reported course grades in English, Mathematics, Foreign Languages, Social Sciences, and Science. Noteworthy is that in databases prior to 1988, grades reported for Biological Science and Physical Science were averaged and a new variable was created and named Science. This new variable was used in all analyses in order to maintain consistency throughout the years.

College-Bound Senior Cohort vs. Study Samples

As noted earlier, the College Bound Senior cohort for each year was available. In many instances descriptive data are reported for the entire cohort, which comprises over one million students each year. However, we were unable to find statistical software that could conduct some of the more complex analyses with eight groups each having over one million cases, so the 10 percent random samples were selected for computational efficiency in some analyses (Table 6). Section III, Characteristics of College-Bound Senior Cohorts, is based on the total cohort, while the remaining analyses that follow use the 10 percent sample of students from these cohorts.

TABLE 6

Mean of SAT® I Scores* of Total College-Bound Senior Cohort and Study Sample, 1976–2002, with Number of Cases

	Senior Cohort			*Study Sample*		
Year	*Number*	*Verbal Mean*	*Math Mean*	*Number*	*Verbal Mean*	*Math Mean*
1976	1,063,488	509	497	85,931	514	507
1981	1,049,351	502	492	95,530	505	497
1984	1,037,814	504	497	92,185	507	501
1988	1,213,219	505	501	109,023	508	504
1991	1,095,363	499	500	98,400	502	503
1994	1,115,774	499	504	99,605	502	506
1998	1,253,650	505	512	110,594	507	513
2002	1,425,889	504	516	108,413	506	516

* In 1994 the SAT score scale was recentered. All SAT scores reported in this report are on the recentered scale introduced in 1994. See Dorans (2002) for more information.

TABLE 7

College-Bound Seniors by Gender and Ethnicity, 1976–2002

	1976			1981			1984		
Number in Pool	*Male*	*Female*	*Total*	*Male*	*Female*	*Total*	*Male*	*Female*	*Total*
African American	25,681	39,074	64,755	32,824	49,338	82,162	32,165	48,512	80,677
Asian American	8,814	8,450	17,264	15,879	15,450	31,329	20,490	19,500	39,990
Hispanic	8,908	9,069	17,977	12,352	13,806	26,158	13,722	15,662	29,384
Native American	1,274	1,358	2,632	2,424	2,624	5,048	2,143	2,425	4,568
Other	8,158	7,432	15,590	10,470	9,804	20,274	10,447	10,148	20,595
White	325,800	344,605	670,405	356,056	391,656	747,712	340,768	373,120	713,888
TOTAL	378,635	409,988	788,623	430,005	482,678	912,683	419,735	469,367	889,102
Percent of Pool									
African American	3.3%	5.0%		3.6%	5.4%		3.6%	5.5%	
Asian American	1.1%	1.1%		1.7%	1.7%		2.3%	2.2%	
Hispanic	1.1%	1.1%		1.4%	1.5%		1.5%	1.8%	
Native American	0.2%	0.2%		0.3%	0.3%		0.2%	0.3%	
Other	1.0%	0.9%		1.1%	1.1%		1.2%	1.1%	
White	41.3%	43.7%		39.0%	42.9%		38.3%	42.0%	
Female %		52.0%			52.9%			52.8%	

	1988			1991			1994		
	Male	*Female*	*Total*	*Male*	*Female*	*Total*	*Male*	*Female*	*Total*
Number in Pool									
African American	39,968	57,515	97,483	42,088	58,121	100,209	42,098	60,581	102,679
Asian American	32,692	31,410	64,102	38,352	38,351	76,703	39,738	41,359	81,097
Hispanic	24,809	29,623	54,432	29,693	36,558	66,251	33,574	43,714	77,288
Native American	5,918	6,412	12,330	3,686	4,157	7,843	3,831	4,319	8,150
Other	6,624	7,470	14,094	7,498	8,802	16,300	10,211	11,987	22,198
White	390,296	422,820	813,116	329,871	357,360	687,231	311,190	350,917	662,107
TOTAL	500,307	555,250	1,055,557	451,188	503,349	954,537	440,642	512,877	953,519
Percent of Pool									
African American	3.8%	5.4%		4.4%	6.1%		4.4%	6.4%	
Asian American	3.1%	3.0%		4.0%	4.0%		4.2%	4.3%	
Hispanic	2.4%	2.8%		3.1%	3.8%		3.5%	4.6%	
Native American	0.6%	0.6%		0.4%	0.4%		0.4%	0.5%	
Other	0.6%	0.7%		0.8%	0.9%		1.1%	1.3%	
White	37.0%	40.1%		34.6%	37.4%		32.6%	36.8%	
Female %		52.6%			52.7%			53.8%	

	1998			2002		
	Male	*Female*	*Total*	*Male*	*Female*	*Total*
Number in Pool						
African American	46,927	67,985	114,912	50,817	71,867	122,684
Asian American	45,623	48,443	94,066	49,543	53,699	103,242
Hispanic	38,799	51,613	90,412	43,610	60,545	104,155
Native American	4,805	5,354	10,159	3,371	4,135	7,506
Other	15,449	20,313	35,762	16,707	22,260	38,967
White	322,048	382,414	704,462	320,266	378,393	698,659
TOTAL	473,651	576,122	1,049,773	484,314	590,899	1,075,213
Percent of Pool						
African American	4.5%	6.5%		4.7%	6.7%	
Asian American	4.3%	4.6%		4.6%	5.0%	
Hispanic	3.7%	4.9%		4.1%	5.6%	
Native American	0.5%	0.5%		0.3%	0.4%	
Other	1.5%	1.9%		1.6%	2.1%	
White	30.7%	36.4%		29.8%	35.2%	
Female %		54.9%			55.0%	

III. Characteristics of College-Bound Senior Cohorts

The Student Descriptive Questionnaire database provides a great deal of information about the ways in which college-bound students have changed over the two decades included in this study. It should be noted at the outset that these data are based on students who self-selected to register for the SAT program and, therefore, are NOT representative of all high school seniors in a particular cohort. These data do, however, provide a reasonably accurate picture of those seniors who aspired to enter a four-year college or university—college-bound seniors. The data reported in this section are based on the entire senior cohort for each year, rather than the 10 percent sample used in later analyses. These data were taken from the respective annual publication, *College-Bound Seniors: National Report*.

Gender and Ethnicity

The students who reported their gender and ethnicity are shown in Table 7. This 26-year period has seen important changes in the relative proportion of students in the several gender and ethnicity categories. The proportion of women in this college-bound senior pool has increased from 52 percent in 1976 to 55 percent in 2002. By 1994, there were more women than men in every ethnic group.

As can be seen in Table 7, the proportion of white students in the college-bound seniors cohort has declined consistently throughout the twenty-six year period under consideration. In 1976, white men made up 41.3 percent of the college-bound senior pool; in 2002 they composed only 29.8 percent. White women, who made up 43.7 percent of the pool in 1976, represent under 36 percent in 2002. The reduction in the proportion of white students was largely the result of an increasing proportion of Asian American and Hispanic students. The proportion of each of these groups was more than four times greater in 2002 than in 1976. In 1976, Asian American men and women, as well as Hispanic men and women, each accounted for just over 1 percent of the college-bound senior pool. By 2002, Asian American men and women accounted for 4.6 percent and 5.0 percent respectively of the senior pool. Similarly, Hispanic men accounted for 4.1 percent of the pool and Hispanic women made up 5.6 percent. African Americans and Native Americans also increased their share of the senior pool, but less dramatically than the Asian American and Hispanic students. The Native American proportion had more than doubled in 1998 but saw a slight decline in 2002 while the proportion of African Americans had increased by a third. The changing ethnic composition of the senior pool is illustrated in Figure 1.

Degree Aspirations

Since its inception, the SDQ has asked the SAT test-takers to indicate the highest academic degree to which they aspire. As can be seen in Table 8, there has always been a small proportion of the seniors who indicated that they aspired to an associate degree or a certificate program. Because the SAT is not required for admission to many two-year colleges, even this small number reflects external forces such as the policies of some secondary schools to require the SAT for guidance purposes or to recommend the test for placement. Consistently over the time period, about one-fifth of the students have indicated that they are undecided about the degree level to which they aspire.

A plurality of the senior pool has always aspired to some form of a graduate degree. This proportion has increased steadily over the last two decades and comprised 51 percent of the 2002 cohort. Conversely, the proportion of the college-bound senior cohort aspiring to only a bachelor's degree has decreased since 1984 and remained flat for the past 8 years. This growing aspiration for advanced degrees has probably heightened students motivation to have a pattern of high grades on their record, both in high school (to get into colleges that are seen as better stepping stones to graduate study) and in college (to compete successfully for entrance to a strong graduate program).

TABLE 8

Proportion of College-Bound Seniors by Expected Highest Degree

	1976	*1981*	*1984*	*1988*	*1991*	*1994*	*1998*	*2002*
Less than B.A./B.S.	6.0%	5.4%	5.1%	4.0%	4.0%	4.0%	3.0%	2.0%
B.A./B.S.	29.0%	31.8%	32.7%	30.0%	27.0%	24.0%	23.0%	24.0%
More than B.A./B.S.	41.0%	42.8%	44.8%	46.0%	49.0%	54.0%	55.0%	51.0%
Undecided	24.0%	19.9%	17.5%	21.0%	20.0%	20.0%	19.0%	21.0%

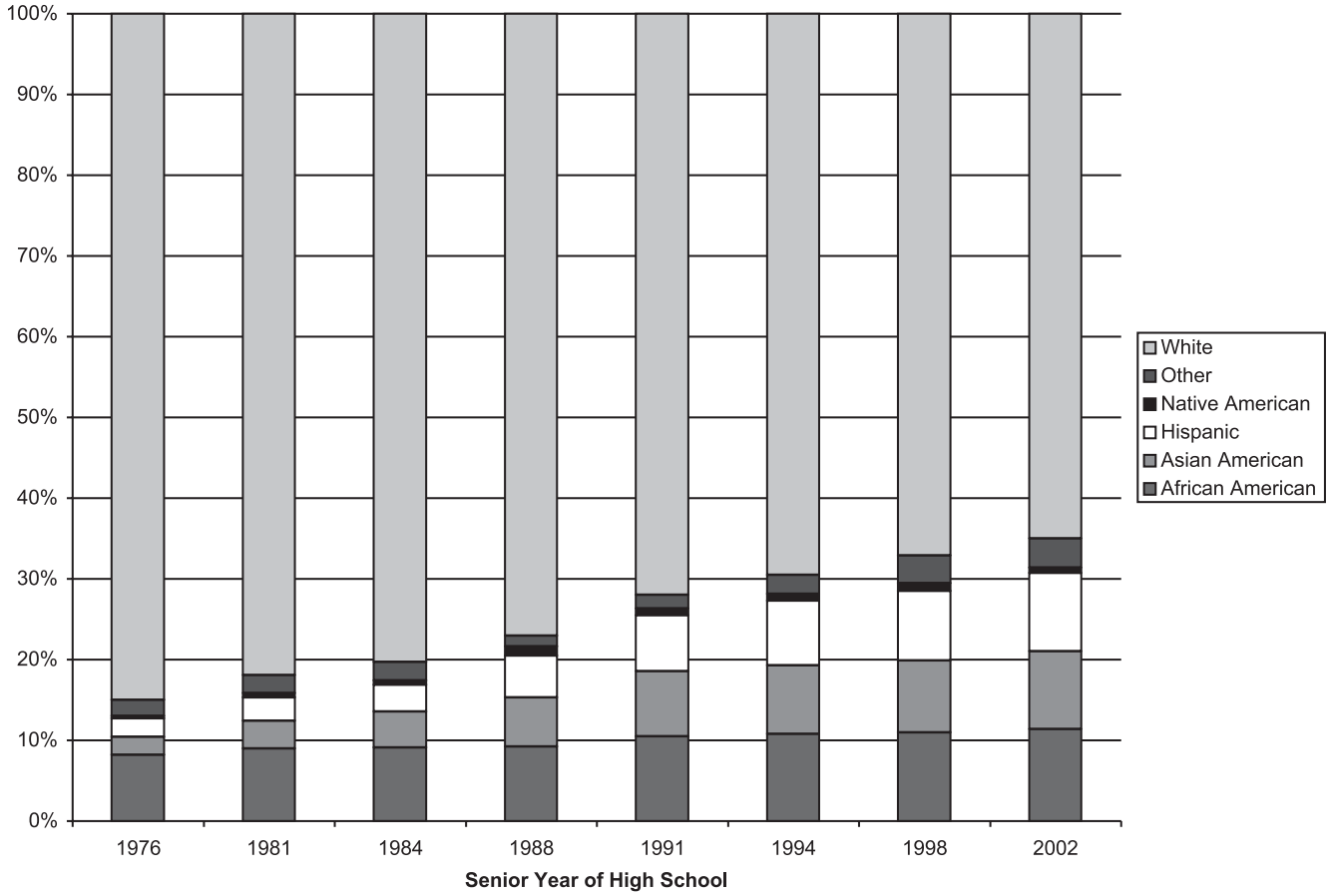


Figure 1. Proportion of college-bound seniors by ethnicity, 1976–2002.

IV. Measures of Academic Achievement

Information about the academic performance of students has been collected in somewhat different ways over the time period under study. Throughout the period, students have reported their grades in the basic subject areas of Mathematics, English, Foreign Language, Science, and Social Sciences. Beginning in 1988, students were also asked to report their grades in Arts/Music. Also, beginning in 1988, students were asked to report their cumulative GPA.

The grade point average (GPA) index used in this study was computed by averaging a student's self-reported grades in Mathematics, English, Foreign Language, Science, and Social Sciences and History. This indicator is available for each of the cohorts in the study and is the measure used in subsequent analyses of the interaction of GPA with other variables. The means, standard deviations, and number of students in each sample are shown in Table 9.

In order to provide some perspective for evaluating the trends in reported grade point averages, the SAT verbal and mathematical scores are also examined with regard to the same background variables. Because the SAT is intended to provide an indication of academic promise that is independent of the vagaries of grading practices, the scores provide indices whose meaning is constant over time.

TABLE 9

Mean Grade Point Averages by Year for Study Sample

Year	*1976*	*1981*	*1984*	*1988*	*1991*	*1994*	*1998*	*2002*
Mean GPA	3.04	3.00	2.99	3.02	3.04	3.10	3.17	3.31
S.D.	.63	.65	.65	.62	.62	.61	.60	.63
Number in Sample	82,921	95,530	92,185	109,023	98,400	99,605	110,584	108,413

TABLE 10

Mean and Standard Deviation for SAT-V and SAT-M by Year for Study Sample

Year	*1976*	*1981*	*1984*	*1988*	*1991*	*1994*	*1998*	*2002*
Verbal Mean	514	505	507	508	502	502	507	506
S.D.	104	108	108	106	108	110	110	110
Math Mean	507	497	501	504	503	506	513	516
S.D.	95	103	105	105	108	109	111	113

Since 1941, the SAT has reported verbal and mathematical scores, each on a 200–800 scale. The verbal score is based on a student's ability to read critically and with understanding texts from varied academic areas as well as to understand how sentence structure conveys meaning and how to use vocabulary in a nuanced manner. The mathematical score reflects questions asking the student to apply mathematical reasoning skills and content (through algebra) to new contexts, some abstract and others concrete. In 1995, the scale on which the SAT scores are reported was recentered. All SAT scores reported in this study have been converted to the 1995 recentered score scale. The mean scores on the recentered scale are shown for each sample in Table 10.

V. Personal Characteristics and Trends in Academic Indices

Although the grade point average of the study samples has increased from a mean of 3.04 in 1976 to a mean of 3.31 in 2002, the upward trend is not consistently observed when we examine the data in relationship to the gender and ethnicity of the students or in relationship to the educational level attained by their parents.

The mean SAT verbal and mathematical scores show a complex pattern in relationship to these personal and background characteristics. From 1981 to 2002, the mean SAT-V for the total sample changed little, going from 505 to 506. During the intervening years it varied from a low of 502 to a high of 508. The mean SAT-M, on the other hand, went from 497 to 516, reflecting a generally rising mean across the period.

For each cohort, the SAT scores were converted to the recentered reporting scale. The means and standard deviations of both the verbal and the mathematical scores were calculated for the various groups included in the analysis.

The trend data for the study samples are presented in terms of the personal background variables of gender, ethnicity, and parental educational level, as well as the combinations of these variables.

Gender

There has been considerable research on the relationship of gender to academic and test performance. Much of this research is summarized by Willingham and Cole (1997). They found that on a wide range of commonly used tests in large, nationally representative samples there was no gender difference in overall average test performance. They did, however, find gender differences in specific skill areas; for example, women tend to do well on verbal tests, while men do well in technical subjects. Among self-selected groups of high school seniors, men showed a somewhat higher mean score. In most test categories they found greater variability in the scores of males than in those of females. Beyond test performance, Willingham and Cole found that "girls and women tend to have stronger academic records than boys or men throughout all levels of education" (Willingham and Cole, 1997, p. 349). They attribute this difference to females having stronger academic work habits and more positive indicators of attitude and effort. In the data presented here, drawn from self-selected populations, men and women do show somewhat different trends in terms of their grade point average and their SAT scores. The mean secondary school GPA, the standard deviation of the GPA distribution, and the number of men and women in the sample for each of the years analyzed are shown in Table 11.

It should be noted that since 1981, the men have shown somewhat greater variation in the distribution of GPAs than have the women. The men's mean GPA is lower than that of the women for every year studied.

As one can see in Figure 2, the trend lines are very similar for men and women with a dip in mean GPA from 1976 through 1984 and a gradual but steady increase subsequently. Women earned higher grade averages throughout the period. Both SAT scores and high school GPA dipped after 1976 and began to rise again in the 1980s. Because the 1976 cohort had the

TABLE 11

Mean and Standard Deviation of Distribution of Secondary School GPAs by Gender and Year

Year	*1976*	*1981*	*1984*	*1988*	*1991*	*1994*	*1998*	*2002*
Men								
Mean GPA	3.00	2.93	2.93	2.97	2.99	3.03	3.10	3.23
S.D.	.63	.67	.67	.63	.63	.62	.62	.65
n	39,562	45,193	43,830	51,764	46,268	45,764	49,388	48,813
Women								
Mean GPA	3.08	3.05	3.04	3.06	3.09	3.16	3.23	3.38
S.D.	.64	.63	.63	.60	.60	.59	.58	.61
n	43,359	50,337	48,355	57,259	52,132	53,841	61,196	59,600
Total								
Mean GPA	3.04	3.00	2.99	3.02	3.04	3.10	3.17	3.31
S.D.	.64	.65	.65	.62	.62	.61	.60	.63
n	82,921	95,530	92,185	109,023	98,400	99,605	110,584	108,413

largest proportion of students who did not provide their high school GPA, it is possible that the sample of students in this particular cohort is less representative of the entire cohort and this may partially explain the substantially higher SAT scores and GPA in that year.

The trends in mean SAT scores shown in Table 12 are somewhat more complex. Historically men have consistently had higher average scores on both the verbal and the mathematical sections, although the difference widened during the 1980s and then shrunk somewhat during the 1990s. On SAT-M, however (Figure 3), women have shown a greater gain (24 points) over the 1981–2002 period than have men (16 points). As can also be seen in Figure 3, the verbal scores for both men and women showed a small increase from 1981 to 1984, followed by a

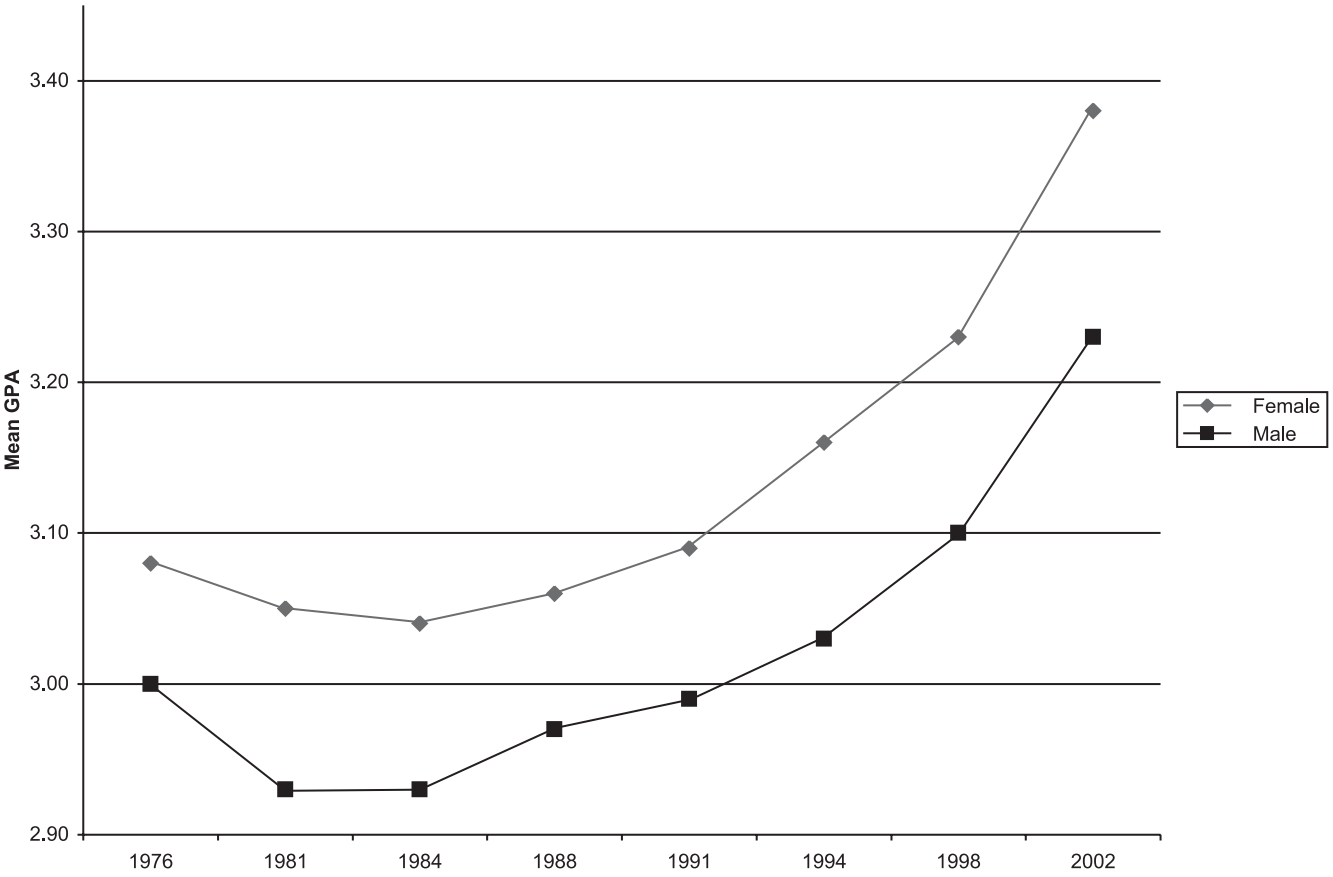


Figure 2. Mean GPA by gender, 1976–2002.

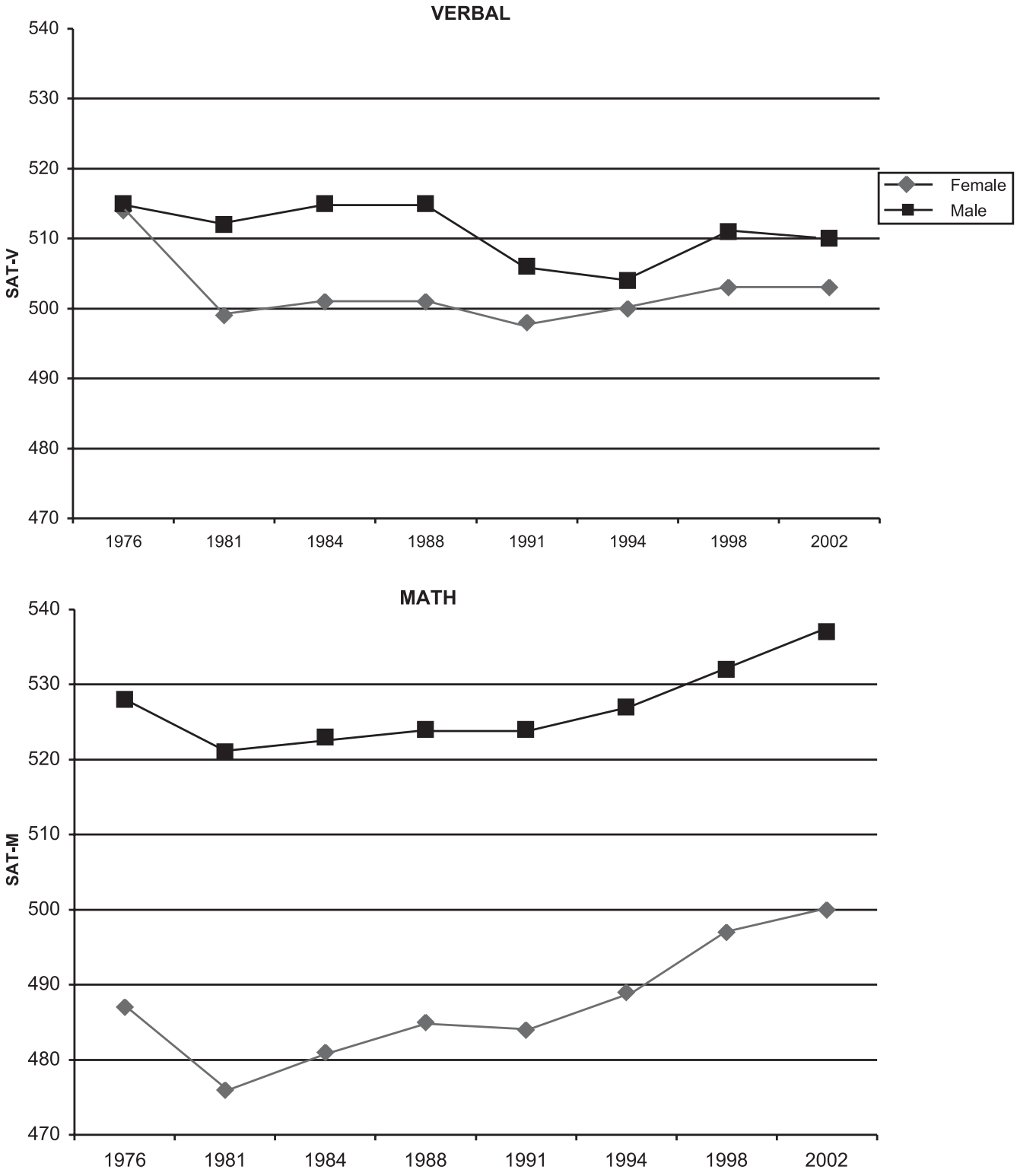


Figure 3. Mean SAT scores by gender, 1976–2002.

TABLE 12

Mean and Standard Deviation of SAT-V and SAT-M Score Distributions by Gender and Year

Year	*1976*	*1981*	*1984*	*1988*	*1991*	*1994*	*1998*	*2002*
Men								
SAT-V Mean	515	512	515	515	506	504	511	510
S.D.	105	107	108	107	110	112	111	112
SAT-M Mean	528	521	523	524	524	527	532	537
S.D.	100	104	105	107	111	112	113	115
n	47,906	43,202	41,038	48,962	44,042	43,475	46,664	48,485
Women								
SAT-V Mean	514	499	501	501	498	500	503	503
S.D.	103	108	107	105	107	109	109	109
SAT-M Mean	487	476	481	485	484	489	497	500
S.D.	89	97	99	99	101	103	107	109
n	47,930	47,810	45,279	53,945	49,314	50,876	57,718	59,275
Total								
SAT-V Mean	514	505	507	508	502	502	507	506
S.D.	104	108	108	106	108	110	110	110
SAT-M Mean	507	497	501	504	503	506	513	516
S.D.	95	103	105	105	108	109	111	113
n	95,836	91,012	86,317	102,907	93,356	94,351	104,382	107,760

decline, then a rise in scores. Women showed a very small increase (4 points) over the 1981–2002 period, while men ended the period with a mean SAT-V 2 points lower than their 1981 mean and 5 points below their 1976 mean. During the 1981–2002 period, the proportion of females in the study sample increased slightly from 52.9 percent to just over 55 percent.

Both men and women experienced an increase in mean SAT mathematical scores during the 1976–2002 period. Males gained 9 points, while the females partially closed the gap with a gain of 13 points, although the male average was still 37 points above that of the females. Figure 3 illustrates the generally upward trend for SAT-M among both males and females, while there was much less of a consistent trend for the verbal means, especially among the males.

Race/Ethnicity

The GPA data by racial/ethnic group is shown in Table 13. Data are presented for students who identify themselves as African American, Asian American, Hispanic, and white.

TABLE 13

Mean and Standard Deviation of Distribution of GPAs by Ethnicity and Year

Year	*1976*	*1981*	*1984*	*1988*	*1991*	*1994*	*1998*	*2002*
African American								
Mean GPA	2.77	2.71	2.72	2.72	2.74	2.79	2.84	2.98
S.D.	.59	.60	.60	.59	.58	.58	.59	.66
n	6,357	8,052	7,952	10,078	10,844	10,844	12,224	11,710
Asian American								
Mean GPA	3.17	3.12	3.15	3.21	3.22	3.28	3.31	3.44
S.D.	.60	.64	.63	.61	.61	.58	.58	.61
n	1,696	3,064	3,982	6,631	7,749	8,349	9,470	9,485
Hispanic								
Mean GPA	2.98	2.97	2.96	3.03	3.02	3.05	3.10	3.19
S.D.	.60	.60	.59	.58	.57	.57	.56	.63
n	1,750	2,620	2,901	3,703	4,336	5,117	5,980	9,881
White								
Mean GPA	3.11	3.07	3.05	3.05	3.08	3.14	3.23	3.38
S.D.	.59	.60	.61	.61	.61	.60	.58	.61
n	66,880	74,473	70,818	82,186	69,615	66,924	70,857	66,552

Throughout the time period covered by this study, the mean GPA of African American students was consistently about a quarter of a grade point below that of the three other groups. African Americans and Hispanics showed the smallest increase in average grades between 1976 and 2002, with an increase of just .21, compared to increases of .27 for Asian Americans and whites.

While all groups experienced a dip in their mean GPA between 1976 and 1981 (Figure 4), the Asian American group had a consistently increasing mean GPA from that point on. The mean GPA for African American and white students decreased or remained unchanged through 1988, and began to increase with the 1991 sample, a trend that continued through 2002. Hispanic students had an improved mean GPA in 1988, but then remained flat until 1991 when the trend again turned upward. During the 1976–2002 period, the number of African Americans in the sample almost doubled, and the number of Hispanics and the number of Asian Americans were more than five times as great by the end of the period.

Table 14 shows that all groups had higher mean SAT scores in 1976 than they did in 1981. Asian Americans have experienced a continuous increase in both verbal and math means from 1981 to 2002. African Americans and Hispanics, on the other hand, had an increase in mean verbal and math scores from 1981 to 1988, but the means have been static or slightly depressed since then (Figure 5). The mean SAT-V of white students has been static or decreasing over the period, but the mean SAT-M score has shown a modest gain during the period after 1991. It should be noted that the Asian American group has greater internal variation than the others; the standard deviation of the SAT scores are considerably greater, especially on the verbal score. This probably reflects the complex composition of those who classify themselves as Asian American—from third- and fourth-generation native-born students to those who have recently immigrated, as well as the wide variations in linguistic and cultural backgrounds within this group.

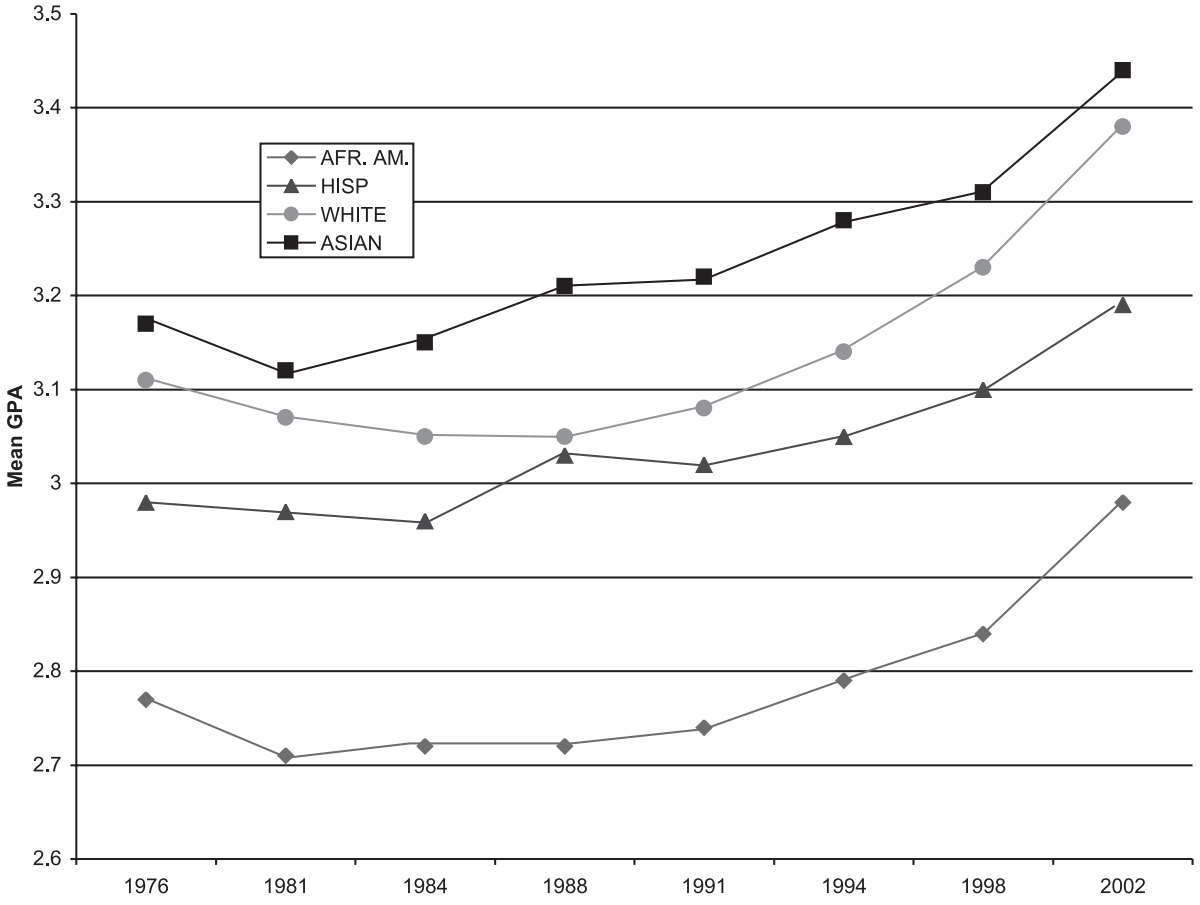


Figure 4. Mean GPA by ethnicity, 1976–2002.

TABLE 14

Mean and Standard Deviation of SAT-V and SAT-M Score Distributions by Ethnicity and Year

Year	*1976*	*1981*	*1984*	*1988*	*1991*	*1994*	*1998*	*2002*
African American								
SAT-V Mean	427	406	416	433	429	428	433	430
S.D.	99	101	101	100	99	100	98	100
SAT-M Mean	421	396	407	420	420	422	426	427
S.D.	77	94	95	96	94	98	96	99
Number	4,696	7,361	7,008	9,102	9,341	9,858	11,081	11,659
Asian American								
SAT-V Mean	490	471	475	485	487	491	496	500
S.D.	116	127	132	131	132	135	124	124
SAT-M Mean	545	534	540	543	550	554	560	565
S.D.	100	108	110	113	116	117	120	123
Number	1,688	2,891	3,711	6,185	7,348	7,914	8,986	9,378
Hispanic								
SAT-V Mean	452	442	446	454	451	449	453	452
S.D.	102	102	104	102	100	102	103	103
SAT-M Mean	456	442	447	456	455	456	457	459
S.D.	86	97	99	97	98	101	99	104
Number	1,555	2,399	2,587	3,372	3,921	4,665	5,361	9,790
White								
SAT-V Mean	530	520	523	523	520	521	527	528
S.D.	97	100	100	99	100	101	101	100
SAT-M Mean	520	509	512	515	515	520	528	534
S.D.	94	96	99	99	101	101	103	103
Number	63,186	71,658	67,184	78,408	66,710	64,209	68,031	66,253

Parental Education

From the 1981 sample onward, information is available about the level of parental education. For purposes of these analyses, the data are grouped by students whose parents have less than a bachelor's degree, by those whose parents have a bachelor's degree, and by those whose parents have acquired more than a bachelor's degree. The means and standard deviations of the GPAs by highest parental educational level are shown in Table 15.

Parental education is clearly related to the grades students earn. The gap between the mean GPA of students with college-educated parents and those without has widened over the time period covered by this study. Average grades rose faster for students whose parents had more education.

Figure 6 makes it clear that GPAs began rising earliest among those students whose parents had more than a B.A. Since 1984, their mean GPA has increased consistently. The mean GPA of students whose parents had only a bachelor's degree began to increase after 1988. Students whose parents had earned less than a B.A. did not experience a rising mean GPA until after 1991. This pattern clearly illustrates that the social class of parents and community has become increasingly related to grading patterns in the past two decades.

The relationship of mean SAT scores to parental education seems more complex (Figure 7). The mean SAT-V score for students whose parents had more than a bachelor's degree has increased gradually over the 1981–2002 period while the mean verbal score for all other students has been static or has decreased. The students whose parents had more than a bachelor's degree show a continuously improving mean SAT-M score; students whose parents have a bachelor's degree show a modest gain in the mean SAT-M score during the 1990s. The mean SAT-M score has been static for students whose parents have less than a B.A.

Gender and Ethnicity

Within each ethnic group, females have consistently earned higher grades. Hispanic men and women tend to have smaller differences (less than 0.10 of a grade point) than do the other groups. The difference between African American males and females tends to be the greatest and it widened during the 1981–1991 period.

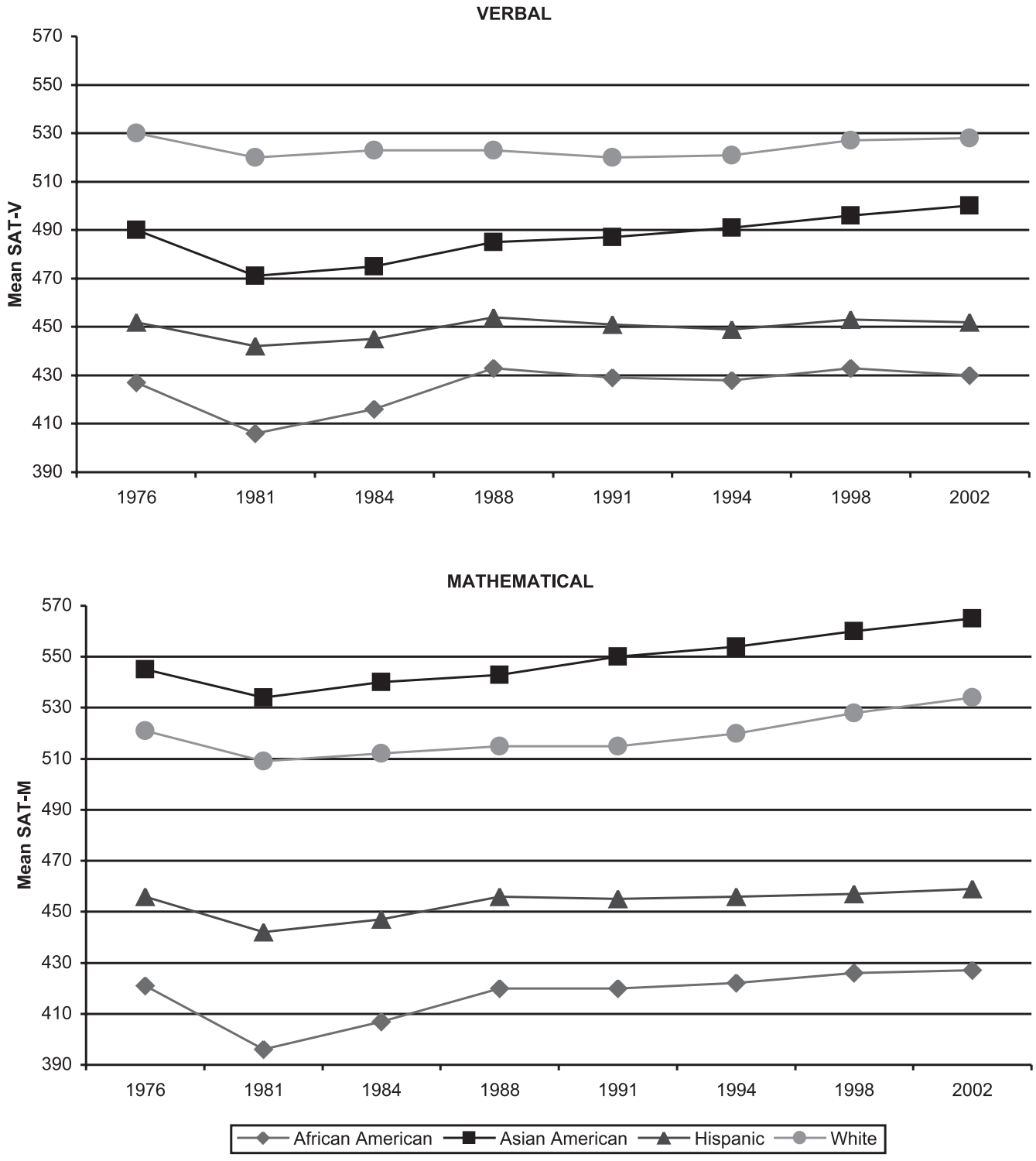


Figure 5. Mean SAT scores by ethnicity, 1976–2002.

TABLE 15

Mean and Standard Deviation of Distribution of GPAs by Parental Education and Year

Year	*1981*	*1984*	*1988*	*1991*	*1994*	*1998*	*2002*
Less than B.A.							
Mean GPA	2.96	2.95	2.94	2.95	3.00	3.07	3.19
S.D.	.61	.62	.61	.61	.59	.59	.64
n	46,152	43,796	49,198	45,992	45,101	47,586	43,895
B.A.							
Mean GPA	3.08	3.06	3.05	3.10	3.17	3.24	3.37
S.D.	.60	.61	.61	.60	.59	.58	.62
n	15,458	15,516	21,560	18,962	19,475	23,043	22,019
More than B.A.							
Mean GPA	3.11	3.10	3.15	3.19	3.26	3.32	3.46
S.D.	.61	.62	.61	.60	.59	.57	.59
n	27,777	27,478	31,809	27,710	28,218	31,928	30,048

Figure 8 plots the mean GPA for males and females by ethnic group.

The pattern observed in mean SAT scores is somewhat different than that in the GPA distribution. With one exception, the men of each ethnic group score higher on both parts of the test than do the women. As shown in Figure 9, white males, closely followed by white females, have the highest mean verbal scores. On the mathematical section, Asian males have the highest means, followed by white

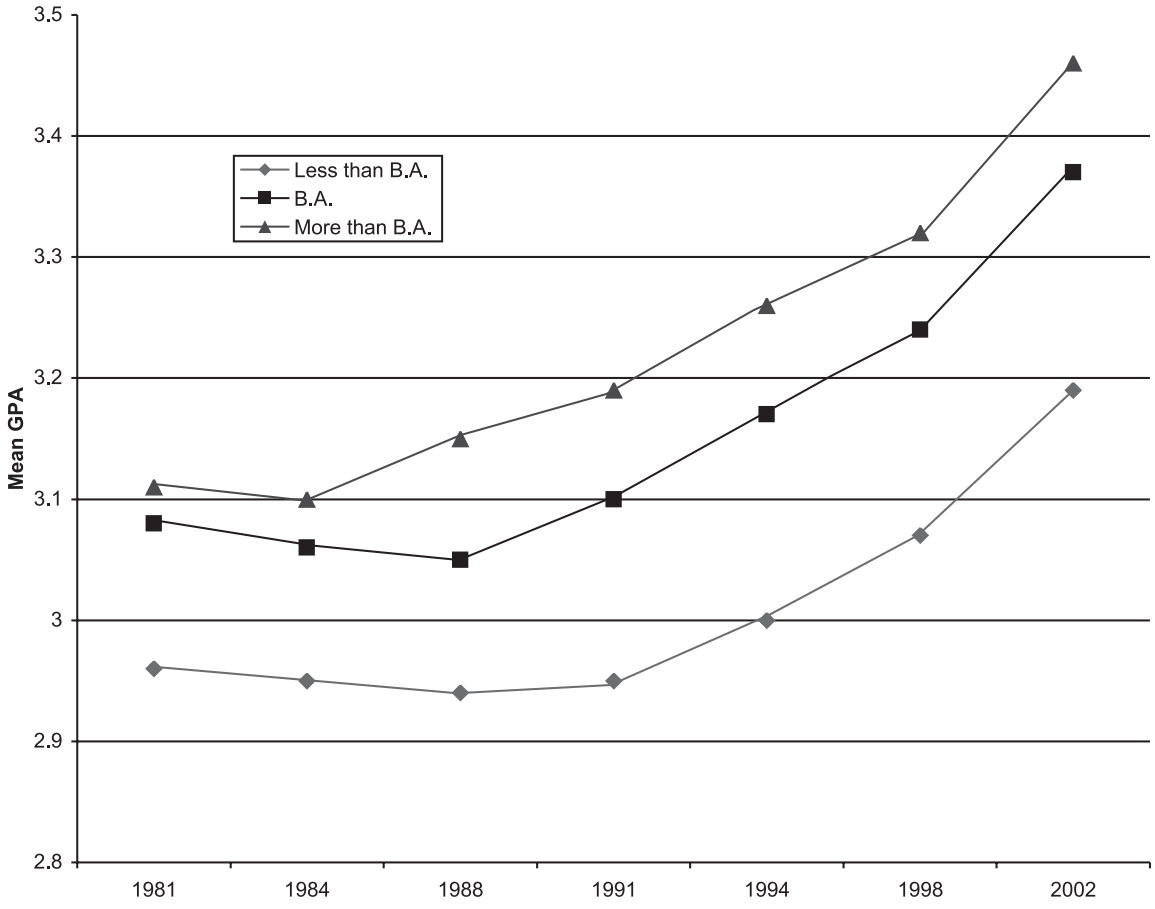


Figure 6. Mean GPA by parental education, 1981–2002.

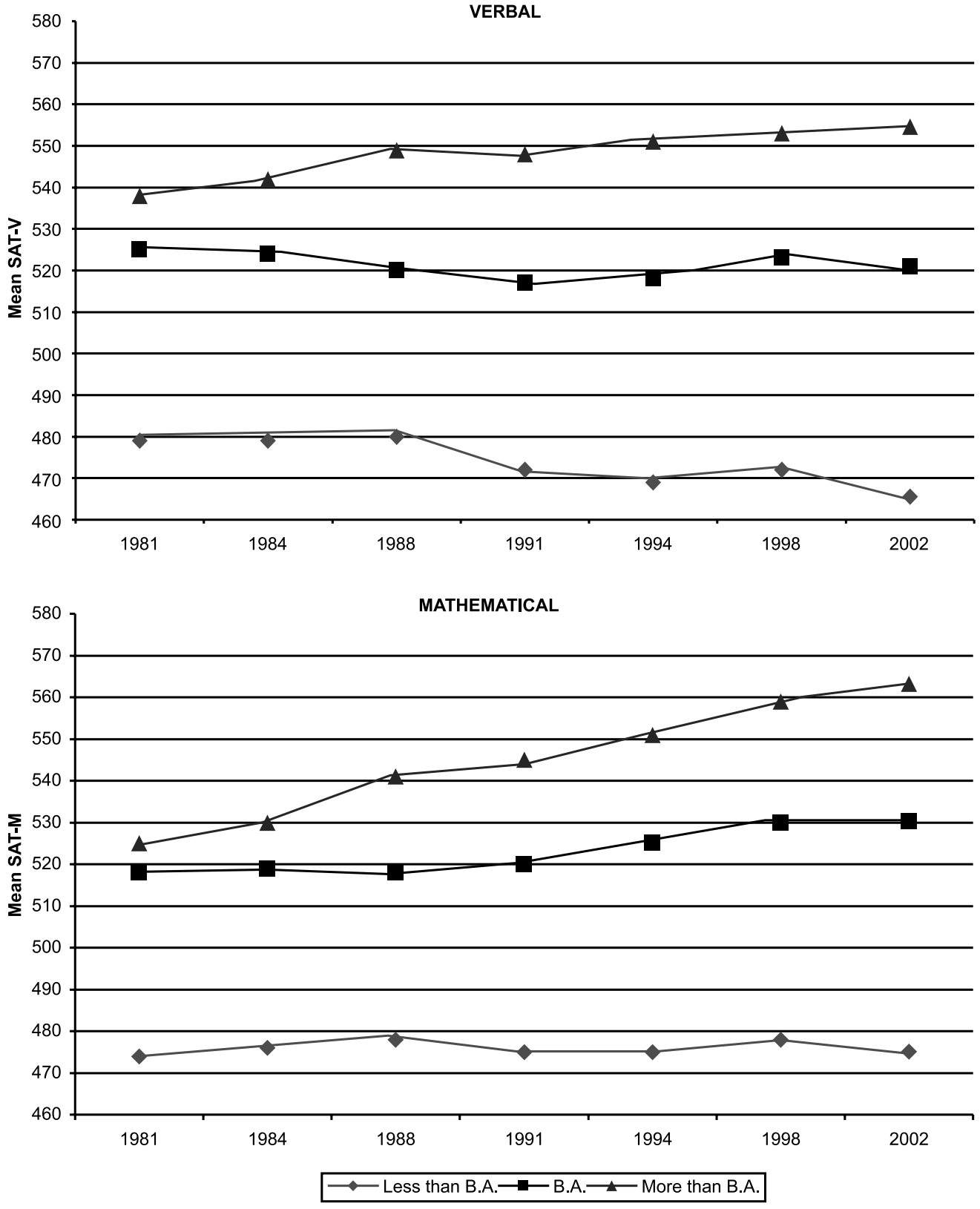
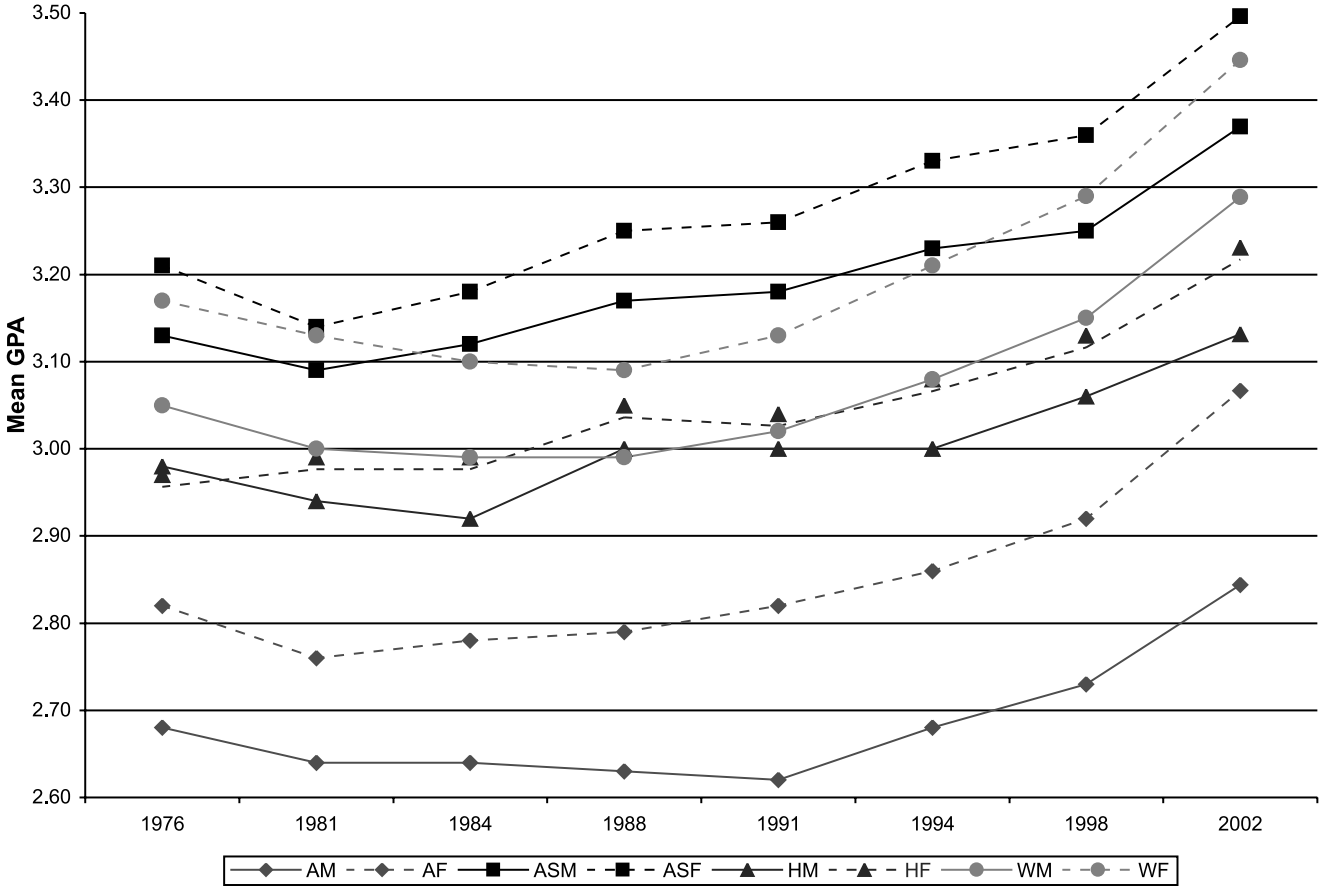


Figure 7. Mean SAT scores by parental education, 1981–2002.



First letter(s)=ethnicity where A=African American, AS=Asian American, H=Hispanic, W=White
Last letter=gender where F=Female and M=Male

Figure 8. Mean GPA by gender and ethnicity, 1976–2002.

males. On the verbal test, the gender differences are quite small within each ethnic group and, among African Americans, women have scored above or equal to the men for the last four cohorts in this study. On the mathematical section, the gender differences for each group are somewhat larger than they are for the verbal section. It should be noted that the male-female difference among African Americans has narrowed during the period under study.

Gender and Parental Education

The combination of gender and parental education appears to be a strong explanatory variable for the GPAs earned by students. As can be seen in Figure 10, females whose parents have more than a bachelor's degree both have the highest GPA for every year in the study and have seen the greatest overall gain. Women whose parents have only a B.A. earn the second highest GPAs, followed by men whose parents have more than a B.A. and men whose parents have only a B.A. Women whose parents have less than a B.A. look quite similar to the men with B.A.–level parents. Males who come from parents with less than a B.A. have consistently earned the lowest GPAs and they did not experience an increase in their mean GPA until later than the other groups.

On the SAT-V, the differences among parental education categories are about as pronounced as they are for GPA and appear to have grown during the period of the study. Women whose parents had earned more than a bachelor's degree have shown a 19-point gain from 1981 to 2002, from a mean of 534 to a mean of 553. Males from this educational class showed a 14-point gain during the same period. Females whose parents earned only a bachelor's degree have maintained the same mean verbal score. The other groups have seen a modest decrease in their mean verbal score.

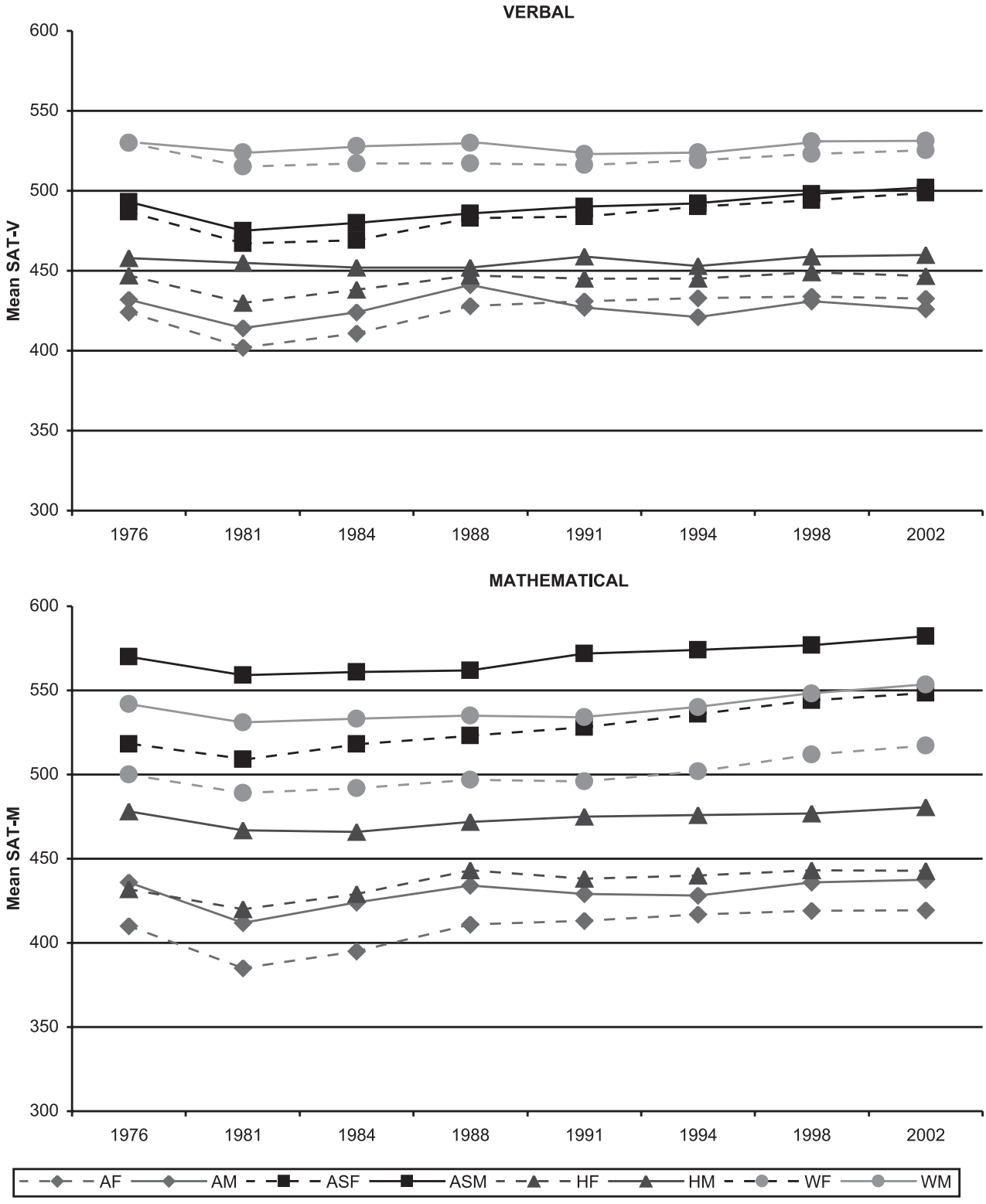


Figure 9. Mean SAT scores by gender and ethnicity, 1976–2002.

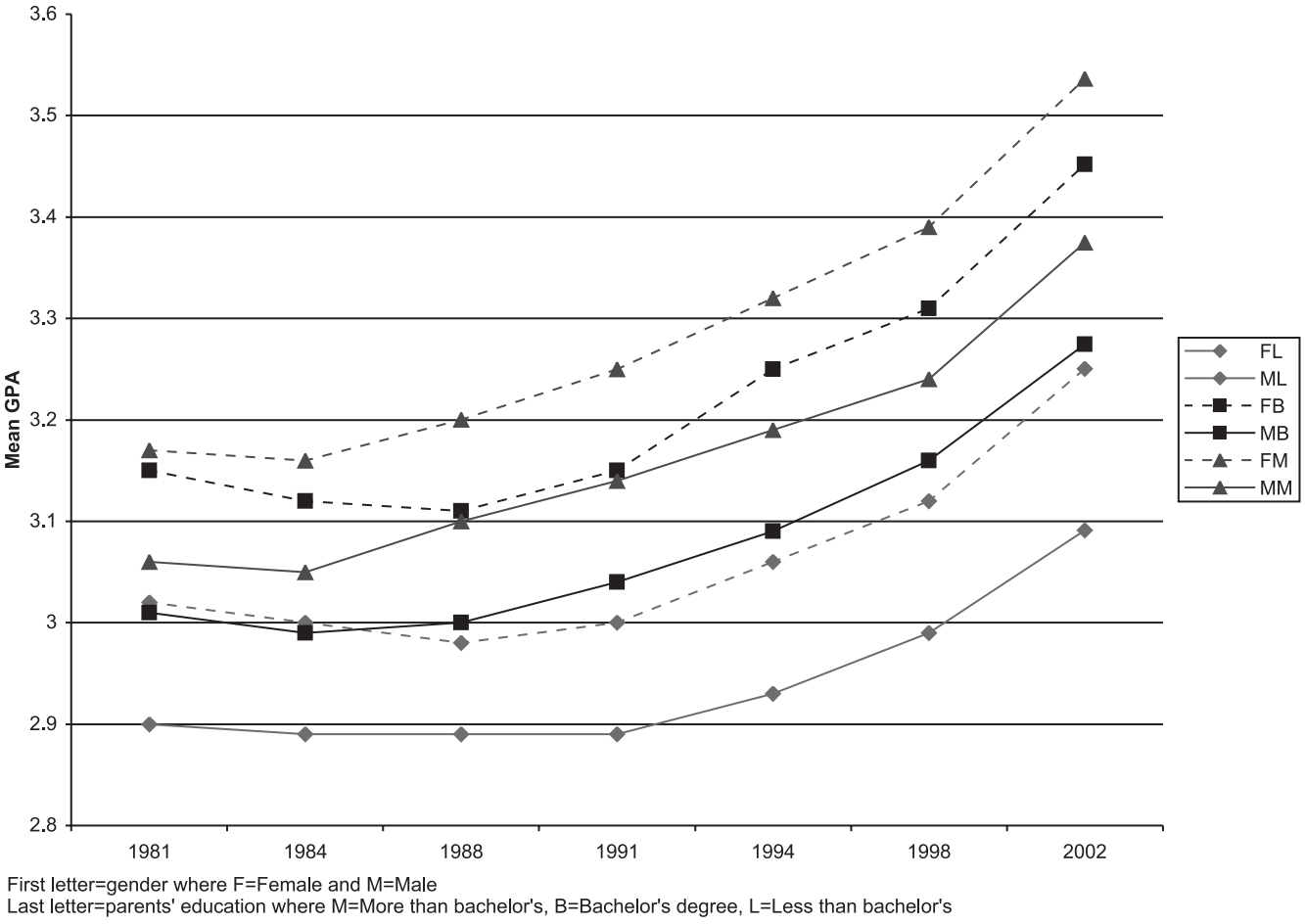


Figure 10. Mean GPA by parental education and gender, 1981–2002.

Figure 11 shows that there are important gender differences on the SAT-M within each parental education level. For each group, males score higher. However, women whose parents had earned more than a bachelor's degree had the greatest gain on SAT-M, moving from a mean of 504 in 1981 to a mean of 548 in 2002. The men whose parents had more than a bachelor's experienced a 34-point gain during the same period. Among the offspring of parents with only a bachelor's degree, females experienced a gain double that of the males, but still have a mean significantly lower than the males. Among families with less than a B.A., the men showed a decrease in mean SAT-M, while the women experienced a modest increase that still left them with a mean that is 33 points lower than that of the men.

Ethnicity and Parental Education

The four racial/ethnic groups show somewhat different relationships between parental education and the trend toward higher mean GPAs. Figure 12 illustrates these differences. African American students whose parents had more than a B.A. began to show a rising mean GPA after 1984; this rising trend began after 1988 for those whose parents had only a B.A., and after 1991 for students whose parents had not attained a B.A. Interestingly, the lines for the two B.A. or better groups converged in 1998 while widening the difference with African American students from less educated homes. In 2002, each group is at least one-tenth of a grade point away from the next.

Regardless of parental education, Asian American students have seen an increase in mean GPA. Among those whose parents have less than a B.A., there has been an increase from 1981 onward. For those whose parents have a B.A., the steady increase in GPA began after 1984. The Asian American students from the best-educated families had a brief plateau in the trend line between 1988 and 1991, although the overall trend is clearly upward.

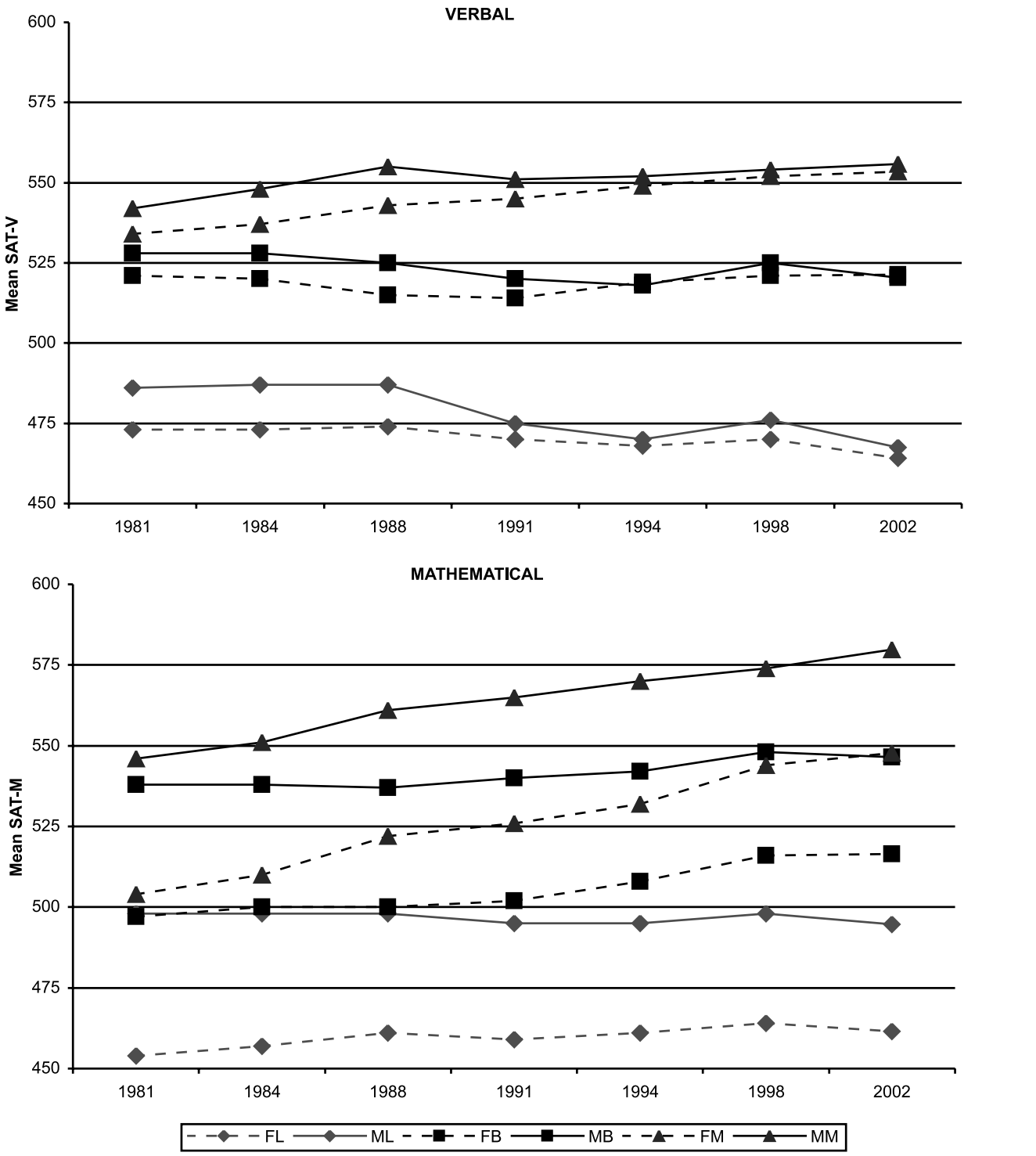
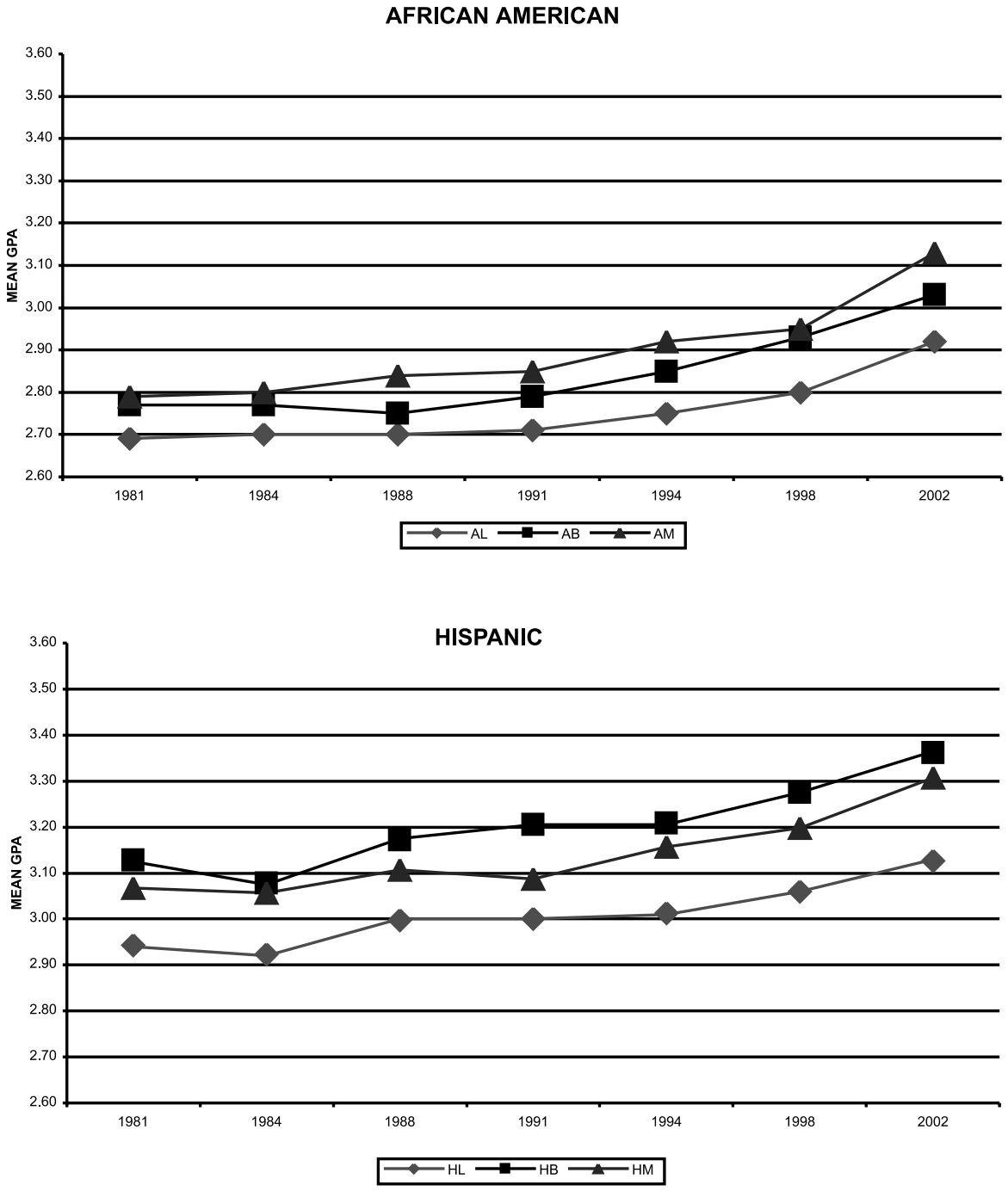
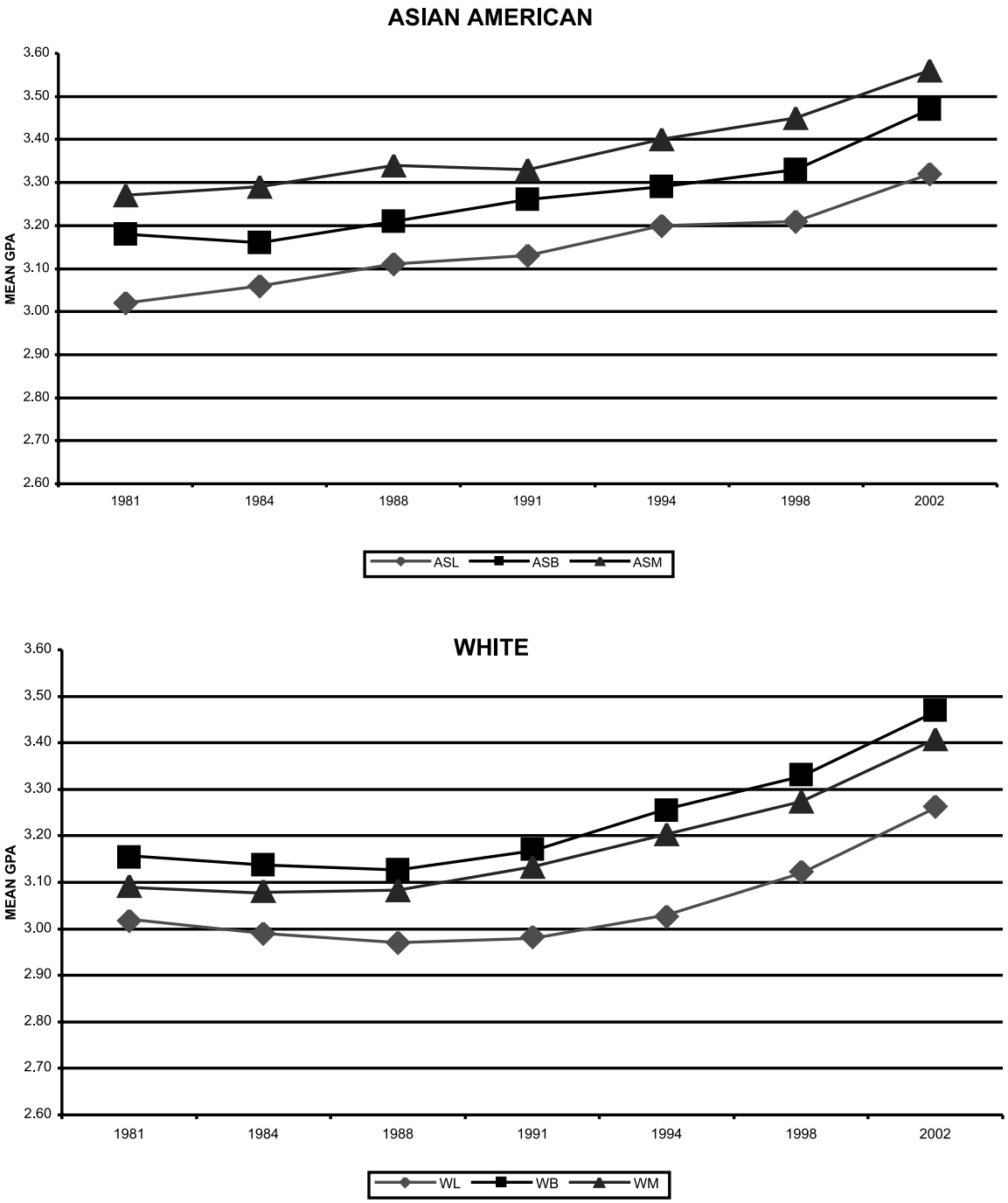


Figure 11. Mean SAT scores by parental education and gender, 1981–2002.



First letter(s)=ethnicity where A=African American, AS=Asian American, H=Hispanic, W=White
Last letter=parents' education where M=More than bachelor's, B=Bachelor's degree, L=Less than bachelor's

Figure 12. Mean GPA by parental education and ethnicity, 1981–2002.



First letter(s)=ethnicity where A=African American, AS=Asian American, H=Hispanic, W=White
Last letter=parents' education where M=More than bachelor's, B=Bachelor's degree, L=Less than bachelor's

Figure 12 (continued). Mean GPA by parental education and ethnicity, 1981–2002.

The somewhat uneven trend lines of Hispanic students whose parents had a B.A. or better are close to each other, with a generally increasing mean GPA after 1984. The mean GPAs of those students whose parents had not gained a B.A. were consistently about a tenth of a grade point below the other two groups. They experienced a rising mean GPA between 1984 and 1988 and then again between 1994 and 2002, with a widening of the gap most evident since 1988.

The trends among white students parallel those for the entire sample, with the students with the highest educated parents beginning to show rising mean GPAs after 1984. Students whose parents had attained only a B.A. began to have an increasing mean GPA after 1988. The upward trend began after 1991 for those whose parents had less than a B.A. educational level. As with the African Americans, the disparity in GPA level seems to have widened between those from parents without a B.A. and those students whose parents had a B.A. or better.

African Americans from all parental education levels have shown (see Figure 13) an increase in the mean SAT-V score between 1981 and 2002, although most of the gain occurred prior to 1988, with flat profiles since then. Asian Americans have distinct differences among the three parental education levels, with approximately a 50-point difference between students whose parents have more than a B.A. and those with only a B.A. There is a similar difference between those whose parents have a B.A. and those whose parents did not earn a bachelor's degree. Students from the highest parental education level showed a gain in mean SAT-V of 44 points during the period under study. Students whose parents did not earn a bachelor's degree showed only a modest gain in mean SAT-V scores. Hispanic students whose parents had a bachelor's degree or more showed improvement on the SAT-V during this period, while students whose parents had less than a B.A. remained at about the same level—with the result that the disparity increased between them and the Hispanic students from better-educated families. White students whose parents had more than a bachelor's degree showed a modest gain in the mean SAT-V score. The means for the other two groups of white students remained virtually unchanged during the 1981–2002 period.

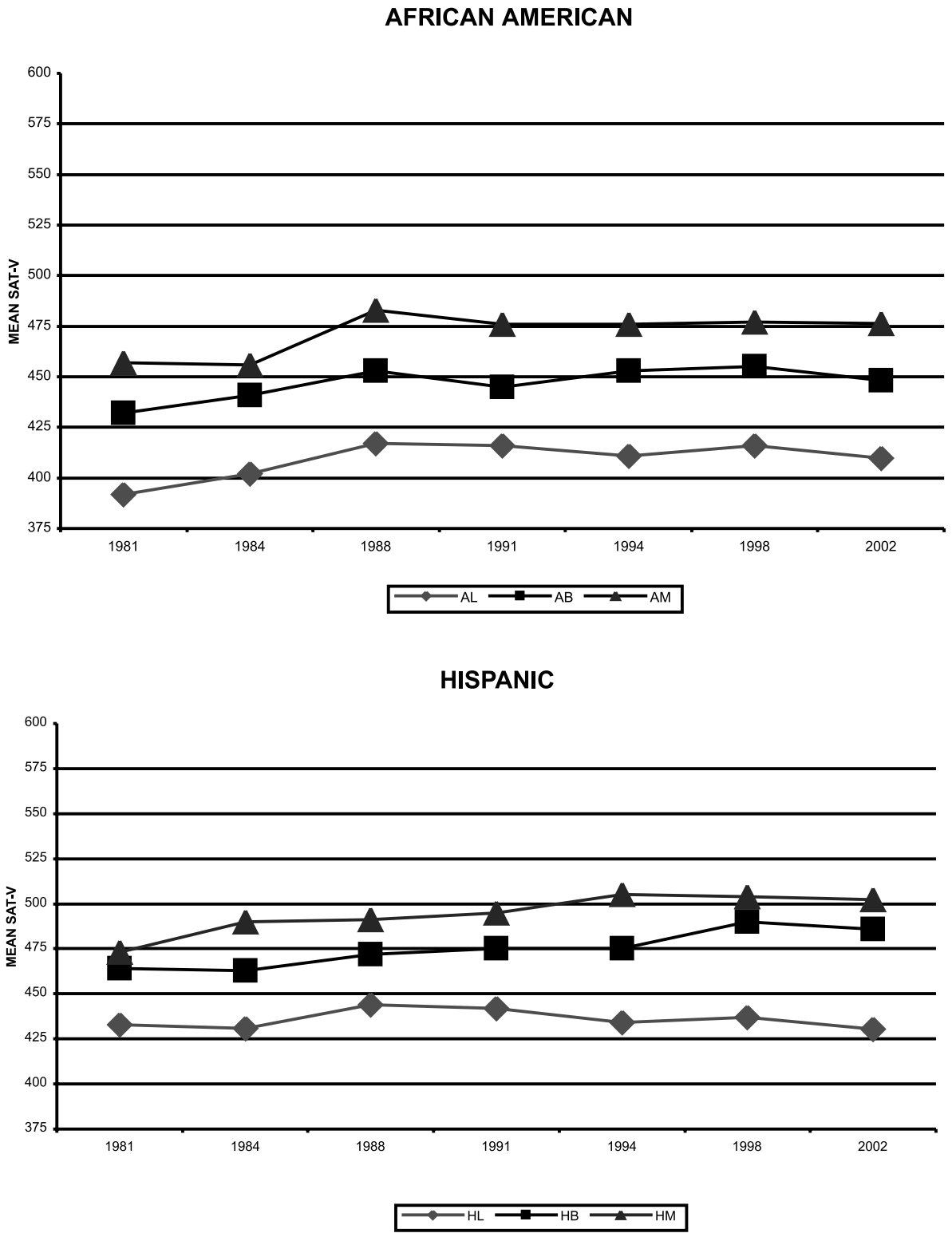
All groups showed some improvement on mean SAT-M during the 1981–2002 period as can be seen in Figure 14. African Americans from all three educational levels had significant gains ranging in magnitude from 24 to 36 points. In spite of these gains, however, the African Americans whose parents had more than a bachelor's degree had a lower SAT-M mean in 2002 than all other groups except Hispanic students whose parents had less than a bachelor's degree. For each level of parental education, Asian Americans scored higher than the other three ethnic groups. Asian Americans whose parents had more than a B.A. showed the greatest gain (54 points) of any group during the 1981–2002 period. Asian Americans whose parents had only a B.A. had a moderate gain in SAT-M scores, while those whose parents had less than a B.A. had but a modest gain. Hispanic students from all three levels of parental education showed some gain in the period, with those who had the best-educated parents showing the largest gain. Hispanics from the lowest educational level experienced a gain in the early years but have essentially unchanged means from 1988 onward. The white students with the best-educated parents had a substantial change in their SAT-M mean while those whose parents had less than a B.A. experienced only a minimal gain during the 1981–2002 period.

Appendix C illustrates trends in GPA and SAT scores for males and females within each ethnic group by parental education.

Regression Analyses

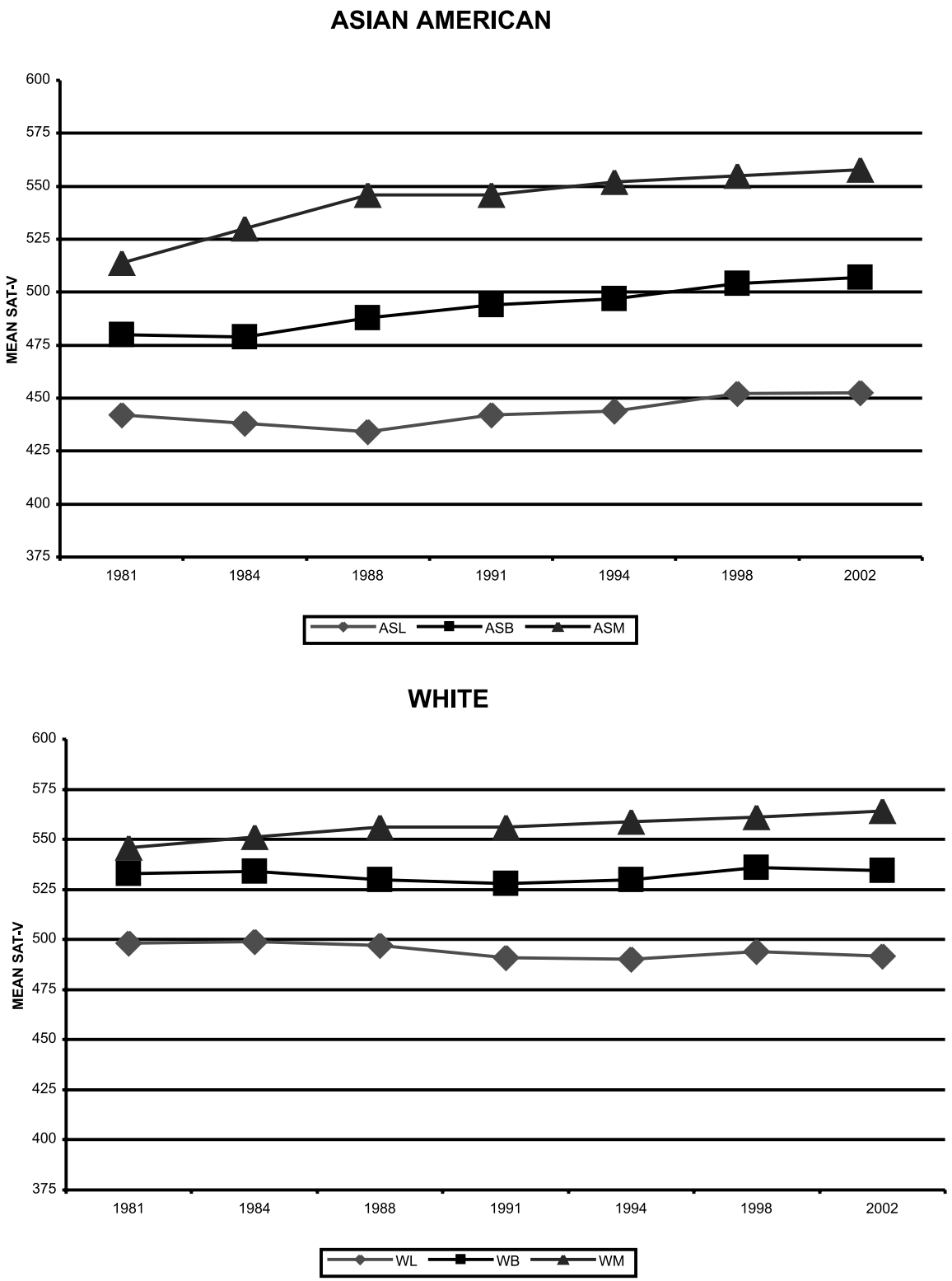
The analyses of gender, ethnicity, and parental education indicate that all three of these variables affect grades, separately and in combination. The independent effects of these variables, that is, the effects of each variable while simultaneously taking the others into account, can be determined using multiple regression analysis. Such analyses were performed for each 10 percent sample taken from 1981 through 1998. (Parental education was not available for the 1976 cohort and 2002 data were not available when this analysis was completed.)

In these analyses, gender, parental education, and ethnicity were used to predict grade point average. Gender and parental education were each represented by a single variable, gender with two categories and parental education with a three-part ordered variable representing the three educational levels. Ethnicity was represented by a set of dummy variables. If a person was a member of a particular group, that person was coded with a 1 for that variable and a 0 otherwise. Variables were formed for African American, Asian American, Hispanic, and Other Ethnic. Whites were represented by a 0 on all four of these variables and were not explicitly included in the analyses. The results are shown in Table 16.



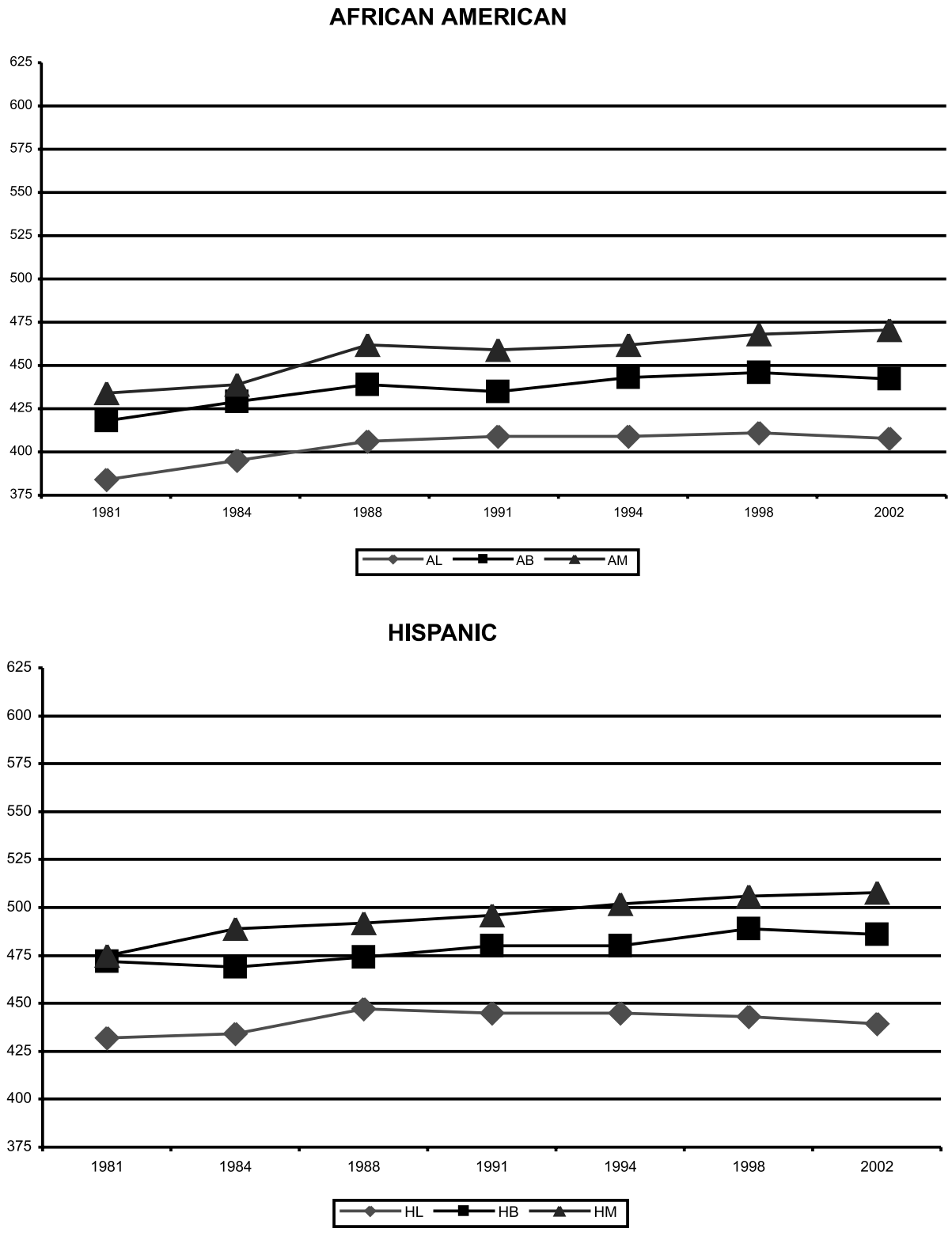
First letter(s)=ethnicity where A=African American, AS=Asian American, H=Hispanic, W=White
Last letter=parents' education where M=More than bachelor's, B=Bachelor's degree, L=Less than bachelor's

Figure 13. Mean SAT-V by parental education and ethnicity, 1981–2002.



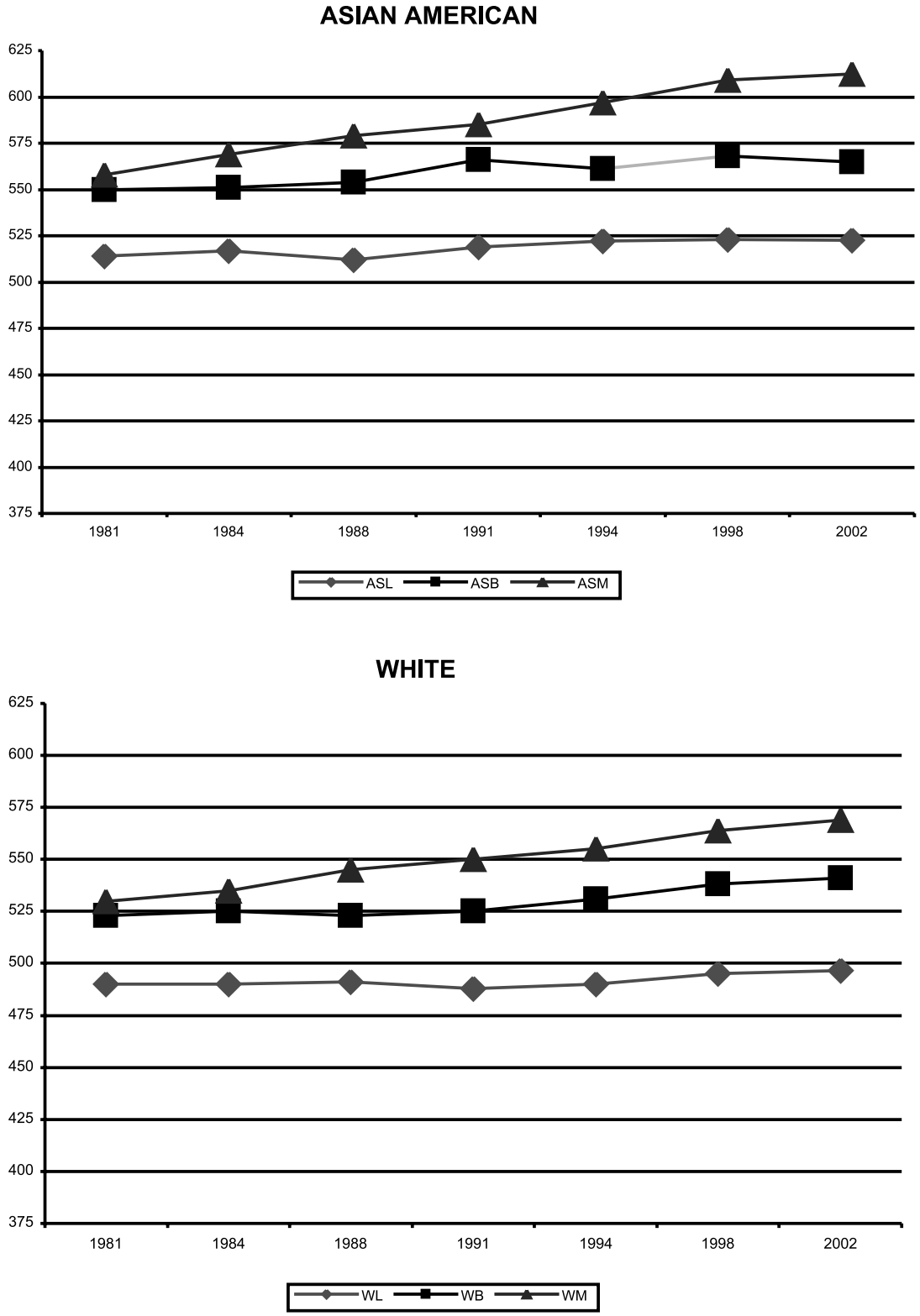
First letter(s)=ethnicity where A=African American, AS=Asian American, H=Hispanic, W=White
Last letter=parents' education where M=More than bachelor's, B=Bachelor's degree, L=Less than bachelor's

Figure 13 (continued). Mean SAT-V by parental education and ethnicity, 1981–2002.



First letter(s)=ethnicity where A=African American, AS=Asian American, H=Hispanic, W=White
Last letter=parents' education where M=More than bachelor's, B=Bachelor's degree, L=Less than bachelor's

Figure 14. Mean SAT-M by parental education and ethnicity, 1981–2002.



First letter(s)=ethnicity where A=African American, AS=Asian American, H=Hispanic, W=White
Last letter=parents' education where M=More than bachelor's, B=Bachelor's degree, L=Less than bachelor's

Figure 14 (continued). Mean SAT-M by parental education and ethnicity, 1981–2002.

TABLE 16

Regression Analysis of GPA and Background Variables, by Year

Year		*1981*	*1984*	*1988*	*1991*	*1994*	*1998*
% Variance		4.7	4.4	5.3	6.5	8.1	8.6
Loss from Omitting:							
Gender	remainder	3.7	3.4	4.6	5.6	6.7	7.1
	loss	1.0	1.0	0.7	0.9	1.4	1.5
Parent Education	remainder	3.9	3.5	3.7	4.3	5.3	6.0
	loss	0.8	0.9	1.6	2.2	2.8	2.6
Ethnic Group	remainder	2.4	2.3	2.9	3.7	4.9	5.1
	loss	2.3	2.1	2.4	2.8	3.2	3.5
Weights:							
Gender		.124	.120	.107	.115	.141	.145
Parent Education		.030	.032	.045	.051	.057	.057
African American		-.330	-.299	-.291	-.303	-.311	-.341
Asian American		.072	.116	.173	.156	.156	.104
Hispanic		-.051	-.043	.046	.025	-.012	-.044
Other Ethnic		-.141	-.131	-.101	-.076	-.069	-.104
Constant		2.715	2.691	2.633	2.615	2.607	2.678

This table shows first the percent of variance in the grade point average that is associated with the background variables. Interestingly, this percent increases from 4.7 in 1981 and 4.4 in 1984 to 8.6 in 1998. This suggests that the differences among these background variables are becoming larger. Stated another way, the grades one receives are increasingly associated with the background characteristics one brings to school.

The independent contribution of the different variables was assessed by removing them from the analysis. For example, when gender was removed, the regression used only parental education and ethnicity to predict grades. In 1981, the resulting percent of variance accounted for by these two variables was 3.7, so that the loss from removing gender was 1.0 percent. This is the independent contribution of gender to grades. Across the years, this contribution did not change greatly, increasing only slightly in 1994 and 1998. The independent contribution of parental education, that is, the loss from removing this variable from the analysis, was similar to that of gender in the early years, but increased to 2.8 percent in 1994 and 2.6 percent in 1998. The independent contribution of ethnic group was consistently higher than gender and parental education in each year. The loss from omitting the ethnic variables from the analyses increased from a low of 2.1 percent in 1984 to a high of 3.5 percent in 1998.

Also shown in the table are the unstandardized regression weights. For the dichotomous variables representing gender and ethnic group, these weights show the gain or loss in grade point average associated with these variables. For example, in 1981, the contribution of gender after taking parental education and ethnic group into account resulted in a grade point average that was .12 higher for girls. Taking parent education and gender into account, the independent contribution of being African American resulted in a grade point average that was lower by .33. Although the weights varied across years, no particular trend was seen for African Americans or Hispanics. The advantage of female and of Asian American students seemed to increase somewhat over this time period.

VI. Curriculum and Trends in Grade Point Averages

Because students report their grades by subject area on the SDQ, it is possible to examine whether all subject areas have contributed to the general rise in high school grade point averages. The mean grades (and standard deviation of the means) in each subject as reported by students in the sample are shown in Table 17. Note that this is not the cumulative GPA used in previous chapters; rather, it is the mean GPA within each subject.

As is very evident upon inspection of Figure 15, the comparative grading difficulty of the several subjects has been consistent across the years included in this study. Average grades in Social Sciences and History are consistently higher than in the other core subjects—except for grades in Arts/Music, which are substantially higher than other subjects throughout the period for which we have data. Science and Foreign Languages have had very similar grading patterns. Students consistently earned the lowest average grades in Mathematics.

TABLE 17

Trends in Mean GPA and Standard Deviations in Academic Subjects, by Year

Year	*1976*	*1981*	*1984*	*1988*	*1991*	*1994*	*1998*	*2002*
Arts/Music								
Mean				3.59	3.62	3.65	3.71	3.75
S.D.				.61	.60	.59	.56	.52
n				75,710	74,371	79,254	91,516	85,232
English								
Mean	3.13	3.10	3.07	3.07	3.09	3.15	3.22	3.29
S.D.	.82	.78	.78	.70	.71	.71	.70	.68
n	84,595	93,802	90,550	106,756	96,626	98,404	109,453	100,176
Foreign Language								
Mean	2.93	2.99	3.01	3.05	3.07	3.12	3.18	3.26
S.D.	.96	.95	.95	.86	.86	.86	.84	.79
n	74,607	81,712	79,652	99,588	91,052	93,971	105,330	96,656
Mathematics								
Mean	2.81	2.85	2.84	2.89	2.92	2.97	3.03	3.11
S.D.	.93	.92	.92	.82	.82	.82	.82	.79
n	83,640	93,100	90,120	106,500	96,099	98,298	109,471	99,699
Science								
Mean	2.97	2.97	2.95	2.99	3.02	3.08	3.16	3.23
S.D.	.81	.78	.77	.76	.76	.75	.75	.72
n	83,165	93,219	90,102	105,941	95,738	97,546	108,329	98,651
Social Science								
Mean	3.28	3.20	3.17	3.14	3.16	3.22	3.29	3.37
S.D.	.76	.79	.80	.75	.74	.73	.72	.68
n	79,768	92,443	89,409	106,537	96,265	98,133	108,477	99,190

Since 1988, all subjects have shown gradually rising average grades while, at the same time, the distribution of grades within subject has become more compressed as reflected in the shrinking standard deviations. For Social Sciences and History, however, this rise in the last decade follows a consistent drop from 1976 to 1988 so that the 1998 average grade was approximately the same as in 1976. The average grade continued to increase to 2002. English also experienced a decline in the average grade from 1976 to 1988, but the gain since then has resulted in a higher average grade in 2002 than was reported in 1976. Science had a consistent average grade through 1988 but has risen since then. There has been a gradual rise in average grades in Mathematics and Foreign Languages from 1976 onward. Looking across the entire 26 year period under consideration, the average grade in Foreign Languages has increased by about 0.33 of a grade point; the average grade in Mathematics has increased about 0.30 and Science grades by 0.26. English and Social Science grades have shown only small changes. Clearly, the largest gain in grades appears to be between 1988 and 2002, across subjects.

Table 18 shows that when the dispersion of the grades is taken into account in calculating the effect size, one still finds that the greatest change in mean GPA occurred in Foreign Languages, followed by Mathematics and Science. Although the effect size for these subjects would be classified as "medium," they are considerably greater than the effect sizes for English and Social Science and History. This increase in the grades awarded occurred during a period when greater numbers of students were taking more foreign language and more mathematics

TABLE 18

Changes in GPA by Academic Subject Between 1976 and 2002

	1976			*2002*				*Pooled*	*Effect*
1976–2002	*Mean*	*S.D.*	*N*	*Mean*	*S.D.*	*N*	*Difference*	*S.D.*	*Size*
English	3.13	0.82	84,595	3.29	0.68	100,176	0.16	0.75	0.21
Foreign Language	2.93	0.96	74,607	3.26	0.79	96,656	0.33	0.87	0.38
Mathematics	2.81	0.93	83,640	3.11	0.79	99,699	0.30	0.86	0.35
Science	2.97	0.81	83,165	3.23	0.72	98,651	0.26	0.76	0.34
Social Science	3.28	0.81	83,165	3.37	0.68	99,190	0.09	0.74	0.12

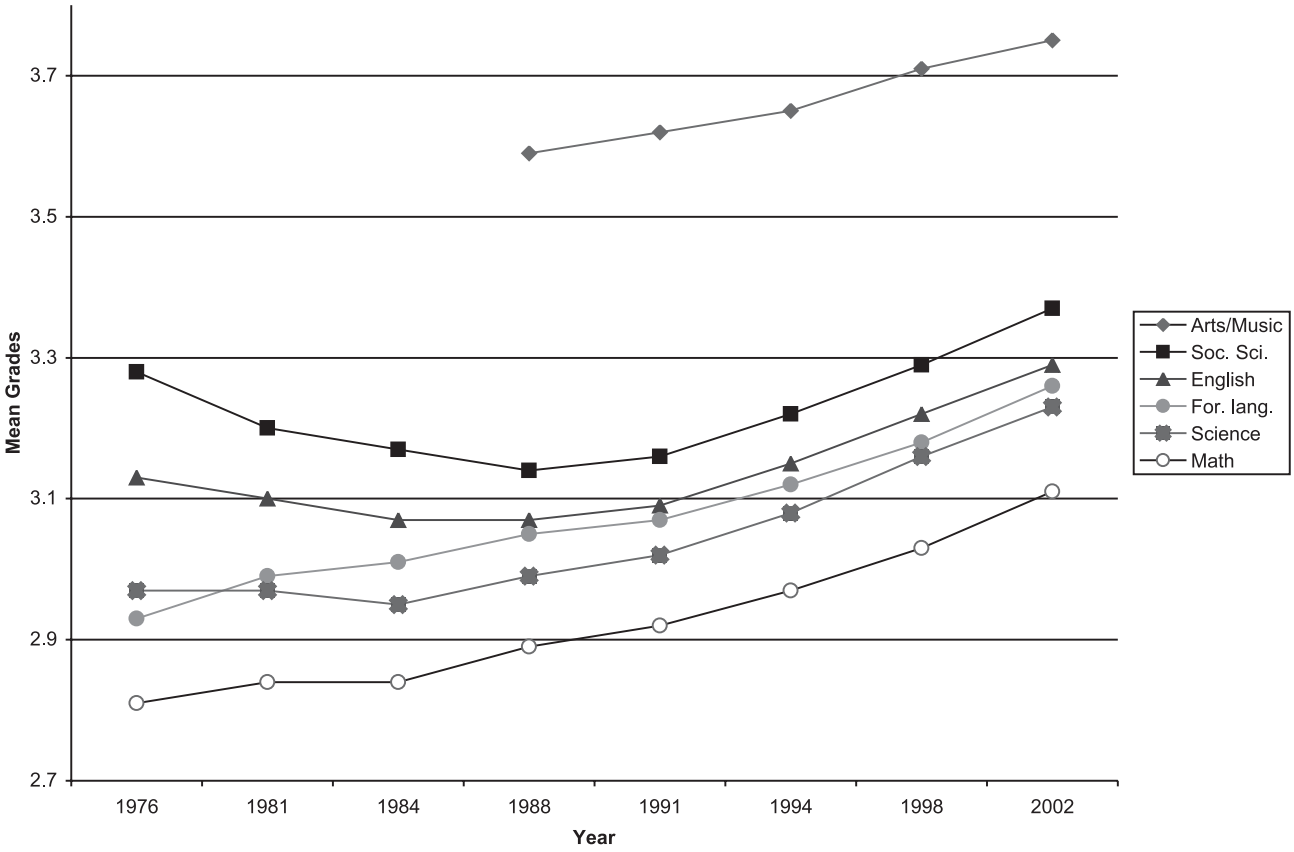


Figure 15. Mean grades by academic subject, 1976–2002.

courses. When a greater segment of the population takes a particular subject, one might expect the grade average to decrease. However, these data suggest that the additional students in foreign languages, mathematics, and science have tended to earn higher grades. It is noteworthy that these three subjects have experienced greater participation by females since 1976, as can be seen in Table 19.

Table 19 shows the changes between 1976 and 2002 in the average years of study taken in a subject area. English had no significant change. Almost every college-bound student took four years of English in 1976 and that continues to remain true. Foreign Languages have seen an increase of about an additional half-year for both females and males. In Mathematics, women, on average, are taking over a half-year of additional work while men, starting from a higher level of enrollment, show a smaller increase. Women, on average, are taking an additional half-year of Science while there has been only a small increase in the number of science courses taken by men. Both men and women have moved from taking about three years of Social Sciences to taking about three and a half years in this subject area.

English and Social Sciences traditionally have been required of all students. Smaller increases in mean grades suggest that although higher grades are consistently provided in English and Social Studies than other subject areas, grading standards have not changed significantly over the two decades included in this study. Much of the increase in the overall GPA during this time is attributable to higher grades being awarded in the traditionally "tougher" disciplines.

In 2001 and 2002, a substantial number of students began registering for the SAT online and completed the SDQ online. Due to differences in the way Web and paper

TABLE 19

Average Years of Study by Subject, College-Bound Seniors, 1976 and 2002

	1976		*2002*		*Change*	
	Females	*Males*	*Females*	*Males*	*Females*	*Males*
English	4.0	3.9	3.9	3.8	-.1	-.1
Foreign Language	2.4	2.1	2.9	2.7	.5	.6
Mathematics	3.2	3.6	3.8	3.9	.6	.3
Science	2.9	3.3	3.4	3.4	.5	.1
Social Science	3.1	3.2	3.6	3.5	.5	.3

Source: *College-Bound Seniors 1976*, *College-Bound Seniors 2002*. New York: College Board

registrants responded to the SDQ items, years of study data for Foreign and Classical Languages, Mathematics, Natural Sciences, and Social Sciences and History may be slightly inflated. These questions were abbreviated slightly on the Web to speed up the registration process. English and Arts and Music were not affected. This anomaly was present for students who registered online between late May 2000 and mid-August 2001 (when it was found and corrected). Note that students can return to their online SDQ throughout their high school career, so only those respondents who did not come back to update their information after the fix was deployed in these areas would have had information collected differently than paper registrants. Even with the data anomaly present, comparison with 1998 data indicates the data anomaly had little or no effect on average years of study for these subjects. (Average years of study for the men and women of 1998 cohort were 2.6 and 2.8 respectively for Foreign and Classical Languages; 3.8 and 3.8 for Mathematics; 3.4 and 3.4 for Natural Sciences; and 3.4 and 3.5 for Social Sciences and History.)

VII. Type of Community and Academic Performance

Beginning in 1988, school-provided data are available about the type of community in which the student's school is located. It is important to bear in mind that there can be a wide variety of schools within a particular type of community. For example, large cities may include huge public high schools and small, highly selective independent schools. Rural communities may include both regional high schools and exclusive independent boarding schools. Despite the variety within each type of community, it is instructive to look at the differences among community types with regard to the academic indices.

Grade Point Average

Table 20 provides the mean GPAs by community type for the five samples that include this information. The level and trajectory of GPA are almost identical for Small/Mid-size City and Rural students. The GPAs of Suburban students are somewhat lower but have increased at the same pace as Rural students over the period for which data are available. GPAs in Large Cities have shown the smallest increase and the gap in mean GPA between Large City students and all others has widened.

TABLE 20

Mean GPA by Location of School, by Year

	1988	*1991*	*1994*	*1998*	*2002*	*Change 1988–2002*
Large City	3.01	3.02	3.07	3.11	3.24	+.23
Small/ Mid-Size City	3.05	3.08	3.13	3.21	3.35	+.30
Suburban	3.00	3.04	3.11	3.19	3.32	+.32
Rural	3.05	3.07	3.13	3.21	3.37	+.32

TABLE 21

Mean SAT-V by Location of School, by Year

	1988	*1991*	*1994*	*1998*	*2002*	*Change 1988–2002*
Large City	498	490	489	492	491	-7
Small/ Mid-size City	509	503	502	508	508	-1
Suburban	522	517	519	524	524	+2
Rural	501	492	493	497	495	-6

SAT Verbal

When examined by the type of community in which the school is located, the pattern for SAT-V scores (Table 21) is quite different than for GPA. Students whose school is located in the suburbs have consistently had a mean SAT-V that is 12 to 17 points higher than the mean for the next highest group—Small/Mid-size Cities. Each group showed a dip in average SAT-V scores between 1988 and 1991, but only the Suburban and Small/Mid-Size City groups had regained the 1988 level by 1998. Average verbal scores in 2002 either stayed the same as 1998 or went down one or two points.

SAT Mathematical

As can be seen in Table 22, the trends in the SAT-M scores are somewhat different. While Suburban and Small/Mid-Size City groups are the highest performers (in that order) on SAT-M as well as SAT-V, the Large City cohort does better on SAT-M than do students from rural schools. All groups have shown some improvement in mean SAT-M during the 1988–2002 period, but the gain among Suburban students has been strikingly greater than for others.

TABLE 22

Mean SAT-M by Location of School, by Year

	1988	*1991*	*1994*	*1998*	*2002*	*Change 1988–2002*
Large City	496	494	496	501	503	+7
Small/ Mid-size City	503	502	504	510	514	+11
Suburban	519	520	524	533	538	+19
Rural	492	486	492	495	499	+7

TABLE 23

Mean GPA by Public and Nonpublic School Students, by Year

	1981	*1984*	*1988*	*1991*	*1994*	*1998*	*2002*	*Change 1981–2002*
Public	3.02	3.01	3.03	3.05	3.11	3.18	3.31	+.29
Nonpublic	2.97	2.97	3.02	3.05	3.13	3.20	3.35	+.38

VIII. Type of School and Academic Performance

Since the SDQ was introduced in 1971-72, data have been collected about whether a student attended a public secondary school. Through the 1984 sample, the data consist of a student-reported indication of attendance at a public or a nonpublic school. The data available from the 1988 sample forward are reported by the school using the categories of "public," "independent," "religious," and "other" taken from the High School Profile. As with community type, schools which classify themselves within the same category can vary widely. However, there are some interesting differences among school types with regard to the indices of academic performance.

Grade Point Average

Table 23 provides the mean GPAs for students attending schools classified as public or nonpublic. For the years 1988–2002, the nonpublic means represent the pooled (weighted average) for students attending "independent," "religious," and "other" nonpublic schools.

Table 23 illustrates that students enjoyed a rising grade average regardless of the type of school attended. In the earlier samples, the nonpublic schools lived up to the image that they had more demanding grading standards. However, the nonpublic students in the latter samples had higher GPAs than did the public school students in those samples. Table 24 presents the GPAs when the nonpublic schools are subdivided into "independent," "religious," and "other" schools. "Independent" includes such schools as independent, not religiously affiliated, home school associations, charter schools, and correspondence schools. "Religious" includes such schools that note themselves as "independent, Catholic," as well as those governed by an archdiocese. "Other" includes such schools as other independent, religiously affiliated.

Table 24 and Figure 16 make evident that the mean grade point average in all types of high schools had reached the B+ level by 2002. While there had been small differences in earlier samples, the means have converged to the 3.31–3.34 range. The greatest change in mean GPA was among the "Independent" nonpublic schools, with a third of a grade point change between 1988 and 2002. "Religious" schools showed the second greatest increase. It seems clear that higher grades are being awarded in all of secondary education.

SAT Verbal

Table 25 provides the mean SAT-V scores for students in public schools and students in all types of nonpublic schools. There was virtually no change in the mean verbal scores of public school students during the period under study. On the other hand, the mean verbal scores of students in nonpublic schools were 10 points higher than the public school students in 1981 and widened the difference over the period with an increase in 25 points between 1981 and 2002.

Table 26 reveals the differences among students from different types of nonpublic school. Those that classify themselves as "independent" consistently have higher mean verbal scores than any other group of students. The largest increase in verbal scores from 1988 to 2002 was for those students classified as "religious," who increased 14 points; public school students decreased by 4. These patterns are illustrated in Figure 17.

TABLE 24

Mean GPA by School Type, by Year

	1981	*1984*	*1988*	*1991*	*1994*	*1998*	*2002*	*Change 1981–2002*
Public	3.02	3.01	3.03	3.05	3.11	3.18	3.31	+.29
Nonpublic	2.97	2.97						NA
Independent			3.00	3.06	3.14	3.19	3.33	+.33
Religious			3.01	3.02	3.11	3.18	3.32	+.31
Other			3.08	3.13	3.20	3.29	3.34	+.26

TABLE 25

Mean SAT-V by Public and Nonpublic School Students, by Year

	1981	*1984*	*1988*	*1991*	*1994*	*1998*	*2002*
Public	503	504	506	499	498	503	502
Nonpublic	513	520	525	523	530	533	538

TABLE 26

Mean SAT-V by School Type, by Year

	1981	*1984*	*1988*	*1991*	*1994*	*1998*	*2002*
Public	503	504	506	499	498	503	502
Nonpublic	513	520					
Independent			546	548	550	553	551
Religious			516	513	521	523	530
Other			530	525	529	535	542

TABLE 27

Mean SAT-M by Public and Nonpublic School Students, by Year

	1981	*1984*	*1988*	*1991*	*1994*	*1998*	*2002*
Public	497	500	505	503	505	511	513
Nonpublic	499	503	508	510	520	530	538

SAT Mathematical

Table 27 shows a somewhat different pattern for SAT-M. During the period from 1981 through 1988, the mean SAT-M scores were very similar for public and nonpublic students. Beginning with the 1991 sample, there has been a widening difference between the two groups. Over the total period, the mean SAT-M for public school students rose by 16 points; among nonpublic students, the gain was 39 points.

Table 28 and Figure 17 demonstrate the diversity within the nonpublic school population. Students from schools that describe themselves as "independent" consistently do much better on SAT-M than all other groups. The "public" group has had modest improvement in mean SAT-M scores. Since 1988, all of the nonpublic "religious," "independent," and "other" groups have gained more points, 30 points, 27 points, and 28 points, respectively.

We have seen that the type of school attended by a student is related to the level on each of the academic indices and to whether there has been a change in the

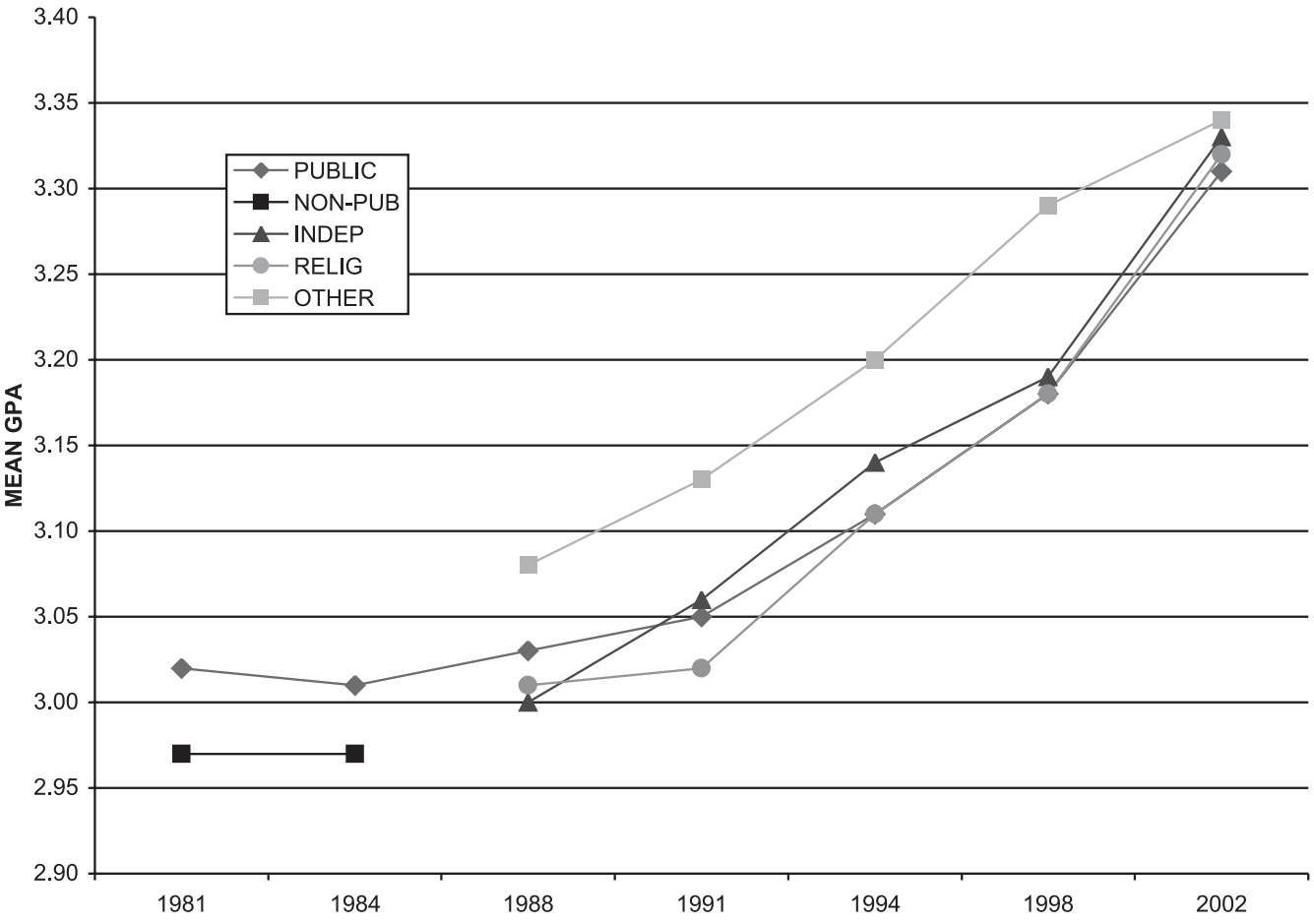


Figure 16. Mean GPA by school type, 1981–2002.

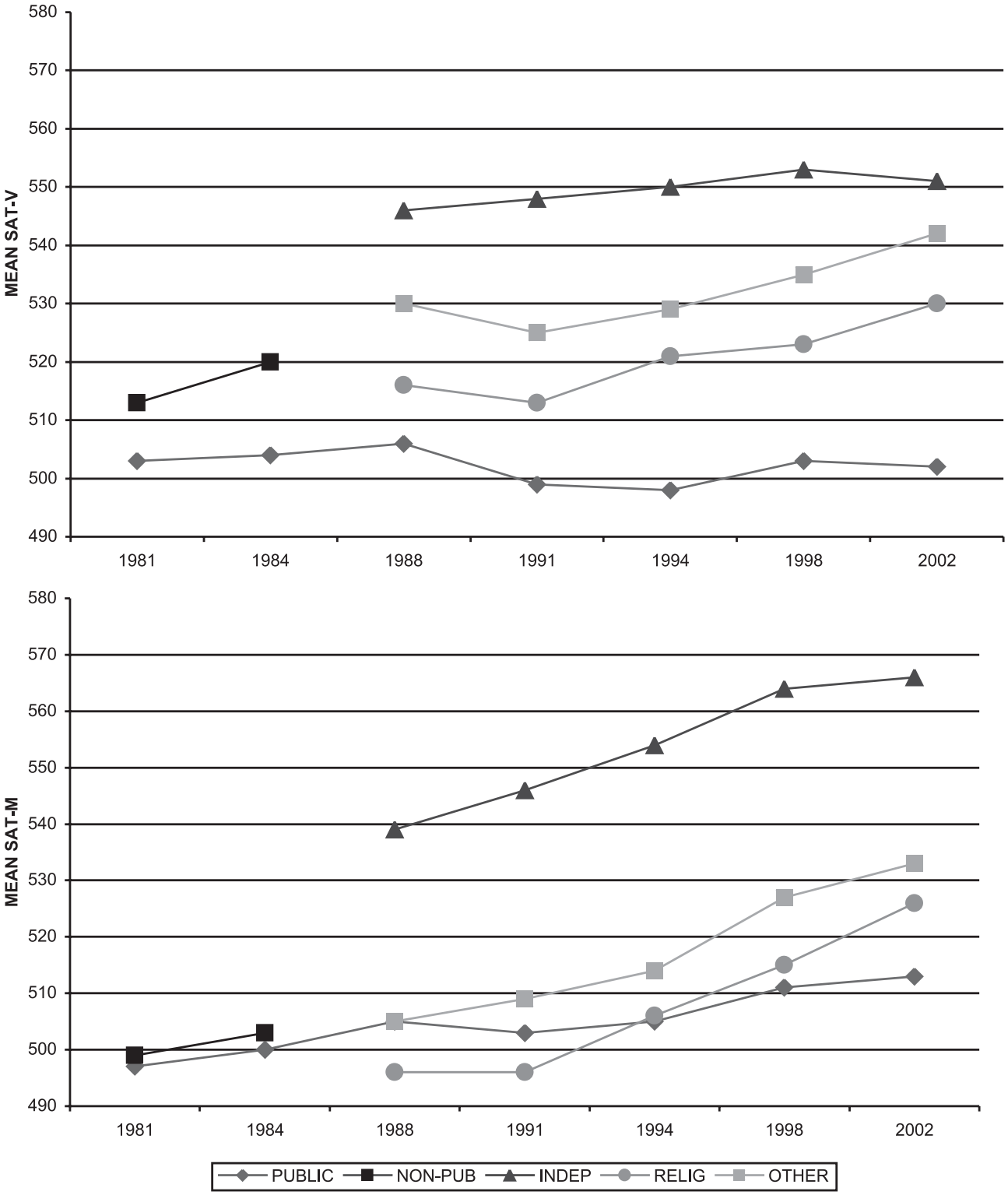


Figure 17. Mean SAT scores by school type, 1981–2002.

TABLE 28

Mean SAT-M by School Type, by Year

	1981	*1984*	*1988*	*1991*	*1994*	*1998*	*2002*
Public	497	500	505	503	505	511	513
Nonpublic	499	503					
Independent			539	546	554	564	566
Religious			496	496	506	515	526
Other			505	509	514	527	533

average level on that index. In general, students in nonpublic schools have experienced a greater increase on all academic indices, with the "other" and "independent" category having the highest GPAs and the "independent" category having the highest test scores.

IX. Summary: Who Benefited from the Higher Grades and Test Scores

The grade point averages of college-bound students have increased over the more than two decades included in this study. During the same time, there has been little to no change in the average SAT-V score earned by these students, although the SAT-M scores have generally increased during this period. However, if we delve beneath these overall trends, we observe considerable variations among different subgroups of the college-bound senior cohort. In general, we find that students who come from more privileged backgrounds have experienced the largest gains on these academic indices.

During the period under study there have been important changes in the makeup of the college-bound senior cohort. The proportion of females has grown, while the proportion of white students has declined. Asian and Hispanic students have increased their representation among the college-bound. Overall, a greater proportion of the college-bound have their sights set on an advanced degree.

Nineteen-eighty-three saw the publication of two national reports that called for American students to engage in more academic study. In *A Nation at Risk* (1983), the National Commission on Excellence recommended that state and local high school graduation requirements be strengthened and proposed a minimum number of years of study in several academic areas. Independently, the College Board had engaged in a series of dialogues with educators and academics around the country. The resulting consensus was published in *Academic Preparation for College: What Students Need to Know and Be Able to Do* (College Board, 1983). This report identified a series of Basic Academic Competencies as well as describing six Basic Academic Subjects. One can argue that these and other calls for a greater emphasis on academic preparation led to the observed change in the enrollment in various subjects over the subsequent years. There was an overall increase in the average number of years that college-bound students studied Foreign Languages, Mathematics, Science, and Social Science. Only English showed no increase—for the simple reason that almost all college-bound students were already taking four years. The average years of foreign language study increased by a full half-year. Particularly striking is the increase of female enrollment in math and science; by the end of the period, women were taking virtually the same amount of mathematics and science as the men. Along with the increased enrollments, the grades earned in Foreign Languages, Mathematics, and Science increased a modest amount during the 1976–2002 period. The average grades earned in English and Social Sciences showed virtually no change.

Although they do not report the highest GPAs, students whose schools are located in suburban areas were tied (with rural students) for the greatest increase in their average grades. These same students also showed the greatest gain on SAT-M. Suburban students had constant SAT-V averages, while students whose schools were located in either rural, large city, or small and mid-size settings showed a decline in SAT-V.

Nonpublic school students showed the greatest gain in their GPAs during these two decades. They also widened their advantage on the SAT-V when compared with public school students. Students from all types of schools showed gains on SAT-M but those from Independent schools both had the highest average scores and showed the greatest gain.

Personal characteristics of students also differentiated among those who had noticeable gains on the academic indices and those who had little or no gain. We examined changes in the academic indices for students classified by gender, ethnicity, and parental education and the several combinations of these variables.

Grade Point Average

During the 1981–2002 period for which we have data on all three personal variables, the overall gain in mean GPA

was .31 of a grade point. Throughout the period, females had higher average GPAs and experienced a gain of .33 of a grade point, slightly greater than the .30 experienced by males. Asian American students experienced the greatest increase in GPA during this period, .32 of a grade point. African American had gains of .27 of a grade point. Hispanic students experienced the smallest increase, .22 of a grade point. As parental education increased, so did the gain in students' GPA. Students whose parents had more than a bachelor's degree experienced a gain of .35 of a grade point in contrast to the .23 experienced by students whose parents had less than a bachelor's. In every racial-ethnic group, the disparity in GPA widened between those students whose parents had at least a bachelor's degree and those whose parents had not attained a bachelor's.

However, there are sizeable variations among the groups when classified by gender, by ethnicity, and by parental education. White females whose parents had earned more than a B.A. experienced a gain of .38 of a grade point, while Hispanic and African American males whose parents had less than a B.A. experienced a gain of .13 and .16 of a grade point, respectively. Table 29 illustrates this variation in the gains in mean GPAs for the 24 groups. All Asian American females, African American and white females whose parents had a bachelor's degree or higher, and white males whose parents had more than a bachelor's degree experienced above average gains in mean GPA. By contrast, a number of groups experienced a quarter of a point gain or less.

In addition to Hispanic and white males whose parents had less than a bachelor's degree, Asian American and African American males and Hispanic females whose parents had a bachelor's degree or less saw gains in mean GPA that were considerably below average, suggesting that their comparative position in the competition for admission to college worsened. It is also important to note that the gains, such as they were, occurred only in more recent years for these groups.

In addition to changes in means, another indicator of the degree of change is the Effect Size Index originally proposed by Cohen (1988). This provides a standardized difference that accounts for the variance of the grade distributions in judging whether two

TABLE 29

Changes in Mean GPA by Ethnicity, Gender, and Parental Education, 1981–2002 (Sorted by Effect Size)

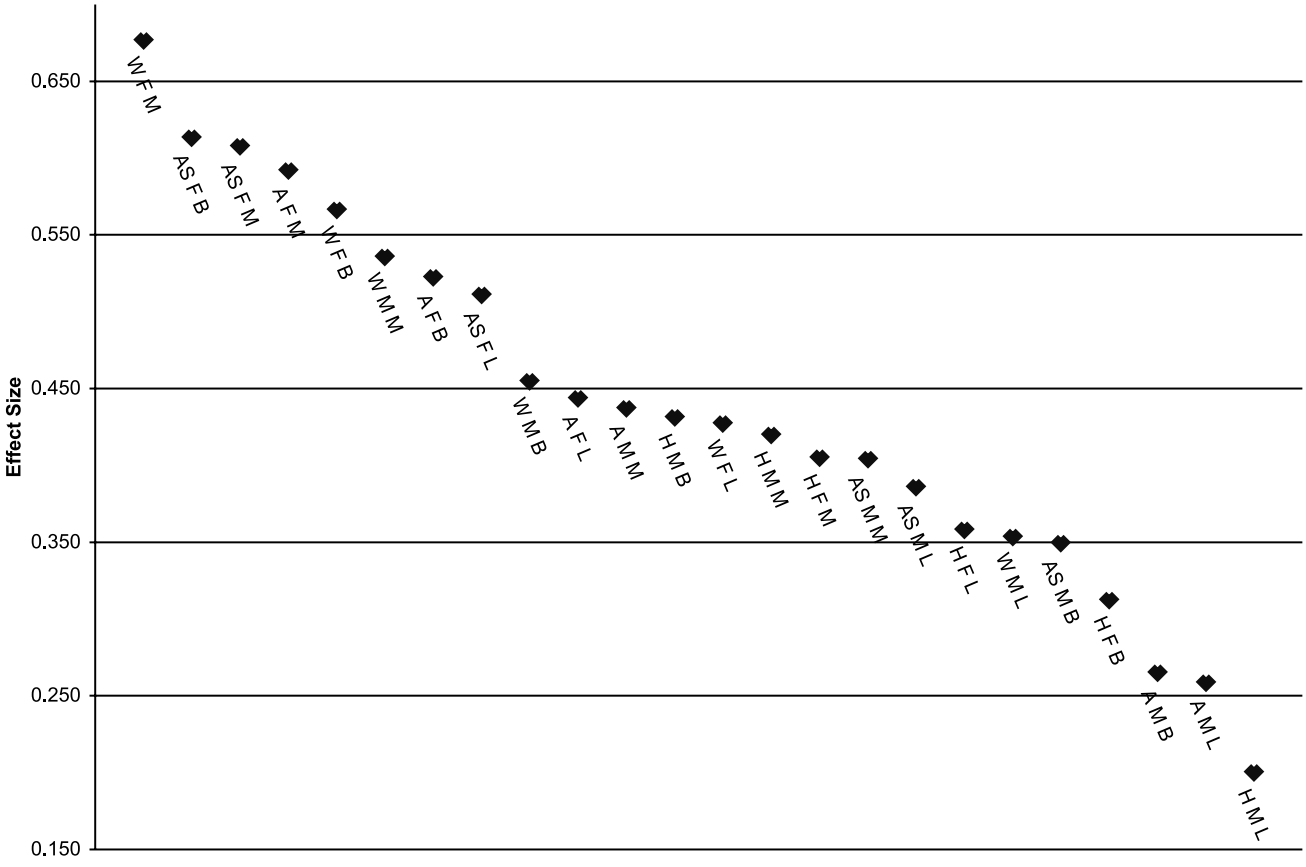
	1981			*2002*			*GPA*		
	Mean GPA	*S.D.*	*N*	*Mean GPA*	*S.D.*	*N*	*Change*	*Pooled S.D.*	*Effect Size*
W F M	3.19	0.58	12,263	3.57	0.54	10,947	0.38	0.56	0.677
AS F B	3.21	0.57	253	3.55	0.55	995	0.34	0.55	0.614
AS F M	3.30	0.58	453	3.63	0.53	1,365	0.33	0.54	0.608
A F M	2.86	0.60	709	3.23	0.64	1,123	0.37	0.62	0.592
W F B	3.17	0.57	6,735	3.49	0.56	8,323	0.32	0.56	0.567
W M M	3.07	0.62	11,571	3.4	0.61	10,316	0.33	0.62	0.536
A F B	2.82	0.57	373	3.15	0.65	1,188	0.33	0.63	0.523
AS F L	3.06	0.64	738	3.38	0.62	1,975	0.32	0.63	0.512
W M B	3.03	0.61	6,738	3.31	0.62	7,079	0.28	0.62	0.455
A F L	2.74	0.58	3,408	3.01	0.63	4,294	0.27	0.61	0.444
A M M	2.72	0.61	612	3.00	0.66	910	0.28	0.64	0.438
H M B	2.96	0.56	128	3.23	0.64	577	0.27	0.63	0.432
W F L	3.08	0.58	18,890	3.33	0.59	14,311	0.25	0.58	0.428
H M M	3.05	0.57	172	3.30	0.60	789	0.25	0.59	0.420
H F M	3.16	0.52	223	3.39	0.58	832	0.23	0.57	0.405
AS M M	3.25	0.64	494	3.50	0.61	1,386	0.25	0.62	0.405
AS M L	2.99	0.64	712	3.24	0.65	1,558	0.25	0.65	0.386
H F L	2.95	0.59	1,010	3.17	0.62	3,853	0.22	0.61	0.358
W M L	2.94	0.61	16,153	3.16	0.64	10,289	0.22	0.62	0.354
AS M B	3.16	0.66	262	3.38	0.62	960	0.22	0.63	0.350
H F B	3.19	0.55	105	3.37	0.58	620	0.18	0.58	0.313
A M B	2.72	0.61	298	2.89	0.65	906	0.17	0.64	0.266
A M L	2.61	0.59	2,071	2.77	0.64	2,599	0.16	0.62	0.259
H M L	2.92	0.61	853	3.05	0.66	2,515	0.13	0.65	0.201

First letter(s)=Ethnicity where A=African American, AS=Asian American, H=Hispanic, W=White
Middle letter=Gender where F=Female and M=Male
Last letter=Parents' education where M=More than bachelor's, B=Bachelor's Only, L=Less than bachelor's

groups differ. The Effect Size Index shown in Tables 29, 30, and 31 as well as in Figure 18 is the difference between the 2002 and the 1981 means divided by the pooled standard deviation of the two groups. Cohen suggests that effect size statistics below 0.2 are small, that those in the 0.3 to 0.5 range are medium, and those over 0.5 are large (pp. 24–25). Using these standards, the difference in mean GPA between 1981 and 2002 is large for all Asian American females, for African American and white females whose parents had a bachelor's degree or higher, and white males whose parents had more than a bachelor's. Conversely, the effect size for the groups at the bottom of Tables 30 and 31 would be categorized as small to trivial. The effect size index orders the groups about the same as the raw difference between mean GPAs. White, Asian American, and African American females from highly educated families show the greatest effect. The effect sizes of changes in Mean GPA are shown in Figure 18.

SAT Verbal

When we turn to changes in the SAT-V scores, there was little change for females or males overall. African Americans and Asian Americans had gains on the SAT-V of 24 and 29 points respectively. In both of these groups, the women experienced greater gains than the men. Hispanic women also showed a sizeable gain. Students whose parents had more than a bachelor's degree showed gains on SAT-V. The performance of everyone else declined or was unchanged. Table 30 shows the changes in mean SAT-V from 1981 to 2002 for the 24 "Ethnicity by Gender by Parental Education" groups of students. These are ordered by the effect size index. Asian American women whose parents have a B.A. or more show the greatest gain, followed by Asian American men whose parents had more than a bachelor's degree. At the other end of the distribution, we find white men and women and Hispanic men whose



First letter(s)=Ethnicity where A=African American, AS-Asian American, H-Hispanic, W-White
Middle letter=Gender where F=Female and M=Male
Last letter=Parental Education where M=More than bachelor's, B=Bachelor's only, L=Less than bachelor's

Figure 18. Changes in mean GPA 1981–2002, effect sizes by ethnicity, gender, and parental education.

TABLE 30

Changes in Mean SAT-V by Ethnicity, Gender, and Parental Education, 1981–2002 (Sorted by Effect Size)

	1981			*2002*			*Verbal*		
	Mean SAT-V	*S.D.*	*N*	*Mean SAT-V*	*S.D.*	*N*	*Change*	*Pooled S.D.*	*Effect Size*
AS F M	506	130	436	558	119	1,356	52	121.68	0.427
AS F B	468	125	242	508	111	981	40	113.77	0.352
AS M M	520	126	467	558	122	1,362	38	123.02	0.309
A F B	426	102	349	454	94	1,183	28	95.82	0.292
H M M	478	108	166	509	107	778	31	107.18	0.289
A F L	388	94	3,116	413	91	4,279	25	92.26	0.271
H F M	470	97	212	496	107	824	26	104.95	0.248
H M B	465	108	121	489	103	572	24	103.87	0.231
W F M	542	101	11,806	563	97	10,879	21	99.08	0.212
A F M	458	109	662	480	105	1,120	22	106.49	0.207
H F B	464	97	97	483	98	615	19	97.86	0.194
W M M	549	101	11,273	565	101	10,261	16	101.00	0.158
AS M B	491	127	250	506	110	947	15	113.55	0.132
A M M	458	104	571	471	104	905	13	104.00	0.125
AS M L	439	116	660	451	115	1,536	12	115.30	0.104
H F L	420	97	902	428	94	3,820	8	94.57	0.085
AS F L	445	120	696	454	112	1,957	9	114.10	0.079
A M L	399	97	1,849	404	95	2,585	5	95.83	0.052
W F B	530	97	6,527	535	94	8,285	5	95.32	0.052
A M B	440	95	284	440	100	902	0	98.80	0.000
W M B	536	95	6,537	534	95	7,047	-2	95.00	-0.021
W F L	494	95	17,982	490	90	14,272	-4	92.79	-0.043
W M L	502	95	15,506	494	94	10,248	-8	94.60	-0.085
H M L	448	101	785	435	99	2,491	-13	99.48	-0.131

First letter(s)=Ethnicity where A=African American, AS=Asian American, H=Hispanic, W-White
Middle letter=Gender where F=Female and M=Male
Last letter=parents' education where M=More than bachelor's, B=Bachelor's degree, L=Less than bachelor's

parents have less than a B.A. These three groups experience modest declines in mean SAT-V scores over the 1981–2002 period.

SAT Mathematical

Women experienced about twice as great a gain on the SAT-M score as did men. This was true for each ethnic group. Asian Americans experienced the greatest point gain of the four ethnic groups. The greatest gains were for students whose parents had more than a B.A., especially females, who saw a 44-point rise. Students whose parents had less than a B.A. saw very little gain in their SAT-M scores. As might be expected, Asian Americans whose parents had more than a B.A. had a sizable gain of 54 points; whites and African Americans in this educational level saw gains of 39 and 36 points, respectively. Table 31 presents the data, ordered by effect size, for the 24 subgroups. Unsurprisingly, Asian American women whose parents had more than a B.A. experienced the greatest gain (69 points) on SAT-M, followed by white women from this same educational level and African American women whose parents had a B.A. or better. The other end of the distribution is dominated by students whose parents had less than a bachelor's degree, such as white, Hispanic, and Asian American men.

Summary

Changes in GPA and test scores occurred in the context of changes in the typical curriculum of college-bound students. Important increases in the amount of foreign languages, mathematics, and science studied in high school, especially among women, occurred during the time period under study. Overall, the GPA gap has widened slightly since 1976, with students from families with higher levels of education and students at the highest grade levels showing earlier and greater increases in average grades than other groups of students. Note that almost half of the overall increase in GPA occurred between 1998 and 2002. Asian American students had the largest gain in average grades and underrepresented minorities showed the smallest gain in grades. The children of well-educated parents also showed larger gains in their test scores, although test score gains were relatively smaller

TABLE 31

Changes in Mean SAT-M by Ethnicity, Gender, and Parental Education, 1981–2002 (Sorted by Effect Size)

	1981			*2002*			*Mathematical*		
	Mean SAT-M	*S.D.*	*N*	*Mean SAT-M*	*S.D.*	*N*	*Change*	*Pooled S.D.*	*Effect Size*
AS F M	529	104	436	598	119	1,356	69	115	0.598
W F M	510	90	11,806	553	98	10,879	43	94	0.458
A F M	424	95	662	463	103	1,120	39	100	0.390
A F B	403	90	349	437	92	1,183	34	92	0.371
AS M M	584	104	467	626	119	1,362	42	115	0.365
W M M	551	98	11,273	586	104	10,261	35	101	0.347
H F M	456	84	212	490	107	824	34	102	0.332
A F L	375	83	3,116	402	87	4,279	27	85	0.316
A M M	445	107	571	479	113	905	34	111	0.307
W F B	503	88	6,527	527	94	8,285	24	91	0.263
H M M	499	97	166	527	110	778	28	108	0.260
H F B	453	79	97	471	95	615	18	93	0.194
H F L	410	91	902	427	91	3,820	17	91	0.187
AS F B	531	98	242	551	115	981	20	112	0.179
A M L	400	97	1,849	417	95	2,585	17	96	0.177
AS F L	490	97	696	509	114	1,957	19	110	0.173
W M B	544	93	6,537	558	100	7,047	14	97	0.145
H M B	488	101	121	502	108	572	14	107	0.131
W F L	471	88	17,982	482	90	14,272	11	89	0.124
A M B	437	92	284	449	101	902	12	99	0.121
AS M B	568	107	250	580	114	947	12	113	0.107
W M L	512	95	15,506	516	98	10,248	4	96	0.042
H M L	457	95	785	459	100	2,491	2	99	0.020
AS M L	539	106	660	540	118	1,536	1	114	0.009

First letter(s)=Ethnicity where A=African American, AS=Asian American, H=Hispanic, W=White

Middle letter=Gender where F=Female and M=Male

Last letter=Parents' education where M=More than bachelor's, B=Bachelor's Only, L=Less than bachelor's

than increases in grades for all groups of students. Average grades in 2002 have far exceeded average grades reported in 1976 (3.31 versus 3.00), while SAT-M scores are only slightly higher today (516 versus 507) and verbal scores are lower (506 versus 514). Student ability, as reflected in standardized tests such as the SAT and ACT, does not appear to parallel the increases reflected by GPAs in this and other recent studies.

For most groups, the disparity widened on each academic indicator between the students whose parents had less than a bachelor's degree and those students who came from better educated homes. Asian and white females from well-educated homes seem to have benefited most by the increases in GPA and SAT-M. Increases in grades were found across all types of schools in all types of communities. Suburban and rural schools and religiously affiliated schools had slightly larger increases in average grades than urban and rural schools or public schools, respectively. Grades in all academic subjects have increased, with the largest relative increases found in foreign languages, mathematics, and science. Finally, the 2002 college-bound seniors report a mean academic GPA of approximately 3.29 and 41 percent claim an A average in high school. As Ziomek and Svec (1995) noted, because GPAs are increasingly restricted to a narrower range, "a ceiling effect" essentially reduces the variability among students and could lessen the contribution of GPAs in predicting college success and making distinctions among students seeking admission to highly competitive colleges, merit scholarships, and other academic honors. As more and more college-bound students report GPAs near or above 4.0, high school grades lose some of their value in differentiating among students, and factors such as course rigor, admission test scores, and other information gain importance in college admissions.

References

Adelman, C. (1982). *Devaluation, diffusion, and the college connection: A study of high school transcripts, 1964–1981*. Paper prepared for the National Commission on Excellence in Education, Washington, DC.

Alexander, S. (1993, April 27). Trophy transcript hunters are finding professors have become an easy mark. *Wall Street Journal*, Section B, Page 1.

Archibold, R.C. (1998, February 18). Just because the grades are up, are Princeton students smarter? *New York Times*, Late Edition, Section A, Page 1.

Astin, A.W. (1971). *Predicting academic performance in college*. New York: The Free Press.

Baron, P.A.B. (1999). *Consequential validity for high school grades: What is the meaning of grades for senders and receivers?* Doctoral dissertation, Graduate School of Education, Rutgers University.

Bejar, I.I., & Blew, E.O. (1981). *Grade inflation and the validity of the Scholastic Aptitude Test* (College Board Report No. 81-3). New York: College Entrance Examination Board.

Blount, H.P. (1997, Summer). The keepers of numbers: Teachers' perspective on grades. *The Educational Forum*, 61. 330.

Bracey, G.W. (1994). Grade inflation? *Phi Delta Kappan*, December, 328–329.

Bridgeman, B., McCamley-Jenkins, L., & Ervin, N. (2000). *Predictions of freshman grade-point average from the revised and recentered SAT I: Reasoning Test* (College Board Report No. 2000-1, ETS RR-00-1). New York: College Board.

Brookhart, S.M. (1993). Teachers' grading practices: Meaning and values. *Journal of Educational Measurement, 30*, 123–142.

Brookhart, S.M. (1998). Why 'grade inflation' is not a problem with a 'just say no' solution. *National Forum, Phi Beta Kappa Journal*.

Camara, W. (1998). High school grading policies. *College Board Research Note* (RN-04). New York, NY: College Board.

Cohen, Jacob (1988). *Statistical power analyses for the Behavioral Sciences* (2nd Ed.) Hillsdale, NJ: Lawrence Erlbaum Associates.

College Board (1983). *Academic Preparation for College: What Students Need to Know and Be Able to Do*. New York: College Board.

College Board (1978). *College-Bound Seniors: National Report*. New York, NY: College Board.

Dorans, N.J. (2002). *The Recentering of SAT scales and its effects on score distributions and score interpretations*. College Board Report No. 2002-11. New York: College Board.

Dwyer, C.A., & Johnson, L.M. (1997). Grades, accomplishments, and correlates. In W.W. Willingham & N.S. Cole (Eds.), *Gender and fair assessment* (pp. 127–155). Mahwah, NJ: Lawrence Erlbaum Associates.

Falkenberg, S. (1996). Grade Inflation. Retrieved on April 12, 2001 from www.psychology.eku.edu.

Feldman, A., Kropf, A., & Alibrandi, M. (1996, April). *Making grades: How high school science teachers determine report card grades*. Paper presented at the Annual Meeting of the American Educational Research Association, New York, NY.

Freeberg, N.E. (1988). *Analysis of the revised Student Descriptive Questionnaire, Phase I: Accuracy of student-reported information* (College Board Report No. 88-5, ETS RR No. 88-11). New York: College Board.

Freeberg, N.E., Rock, D.A., & Pollack, J. (1989). *Analysis of the revised Student Descriptive Questionnaire, Phase II: Predictive validity of academic self-report* (College Board Report No. 89-8. ETS RR No. 89-49). New York: College Board.

Healy, Patrick. (1997, November 7). HOPE scholarships transform the University of Georgia. *The Chronicle of Higher Education*.

Higher Education Research Institute (2001). *An overview of the 2000 freshman norms*. Los Angeles: University of California at Los Angeles.

Hobart, T. (1997, October). President's perspective. *New York Teacher*.

Koretz, D., & Berenz, M. (2001). *Changes in high school grading standards in mathematics, 1982–1992*. Washington, DC: The Rand Corporation.

Landsberg, S. E. (1999). Grade expectations: Why grade inflation is bad for schools—and what to do about it. *Slate*. Retrieved on 1/4/2001 from http://www.slate.msn.com/economics/99-08-11/economics.asp.

Levine, A. E. (1994, January 14). To deflate grade inflation, simplify the system. *The Chronicle of Higher Education*, B3.

McSpirit, S., & Jones, K.E. (1999). Grade inflation rates among different ability students, controlling for other factors. *Education Policy Analysis Archives, 7*, 30. Retrieved on 1/2/2001 from http://epaa/asu.edu/epaa/v7n30.html.

Morgan, R. (1990). Analyses of the predictive validity of the SAT and high school grades from 1976 to 1985 in W. Willingham, et al., *Predicting college grades: An analysis of institutional trends over two decades*. Princeton, NJ: Educational Testing Service.

National Commission on Excellence in Education (1983). *A nation at risk: The imperative for educational reform*. Washington, DC: U.S. Government Printing Office.

Newcomb, A. (2001, April 6). A little grade inflation, please. *Christian Science Monitor*.

Plume, N.D. (1997). Grade inflation. *Cyber College Internet Campus*. Retrieved on 2/2/2001 from http://www.internetcampus.com/plume3.htm.

Puskar, J. (1995, May–June). When 'A' stands for average—how grade inflation is degrading your degree. *Link*. Retrieved on 2/2/2001 from www.linkmag.com/Link/aprmay_95/ginflation.html.

Robinson, G.E., & Craver, J.M. (1989). *Assessing and grading student achievement*. Arlington, VA: Educational Research Service.

Scocca, T. (1998, April 23). The great grade-inflation lie. *The Boston Phoenix*.

Spady, W. (1982). On grades, grading and school reform in J.A. Laska & T. Juarez (eds.), *Grading and marking in American schools: Two centuries of debate*. Springfield, IL: Charles C. Thomas.

Starch, D., & Elliot, E. C. (1912). Reliability of grading high school work in English. *School Review, 20*, 442–457.

Starch, D., & Elliot, E. C. (1913). Reliability of grading high school work in mathematics. *School Review, 21*, 254–295.

Stiggins, R.J., Frisbie, D.A., & Griswold, P.A. (1989). Inside high school grading practices: Building a research agenda. *Educational Measurement: Issues and Practices, 8(2)*, 5–14.

Stone, J.E. (1995). Inflated grades, inflated enrollment, and inflated budgets: An analysis and call for review at the state level. *Education Policy Analysis Archives*, Vol. 3, No. 11. Retrieved on 2/4/2001 from http://olam.ed.asu.edu/epaa/v3n11.html.

U.S. Department of Education, Office of Educational Research and Improvement (1994). *What do student grades mean? Differences across schools* (Research Report OR 94-3401). Washington, DC: Author.

Willingham, W.W., & Cole, N. (1997). *Gender and fair assessment*. Mahwah, NJ: Lawrence Erlbaum Associates.

Willingham, W.W., Lewis, C., Morgan, R., & Ramist, L.C. (1990). P*redicting college grades: An analysis of institutional trends over two decades*. Princeton, NJ: Education Testing Service.

Willingham, W.W., Pollack, J.M., & Lewis, C. (2000). *Grades and test scores: Accounting for observed differences* (ETS RR-00-15). Princeton, NJ: Educational Testing Service.

Wilson, B.P. (1999). *The phenomenon of grade inflation in higher education*. A speech to the Governor's Blue Ribbon Commission on Higher Education, Longwood College, April 8, 1999. Retrieved on 2/4/2001 from www.frontpagemag.com/archives/academia/wilson04-13-99.htm.

Wrinkle, W. (1947). *Improving marking and reporting practices in elementary and secondary schools*. New York: Holt, Rinehart, and Winston, Inc.

Yale Daily News, (1995, March 31). Grade inflation works: Yalies work hard and merit good marks. New Haven: Author.

Ziomek, R.L., & Svec, J.C. (1995). *High school grades and achievement: Evidence of grade inflation* (ACT Research Report 95-3). Iowa City, IA: ACT.

Appendixes Follow

Appendix A

Mean GPA by Year, Gender, Ethnicity, and Parental Education, 1976–2002

	1976			*1981*			*1984*			*1988*	
	Mean GPA	*S.D.*	*N*	*Mean GPA*	*S.D.*	*N*	*Mean GPA*	*S.D.*	*N*	*Mean GPA*	*S.D.*
GENDER											
Total	3.00	0.68	85,931	3.00	0.65	95,530	2.99	0.65	92,185	3.02	0.62
Female	3.08	0.64	43,359	3.05	0.63	50,337	3.04	0.63	48,355	3.06	0.60
Male	3.00	0.63	39,562	2.93	0.67	45,193	2.93	0.67	43,830	2.97	0.63
ETHNICITY BY GENDER											
African American	2.77	0.59	6,357	2.71	0.60	8,052	2.72	0.60	7,952	2.72	0.59
Female	2.82	0.58	3,853	2.76	0.58	4,850	2.78	0.59	4,725	2.79	0.59
Male	2.68	0.59	2,504	2.64	0.61	3,202	2.64	0.61	3,227	2.63	0.59
Asian American	3.17	0.60	1,696	3.12	0.64	3,064	3.15	0.63	3,982	3.21	0.61
Female	3.21	0.60	852	3.14	0.63	1,517	3.18	0.62	1,954	3.25	0.59
Male	3.13	0.60	844	3.09	0.66	1,547	3.12	0.65	2,028	3.17	0.63
Hispanic	2.98	0.60	1,750	2.97	0.60	2,620	2.96	0.59	2,901	3.03	0.58
Female	2.97	0.60	857	2.99	0.58	1,420	2.99	0.59	1,518	3.05	0.58
Male	2.98	0.60	893	2.94	0.61	1,200	2.92	0.59	1,383	3.00	0.59
White	3.11	0.59	66,880	3.07	0.60	74,473	3.05	0.61	70,818	3.05	0.61
Female	3.17	0.57	34,324	3.13	0.58	39,041	3.10	0.59	36,950	3.09	0.59
Male	3.05	0.60	32,556	3.00	0.62	35,432	2.99	0.62	33,868	2.99	0.62
PARENTAL EDUCATION × GENDER											
Parents w/Less than B.A.	—			2.96	0.61	46,152	2.95	0.62	43,796	2.94	0.61
Female				3.02	0.60	25,292	3.00	0.60	23,879	2.98	0.59
Male				2.90	0.62	20,860	2.89	0.63	19,917	2.89	0.62
Parents w/ B.A.	—			3.08	0.60	15,458	3.06	0.61	15,516	3.05	0.61
Female				3.15	0.57	7,717	3.12	0.59	7,694	3.11	0.59
Male				3.01	0.62	7,741	2.99	0.62	7,822	3.00	0.62
Parents w/More than B.A.	—			3.11	0.61	27,777	3.10	0.62	27,478	3.15	0.61
Female				3.17	0.58	14,274	3.16	0.60	14,044	3.20	0.59
Male				3.06	0.63	13,503	3.05	0.63	13,434	3.10	0.63
PARENTAL EDUCATION × ETHNICITY											
Parents w/Less than B.A.	—			2.96	0.61	46,152	2.95	0.62	43,796	2.94	0.61
African American				2.69	0.59	5,479	2.70	0.59	5,230	2.70	0.58
Asian American				3.02	0.64	1,450	3.06	0.63	1,773	3.11	0.62
Hispanic				2.94	0.60	1,863	2.92	0.57	2,006	3.00	0.58
White				3.02	0.60	35,043	2.99	0.61	32,631	2.97	0.60
Parents w/ B.A.	—			3.08	0.60	15,458	3.06	0.61	15,516	3.05	0.61
African American				2.77	0.59	671	2.77	0.59	815	2.75	0.60
Asian American				3.18	0.62	515	3.16	0.63	733	3.21	0.61
Hispanic				3.06	0.57	233	3.01	0.60	289	3.11	0.57
White				3.10	0.59	13,473	3.08	0.60	13,152	3.07	0.60
Parents w/More than B.A.	—			3.11	0.61	27,777	3.10	0.62	27,478	3.15	0.61
African American				2.79	0.61	1,321	2.80	0.61	1,400	2.84	0.60
Asian American				3.27	0.61	947	3.29	0.60	1,286	3.34	0.58
Hispanic				3.11	0.54	395	3.10	0.59	476	3.15	0.59
White				3.13	0.60	23,834	3.12	0.61	23,206	3.16	0.60

	1991			1994			1998			2002		
N	Mean GPA	S.D.	N	Mean GPA	S.D.	N	Mean GPA	S.D.	N	Mean GPA	S.D.	N
109,023	3.04	0.62	98,400	3.10	0.61	99,605	3.17	0.60	110,584	3.31	0.63	108,413
57,259	3.09	0.60	52,132	3.16	0.59	53,841	3.23	0.58	61,196	3.38	0.61	59,600
51,764	2.99	0.63	46,268	3.03	0.62	45,764	3.10	0.62	49,388	3.23	0.65	48,813
10,078	2.74	0.58	10,125	2.79	0.58	10,844	2.84	0.59	12,224	2.98	0.66	11,710
5,981	2.82	0.58	5,902	2.86	0.57	6,352	2.92	0.58	7,265	3.07	0.64	6,981
4,097	2.62	0.57	4,223	2.68	0.57	4,492	2.73	0.59	4,959	2.84	0.66	4,729
6,631	3.22	0.61	7,749	3.28	0.58	8,349	3.31	0.58	9,470	3.44	0.61	9,485
3,174	3.26	0.58	3,861	3.33	0.56	4,302	3.36	0.56	4,961	3.50	0.58	4,953
3,457	3.18	0.62	3,888	3.23	0.60	4,047	3.25	0.57	4,509	3.37	0.64	4,532
3,703	3.02	0.57	4,336	3.05	0.57	5,117	3.10	0.56	5,980	3.19	0.63	9,881
1,997	3.04	0.56	2,379	3.08	0.55	2,920	3.13	0.55	3,453	3.23	0.62	5,664
1,706	3.00	0.58	1,957	3.00	0.58	2,197	3.06	0.58	2,527	3.13	0.65	4,217
82,186	3.08	0.61	69,615	3.14	0.60	66,924	3.23	0.58	70,857	3.38	0.61	66,552
42,866	3.13	0.59	36,541	3.21	0.58	35,798	3.29	0.56	38,939	3.45	0.58	36,377
39,320	3.02	0.62	33,074	3.08	0.61	31,126	3.15	0.60	31,918	3.29	0.63	30,175
49,198	2.95	0.61	45,992	3.00	0.59	45,101	3.07	0.59	47,586	3.19	0.64	43,895
26,802	3.00	0.59	25,328	3.06	0.58	25,436	3.12	0.58	27,686	3.25	0.62	25,916
22,396	2.89	0.62	20,664	2.93	0.61	19,665	2.99	0.61	19,900	3.09	0.66	17,979
21,560	3.10	0.60	18,962	3.17	0.59	19,475	3.24	0.58	23,043	3.37	0.62	22,019
10,823	3.15	0.58	9,718	3.25	0.57	10,172	3.31	0.55	14,402	3.45	0.58	11,855
10,737	3.04	0.62	9,244	3.09	0.60	9,303	3.16	0.60	10,641	3.27	0.64	10,164
31,809	3.19	0.60	27,710	3.26	0.59	28,218	3.32	0.57	31,928	3.46	0.59	30,048
16,077	3.25	0.58	13,866	3.32	0.56	14,406	3.39	0.54	16,553	3.54	0.56	15,452
15,732	3.14	0.62	13,844	3.19	0.61	13,812	3.24	0.59	15,375	3.37	0.62	14,596
49,198	2.95	0.61	45,992	3.00	0.59	45,101	3.07	0.59	47,586	3.19	0.64	43,895
5,843	2.71	0.58	5,994	2.75	0.57	6,295	2.80	0.58	6,790	2.92	0.64	6,893
2,597	3.13	0.62	3,104	3.20	0.59	3,330	3.21	0.59	3,852	3.32	0.64	3,533
2,465	3.00	0.56	3,020	3.01	0.56	3,541	3.06	0.56	4,044	3.13	0.64	6,368
35,588	2.98	0.60	30,992	3.03	0.59	28,618	3.12	0.59	28,424	3.26	0.62	24,600
21,560	3.10	0.60	18,962	3.17	0.59	19,475	3.24	0.58	23,043	3.37	0.62	22,019
1,295	2.79	0.56	1,312	2.85	0.57	1,477	2.93	0.59	1,916	3.03	0.66	2,094
1,502	3.26	0.60	1,725	3.29	0.55	1,911	3.33	0.56	2,222	3.47	0.59	1,955
442	3.14	0.56	442	3.14	0.56	543	3.21	0.53	761	3.30	0.61	1,197
17,536	3.11	0.60	14,693	3.20	0.59	14,507	3.27	0.57	16,532	3.41	0.60	15,402
31,809	3.19	0.60	27,710	3.26	0.59	28,218	3.32	0.57	31,928	3.46	0.59	30,048
1,686	2.85	0.61	1,630	2.92	0.59	1,720	2.95	0.61	2,037	3.13	0.66	2,033
2,160	3.33	0.58	2,499	3.40	0.56	2,624	3.45	0.54	2,853	3.56	0.57	2,751
551	3.13	0.56	574	3.20	0.57	718	3.24	0.53	797	3.35	0.59	1,621
25,934	3.21	0.60	21,550	3.28	0.58	21,274	3.35	0.56	23,387	3.48	0.58	21,263

(Continued on page 50)

Mean GPA by Year, Gender, Ethnicity, and Parental Education, 1976–2002

	1976			*1981*			*1984*			*1988*	
	Mean GPA	*S.D.*	*N*	*Mean GPA*	*S.D.*	*N*	*Mean GPA*	*S.D.*	*N*	*Mean GPA*	*S.D.*
PARENTAL EDUCATION, ETHNICITY × GENDER											
Parents w/Less than B.A.											
African American	—										
Female				2.74	0.58	3,408	2.76	0.58	3,218	2.75	0.57
Male				2.61	0.59	2,071	2.62	0.60	2,012	2.61	0.58
Asian American	—										
Female				3.06	0.64	738	3.10	0.63	867	3.15	0.61
Male				2.99	0.64	712	3.02	0.64	906	3.08	0.63
Hispanic	—										
Female				2.95	0.59	1,010	2.94	0.57	1,080	3.01	0.58
Male				2.92	0.61	853	2.90	0.57	926	2.99	0.58
White	—										
Female				3.08	0.58	18,890	3.05	0.59	17,551	3.02	0.59
Male				2.94	0.61	16,153	2.92	0.62	15,080	2.91	0.61
Parents w/ B.A.											
African American	—										
Female				2.82	0.57	373	2.86	0.57	435	2.85	0.59
Male				2.72	0.61	298	2.67	0.60	380	2.65	0.59
Asian American	—										
Female				3.21	0.57	253	3.18	0.59	361	3.25	0.57
Male				3.16	0.66	262	3.13	0.67	372	3.17	0.64
Hispanic	—										
Female				3.19	0.55	105	3.06	0.66	144	3.18	0.54
Male				2.96	0.56	128	2.97	0.54	145	3.03	0.60
White	—										
Female				3.17	0.57	6,735	3.14	0.58	6,505	3.12	0.58
Male				3.03	0.61	6,738	3.01	0.61	6,647	3.01	0.62
Parents w/More than B.A.											
African American	—										
Female				2.86	0.60	709	2.88	0.60	761	2.93	0.58
Male				2.72	0.61	612	2.70	0.61	639	2.72	0.61
Asian American	—										
Female				3.30	0.58	453	3.30	0.61	633	3.39	0.56
Male				3.25	0.64	494	3.29	0.59	653	3.30	0.61
Hispanic	—										
Female				3.16	0.52	223	3.17	0.59	227	3.22	0.56
Male				3.05	0.57	172	3.04	0.59	249	3.06	0.60
White	—										
Female				3.19	0.58	12,263	3.17	0.59	11,887	3.21	0.58
Male				3.07	0.62	11,571	3.06	0.63	11,319	3.11	0.62

	1991			1994			1998			2002		
N	Mean GPA	S.D.	N	Mean GPA	S.D.	N	Mean GPA	S.D.	N	Mean GPA	S.D.	N
3,596	2.79	0.57	3,582	2.83	0.56	3,750	2.87	0.56	4,165	3.01	0.63	4,294
2,247	2.58	0.57	2,412	2.64	0.56	2,545	2.69	0.58	2,624	2.77	0.64	2,599
1,236	3.18	0.60	1,565	3.25	0.57	1,757	3.26	0.57	2,108	3.38	0.62	1,975
1,361	3.09	0.62	1,539	3.15	0.61	1,573	3.15	0.60	1,744	3.24	0.65	1,558
1,346	3.01	0.55	1,641	3.05	0.54	2,041	3.09	0.55	2,398	3.17	0.62	3,853
1,119	2.97	0.57	1,379	2.96	0.57	1,500	3.02	0.57	1,646	3.05	0.66	2,515
19,214	3.03	0.59	16,908	3.09	0.57	15,982	3.18	0.57	16,382	3.33	0.59	14,311
16,374	2.91	0.61	14,084	2.96	0.61	12,636	3.04	0.61	12,042	3.16	0.64	10,289
683	2.88	0.56	722	2.95	0.57	837	3.02	0.58	1,090	3.15	0.65	1,188
612	2.67	0.54	590	2.72	0.55	640	2.83	0.58	826	2.89	0.65	906
738	3.30	0.56	870	3.37	0.52	966	3.38	0.54	1,136	3.55	0.55	995
764	3.21	0.63	855	3.21	0.58	945	3.27	0.58	1,086	3.38	0.62	960
220	3.13	0.54	243	3.18	0.52	274	3.27	0.50	409	3.37	0.58	620
222	3.16	0.58	199	3.09	0.59	269	3.14	0.56	352	3.23	0.64	577
8,767	3.17	0.57	7,486	3.27	0.56	7,559	3.34	0.54	8,904	3.49	0.56	8,323
8,769	3.06	0.61	7,207	3.11	0.60	6,948	3.19	0.59	7,628	3.31	0.62	7,079
915	2.94	0.60	870	3.00	0.59	961	3.06	0.60	1,104	3.23	0.64	1,123
771	2.74	0.60	760	2.83	0.58	759	2.83	0.59	933	3.00	0.66	910
1,030	3.35	0.56	1,201	3.45	0.54	1,332	3.50	0.50	1,433	3.63	0.53	1,365
1,130	3.30	0.60	1,298	3.35	0.57	1,292	3.39	0.56	1,420	3.50	0.61	1,386
304	3.16	0.56	310	3.23	0.55	416	3.29	0.50	412	3.39	0.58	832
247	3.09	0.56	264	3.17	0.59	302	3.19	0.56	385	3.30	0.60	789
13,082	3.27	0.57	10,742	3.35	0.55	10,744	3.43	0.52	12,077	3.57	0.54	10,947
12,852	3.15	0.62	10,808	3.21	0.60	10,530	3.27	0.58	11,310	3.40	0.61	10,316

Appendix B

Mean SAT-V and SAT-M by Year, Gender, Ethnicity, and Parental Education, 1976–2002

	1976					1981					1984					1988		
	Mean SAT-V	S.D.	Mean SAT-M	S.D.	N	Mean SAT-V	S.D.	Mean SAT-M	S.D.	N	Mean SAT-V	S.D.	Mean SAT-M	S.D.	N	Mean SAT-V	S.D.	Mean SAT-M
PARENTAL EDUCATION, ETHNICITY × GENDER																		
GENDER																		
Total	514	104	507	95	95,836	505	108	497	103	91,012	507	108	501	105	86,317	508	106	504
Female	514	103	487	89	47,930	499	108	476	97	47,810	501	107	481	99	45,279	501	105	485
Male	515	105	528	100	47,906	512	107	521	104	43,202	515	108	523	105	41,038	515	107	524
ETHNICITY BY GENDER																		
African American	427	99	421	77	4,696	406	101	396	94	7,361	416	101	407	95	7,008	433	100	420
Female	424	97	410	70	2,749	402	100	385	88	4,457	411	98	395	89	4,187	428	99	411
Male	432	103	436	84	1,947	414	102	412	101	2,904	424	104	424	102	2,821	441	102	434
Asian American	490	116	545	100	1,688	471	127	534	108	2,891	475	132	540	110	3,711	485	131	543
Female	487	116	518	90	821	467	127	509	101	1,440	469	130	518	104	1,828	483	132	523
Male	493	116	570	103	867	475	127	559	109	1,451	480	135	561	111	1,883	486	131	562
Hispanic	452	102	456	86	1,555	442	102	442	97	2,399	445	104	447	99	2,587	454	102	456
Female	447	99	432	76	763	430	100	420	92	1,283	438	101	429	96	1,363	447	99	443
Male	458	104	479	88	792	455	104	467	98	1,116	452	106	466	98	1,224	452	104	472
White	530	97	521	94	63,186	520	100	509	96	71,658	523	100	512	99	67,184	523	99	515
Female	530	96	500	86	32,234	515	100	489	91	37,416	517	99	492	94	34,997	517	97	497
Male	530	99	542	96	30,952	524	100	531	98	34,242	528	101	533	99	32,187	530	100	535
PARENTAL EDUCATION × GENDER																		
Parents w/Less than B.A.	Not Available					479	103	474	100	43,622	479	103	476	101	40,485	480	100	478
Female						473	103	454	95	23,835	473	102	457	96	22,082	474	98	461
Male						486	103	498	102	19,787	487	104	498	102	18,403	487	102	498
Parents w/ B.A.						525	101	518	97	14,938	524	102	519	99	14,784	520	100	518
Female						521	102	497	92	7,452	520	101	500	94	7,345	515	99	500
Male						528	99	538	97	7,486	528	102	538	100	7,439	525	100	537
Parents w/More than B.A.						538	105	525	100	26,796	542	105	530	103	26,175	549	104	541
Female						534	105	504	94	13,701	537	105	510	98	13,368	543	102	522
Male						542	105	546	101	13,095	548	106	551	103	12,807	555	104	561
PARENTAL EDUCATION × ETHNICITY																		
Parents w/Less than B.A.																		
African American						392	95	384	90	4,965	402	96	395	92	4,539	417	95	406
Asian American						442	118	514	104	1,356	438	123	517	106	1,636	434	121	512
Hispanic						433	100	432	96	1,687	431	97	434	95	1,769	444	97	447
White						498	95	490	94	33,488	499	95	490	95	30,642	497	93	491
Parents w/ B.A.																		
African American						432	99	418	92	633	441	101	429	90	749	453	97	439
Asian American						480	126	550	104	492	479	126	551	106	685	488	122	554
Hispanic						464	103	472	93	218	463	111	469	97	265	472	104	474
White						533	96	523	93	13,064	534	96	525	95	12,598	530	94	523
Parents w/More than B.A.																		
African American						457	107	434	101	1,233	456	105	439	101	1,284	483	103	462
Asian American						514	128	558	108	903	530	130	569	108	1,220	546	124	579
Hispanic						473	102	475	93	378	490	109	489	96	443	491	111	492
White						546	101	530	96	23,079	551	100	535	99	22,236	556	99	545

		1991					1994					1998					2002				
S.D.	N	Mean SAT-V	S.D.	Mean SAT-M	S.D.	N	Mean SAT-V	S.D.	Mean SAT-M	S.D.	N	Mean SAT-V	S.D.	Mean SAT-M	S.D.	N	Mean SAT-V	S.D.	Mean SAT-M	S.D.	N
105	102,907	502	108	503	108	93,356	502	110	506	109	94,351	507	110	513	111	104,382	506	110	516	113	107,760
99	53,945	498	107	484	101	49,314	500	109	489	103	50,876	503	109	497	107	57,718	503	109	500	109	59,275
107	48,962	506	110	524	111	44,042	504	112	527	112	43,475	511	111	532	113	46,664	510	112	537	115	48,485
96	9,102	429	99	420	94	9,341	428	100	422	98	9,858	433	98	426	96	11,081	430	100	427	99	11,659
91	5,414	431	98	413	90	5,452	433	99	417	94	5,745	434	98	419	94	6,582	432	98	419	94	6,955
100	3,688	427	99	429	98	3,889	421	99	428	103	4,113	431	99	436	99	4,499	426	102	437	104	4,704
113	6,185	487	132	550	116	7,348	491	135	554	117	7,914	496	124	560	120	8,986	500	124	565	123	9,378
108	2,967	484	132	528	112	3,679	490	135	536	114	4,085	494	124	544	118	4,735	499	123	548	122	4,910
115	3,218	490	131	572	116	3,669	492	134	574	118	3,829	498	123	577	119	4,251	502	125	582	123	4,468
97	3,372	451	100	455	98	3,921	449	102	456	101	4,665	453	103	457	99	5,361	452	103	459	104	9,790
92	1,817	445	97	438	92	2,144	445	101	440	98	2,678	449	101	443	94	3,097	447	101	443	98	5,614
100	1,555	459	103	475	101	1,777	453	103	476	101	1,987	459	105	477	103	2,264	460	106	481	107	4,176
99	78,408	520	100	515	101	66,710	521	101	520	101	64,209	527	101	528	103	68,031	528	100	534	103	66,253
94	40,795	516	98	496	95	34,903	519	99	502	96	34,246	523	100	512	99	37,353	525	98	517	99	36,220
102	37,613	523	102	534	104	31,807	524	102	540	103	29,963	531	103	548	105	30,678	531	102	553	105	30,033
99	45,856	472	100	475	100	43,031	469	100	475	102	42,140	472	101	478	102	44,178	466	101	475	104	43,666
94	24,935	470	99	459	94	23,650	468	99	461	96	23,715	470	100	464	97	25,684	464	99	462	99	25,796
102	20,921	475	102	495	104	19,381	470	102	495	106	18,425	476	103	498	105	18,494	467	103	495	108	17,870
100	20,614	517	101	520	102	18,263	518	102	525	102	18,738	523	102	530	104	22,073	521	101	530	105	21,892
94	10,341	514	100	502	96	9,343	519	100	508	96	9,777	521	100	516	100	11,913	521	100	516	101	11,787
102	10,273	520	101	540	105	8,920	518	103	542	104	8,961	525	105	548	107	10,160	520	103	546	108	10,105
103	30,542	548	106	545	105	26,764	551	108	551	106	27,268	553	107	559	108	30,877	555	106	563	110	29,845
97	15,440	545	105	526	98	13,363	549	107	532	101	13,875	552	105	544	104	15,994	553	105	548	106	15,358
105	15,102	551	107	565	107	13,401	552	109	570	107	13,393	554	108	574	110	14,883	556	108	580	112	14,487
91	5,240	416	92	409	89	5,452	411	91	409	93	5,647	416	92	411	89	6,042	410	93	408	90	6,864
106	2,390	442	120	519	111	2,935	444	121	522	110	3,125	452	113	523	114	3,627	453	113	523	117	3,493
94	2,219	442	95	445	94	2,721	434	96	445	99	3,185	437	96	443	93	3,573	431	96	439	96	6,311
95	33,576	491	93	488	95	29,314	490	92	490	95	27,152	494	94	495	95	26,934	492	92	497	95	24,520
95	1,192	445	98	435	92	1,250	453	97	443	93	1,392	455	96	446	96	1,779	448	97	442	96	2,085
107	1,411	494	124	566	110	1,634	497	124	561	111	1,815	504	114	568	113	2,106	507	110	565	115	1,928
96	408	475	102	480	101	414	475	100	480	94	521	490	103	489	103	709	486	100	486	102	1,187
96	16,871	528	94	525	97	14,217	530	95	531	96	14,033	536	96	538	98	15,969	535	95	541	98	15,332
98	1,574	476	107	459	101	1,553	476	109	462	104	1,624	477	103	468	102	1,935	476	105	470	108	2,025
111	2,041	546	128	585	114	2,382	552	133	597	114	2,521	555	119	609	112	2,746	558	120	612	120	2,718
101	522	495	108	496	100	533	505	107	502	100	683	504	108	506	103	758	502	107	508	110	1,602
99	25,039	556	100	550	100	20,932	559	100	555	99	20,662	561	101	564	102	22,770	564	99	569	102	21,140

(Continued on page 54)

Mean SAT-V and SAT-M by Year, Gender, Ethnicity, and Parental Education, 1976–2002

	1976					*1981*					*1984*					*1988*		
	Mean SAT-V	*S.D.*	*Mean SAT-M*	*S.D.*	*N*	*Mean SAT-V*	*S.D.*	*Mean SAT-M*	*S.D.*	*N*	*Mean SAT-V*	*S.D.*	*Mean SAT-M*	*S.D.*	*N*	*Mean SAT-V*	*S.D.*	*Mean SAT-M*
PARENTAL EDUCATION, ETHNICITY × GENDER																		
Parents w/Less than B.A.																		
African Amer. Female						388	94	375	83	3,116	398	92	385	85	2,819	413	93	399
African Amer. Male						399	97	400	97	1,849	410	101	412	99	1,720	424	97	419
Asian Amer. Female						445	120	490	97	696	433	119	496	100	806	436	122	492
Asian Amer. Male						439	116	539	106	660	440	126	538	108	830	439	119	531
Hispanic Female						420	97	410	91	902	424	95	418	92	957	435	94	433
Hispanic Male						448	101	457	95	785	440	100	453	95	812	455	99	463
White Female						494	95	471	88	17,982	494	93	472	90	16,467	493	91	475
White Male						502	95	512	95	15,506	504	96	511	96	14,175	503	95	509
Parents w/ B.A.																		
African Amer. Female						426	102	403	90	349	442	101	421	88	401	446	98	426
African Amer. Male						440	95	437	92	284	439	101	440	91	348	460	96	453
Asian Amer. Female						468	125	531	98	242	468	123	526	97	339	483	121	532
Asian Amer. Male						491	127	568	107	250	490	127	575	110	346	492	123	575
Hispanic Female						464	97	453	79	97	458	108	448	100	136	472	99	467
Hispanic Male						465	108	488	101	121	468	114	490	90	129	471	110	482
White Female						530	97	503	88	6,527	530	94	506	90	6,234	526	93	505
White Male						536	95	544	93	6,537	538	97	543	96	6,364	535	95	542
Parents w/More than B.A.																		
African Amer. Female						458	109	424	95	662	453	107	427	96	702	481	105	452
African Amer. Male						458	104	445	107	571	460	103	455	105	582	486	100	474
Asian Amer. Female						506	130	529	104	436	520	132	546	107	603	545	123	560
Asian Amer. Male						520	126	584	104	467	540	127	591	106	617	546	125	597
Hispanic Female						470	97	456	84	212	486	106	472	94	211	488	110	477
Hispanic Male						478	108	499	97	166	493	111	505	95	232	495	113	510
White Female						542	101	510	90	11,806	546	99	515	95	11,363	550	97	527
White Male						549	101	551	98	11,273	556	101	556	99	10,873	563	100	565

		1991					1994					1998					2002				
S.D.	N	Mean SAT-V	S.D.	Mean SAT-M	S.D.	N	Mean SAT-V	S.D.	Mean SAT-M	S.D.	N	Mean SAT-V	S.D.	Mean SAT-M	S.D.	N	Mean SAT-V	S.D.	Mean SAT-M	S.D.	N
87	3,237	417	92	403	84	3,276	416	91	405	89	3,347	416	91	403	86	3,721	413	91	402	87	4,279
95	2,003	414	93	418	95	2,176	403	92	414	98	2,300	416	93	422	92	2,321	404	95	417	95	2,585
100	1,141	440	120	495	106	1,489	441	120	505	106	1,647	448	114	505	110	1,988	454	112	509	114	1,957
108	1,249	444	120	543	111	1,446	447	121	542	112	1,478	458	112	545	115	1,639	451	115	540	118	1,536
89	1,207	436	92	429	88	1,474	432	96	430	96	1,849	435	94	431	89	2,115	428	94	427	91	3,820
97	1,012	449	98	463	97	1,247	437	96	465	99	1,336	441	98	461	97	1,458	435	99	459	100	2,491
89	18,072	489	92	472	89	15,946	490	91	474	90	15,142	492	93	481	91	15,515	490	90	482	90	14,272
97	15,504	493	95	507	99	13,368	491	94	509	98	12,010	497	96	514	98	11,419	494	94	516	98	10,248
90	629	448	97	428	90	688	460	97	439	89	790	460	94	441	93	1,011	454	94	437	92	1,183
99	563	441	98	444	93	562	443	97	448	98	602	448	99	452	99	768	440	100	449	101	902
104	691	490	124	550	108	825	499	123	545	109	918	505	112	554	110	1,086	508	111	551	115	981
107	720	498	123	583	110	809	494	125	578	111	897	503	116	583	114	1,020	506	110	580	114	947
95	209	467	98	462	93	228	465	97	461	85	261	484	98	476	95	384	483	98	471	95	615
96	199	485	105	502	106	186	486	102	498	100	260	498	108	503	111	325	489	103	502	108	572
90	8,425	526	93	506	91	7,225	530	94	514	91	7,299	533	95	523	94	8,619	535	94	527	94	8,285
98	8,446	531	95	544	100	6,992	529	96	549	98	6,734	539	98	556	100	7,350	534	95	558	100	7,047
96	855	482	107	452	100	830	483	109	457	101	902	481	105	464	102	1,039	480	105	463	103	1,120
100	719	470	107	466	102	723	468	108	468	107	722	471	102	474	102	896	471	104	479	113	905
106	975	543	129	559	111	1,151	553	134	579	112	1,282	557	117	597	112	1,391	558	119	598	119	1,356
113	1,066	548	127	608	112	1,231	551	131	616	113	1,239	552	121	620	111	1,355	558	122	626	119	1,362
94	288	490	108	476	94	283	505	105	488	100	395	500	110	489	100	395	496	107	490	107	824
105	234	500	108	518	101	250	505	110	522	97	288	509	105	526	102	363	509	107	527	110	778
93	12,629	553	98	530	93	10,408	557	99	536	94	10,390	560	99	549	98	11,737	563	97	553	98	10,879
101	12,410	560	101	569	103	10,524	561	102	574	101	10,272	563	102	580	104	11,033	565	101	586	104	10,261

Appendix C: Ethnicity, Gender, and Parental Education

Men and women with parents at the same education level within each racial/ethnic group show somewhat different mean GPA trend lines in Figure A1. As one would expect from Table 11 and Figure 2, males consistently have lower GPAs than females from the same ethnic group and level of parental education. Among African Americans, even the men whose parents have more than a B.A. do not surpass the women whose parents have less than a B.A. The African American women from the best-educated parents show an increasing GPA throughout the period covered by this study. Females whose parents earned a B.A. or less consistently show an increasing GPA after 1988. The African American males whose parents had more than a B.A. also show an increasing GPA after 1984 although the trend line goes flat from 1994 to 1998. Men whose parents earned only a B.A. experienced a decreasing mean GPA from 1981 to 1988; after that, the mean GPA consistently increased so that in 1998 it was comparable to the men from the best-educated African American families before diverging again in 2002. Men whose parents had less than a B.A. had a flat or decreasing mean GPA through 1991; thereafter their mean GPA increased, although the 2002 level was almost 0.12 points below any of the other African American groups.

All Asian American groups show generally rising GPAs, with females from each educational level having somewhat better grades for each year in the study. The Asian American men whose parents have less than a B.A. have the lowest GPAs, although these are still very respectable, e.g., a 3.24 in 2002, substantially higher than all African American groups except women from the most highly educated families.

Hispanic students also show an increase in mean GPA from 1981 to 2002, although the trend lines are much less consistent than for the other three groups. This may reflect the relatively small numbers in the sample whose parents had a B.A. or greater level of educational attainment. All three groups of Hispanic females show an increasing mean GPA from 1991 to 2002 although the gap increased between those whose parents had a B.A. or more and those whose parents did not attain a B.A. Hispanic males whose parents had more than a B.A. show a gradually increasing mean GPA from 1984 onward. Men whose parents had only a B.A. showed an increasing mean GPA from 1981 to 1991, but then experienced a drop in 1994, with only a small recovery in 1998 and 2002. The mean GPA for the men whose parents had less than a B.A. has fluctuated over the period of the study but with the 2002 mean higher than the 1981 mean by a 0.13 of a grade point.

White women and men whose parents earned more than a B.A. showed a consistently rising mean GPA after 1984. The males and females whose parents had earned only a B.A., as well as the females whose parents had less than a B.A., show a rising mean GPA after 1988. The men whose parents had less than a B.A. did not experience a rising mean GPA until after 1991.

The mean SAT verbal scores for students clustered by parental education, gender, and ethnicity are shown in Figure A2. The effect of parental education on the SAT-V is apparent in all ethnic groups, although among African Americans there appears to be less differentiation by parental education than for the other three ethnic groups. Of particular note is that since at least 1991, African American women have earned SAT-V scores equal to or better than the African American men.

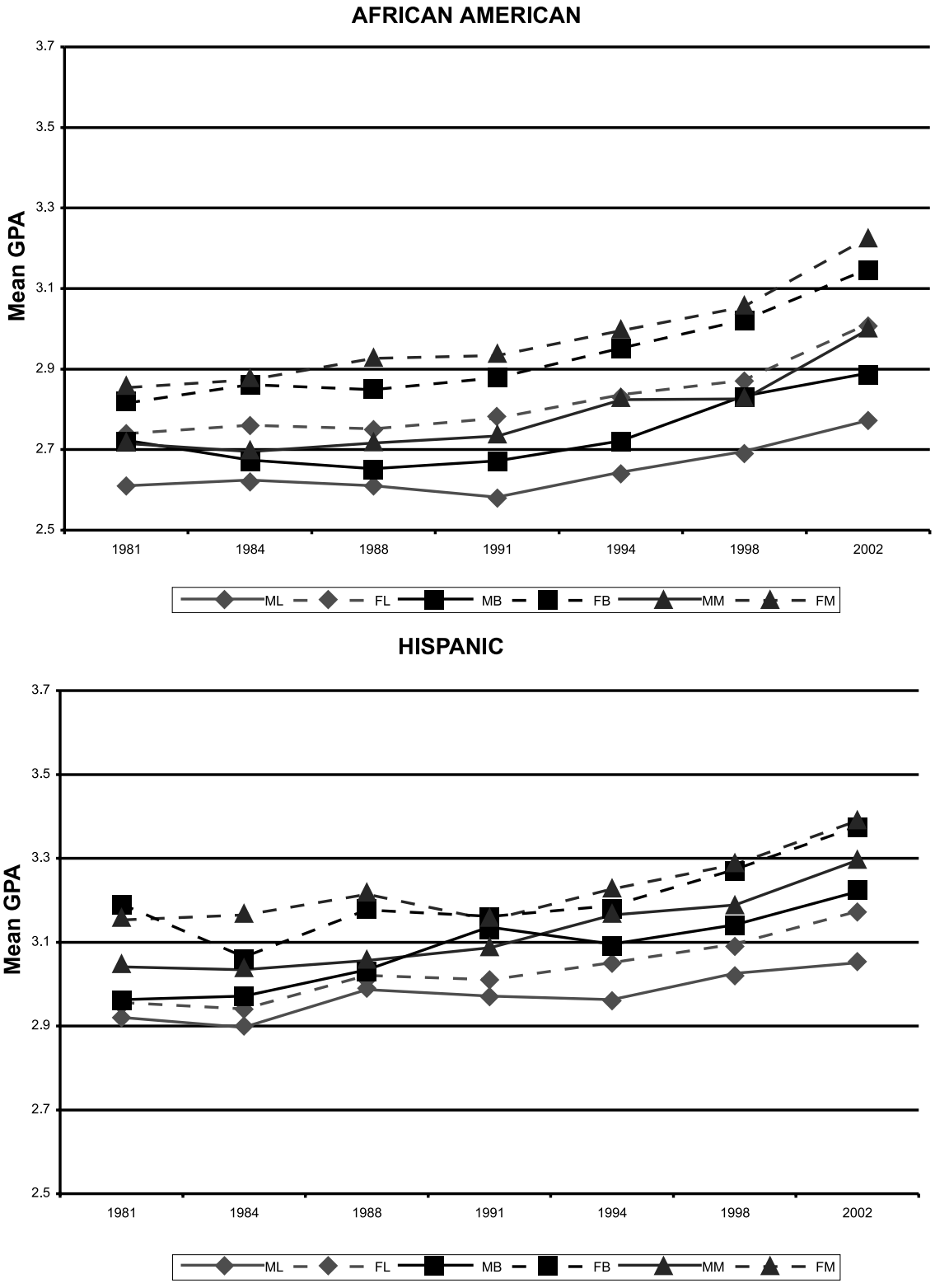
Asian Americans show the greatest differentiation by parental education on SAT-V. In recent years, there has been approximately a 50-point difference between students in adjacent parental education levels. Men and women within the same parental education level have very similar SAT-V scores.

Among Hispanics, females in each parental education category have earned somewhat lower SAT-V scores than their male counterparts. In recent years, the scores of students whose parents have earned at least a B.A. have diverged from the scores of students whose parents have less than a bachelor's degree education.

White students with parents who have earned more than a B.A. have experienced modest increases in the SAT-V scores. The scores of students whose parents have a B.A. or less have been static over the 1981–2002 period. For all parental education levels, the scores of men and women have become quite similar.

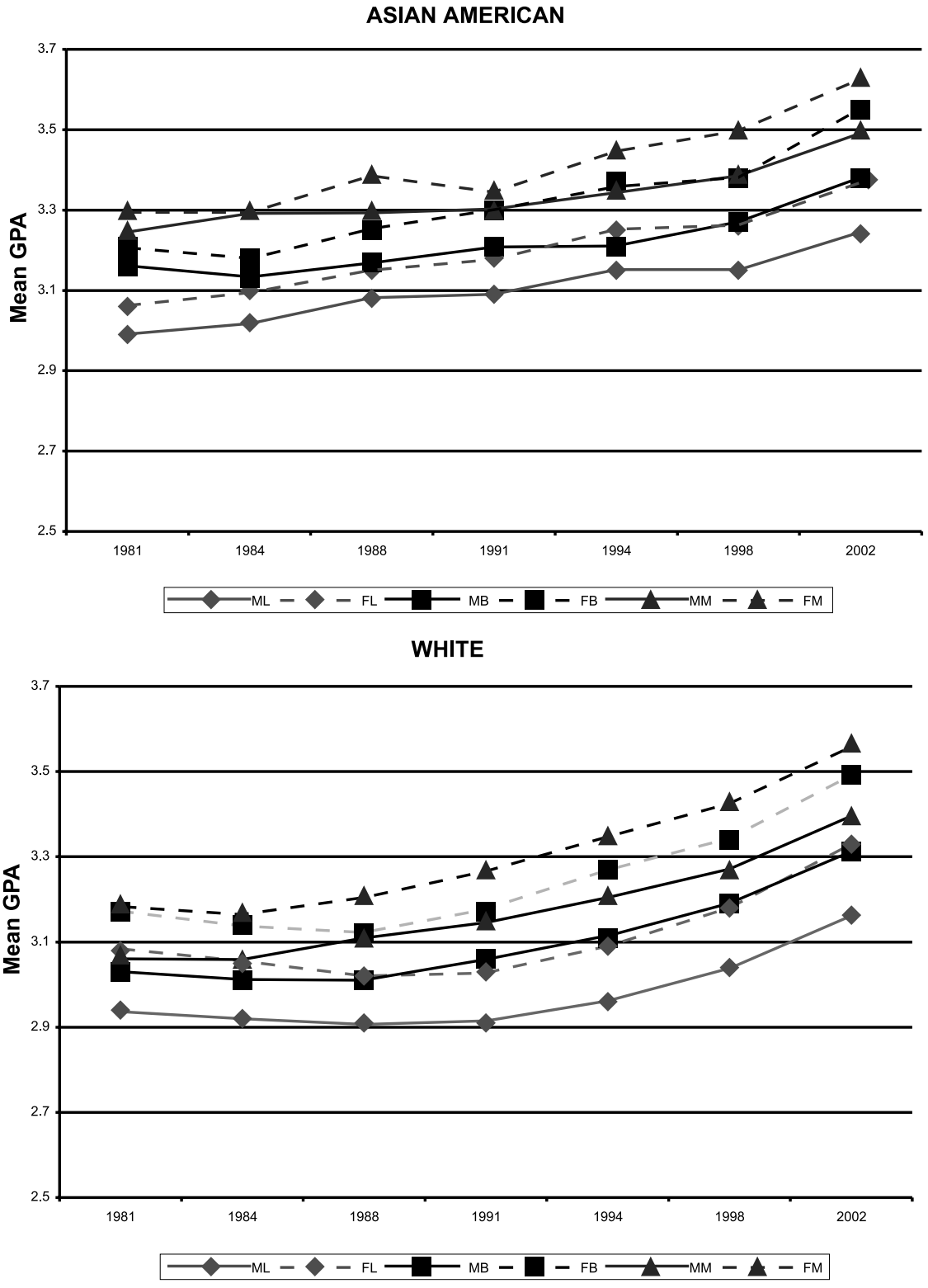
The mean SAT mathematical scores for students clustered by parental education, gender, and ethnicity are shown in Figure A3. Gender appears to play a more important role with regard to this score than was observed on SAT-V. For every ethnicity by parental education group, males consistently had higher average SAT-M scores. For every group, females whose parents had less than a B.A. had the lowest mean SAT-M scores, usually by a substantial margin.

Among African Americans, both the men and women whose parents had less than a bachelor's degree had lower mean scores than the women whose parents had a B.A. From 1991 onward, females from the highest parental education group had SAT-M scores higher than the males from the B.A. only group.



First letter=gender where F=Female and M=Male
Last letter=parents' education where M=More than bachelor's, B=Bachelor's degree, L=Less than bachelor's

Figure A1. Mean GPA by ethnicity, gender, and parental education, 1981–2002.



First letter=gender where F=Female and M=Male
Last letter=parents' education where M=More than bachelor's, B=Bachelor's degree, L=Less than bachelor's

Figure A1 (continued). Mean GPA by ethnicity, gender, and parental education, 1981–2002.

Asian American men from the top two parental education groups had higher scores than all of the female groups except in 1998 and 2002, when the high parental education women outperformed the men whose parents had only a B.A. The high parental education males and females experienced consistently improving scores over the 1981–2002 period. The men and women from the other groups had only minor gains in the average SAT-M score. The men from the lowest parental education level and the women of the B.A.–only level had very similar scores.

Among Hispanics, the men from the top two parental education groups had higher scores than all of the female groups. Males and females of the top parental education group and females whose parents earned a bachelor's experienced gains of approximately 20 points, while all others had modest or no gains. Again, men from the lowest parental education level and the women of the B.A.-only level had very similar scores.

The pattern of males from the top two parental education groups scoring higher than all female groups was also true among whites. Women whose parents had more than a B.A. showed the greatest gain (43 points) on the SAT-M score, followed by the men from this educational level. The men and women from the other parental education levels showed only modest gains. As with the Asian Americans and Hispanics, males from the lowest parental education level and females of the B.A.-only level had very similar scores.

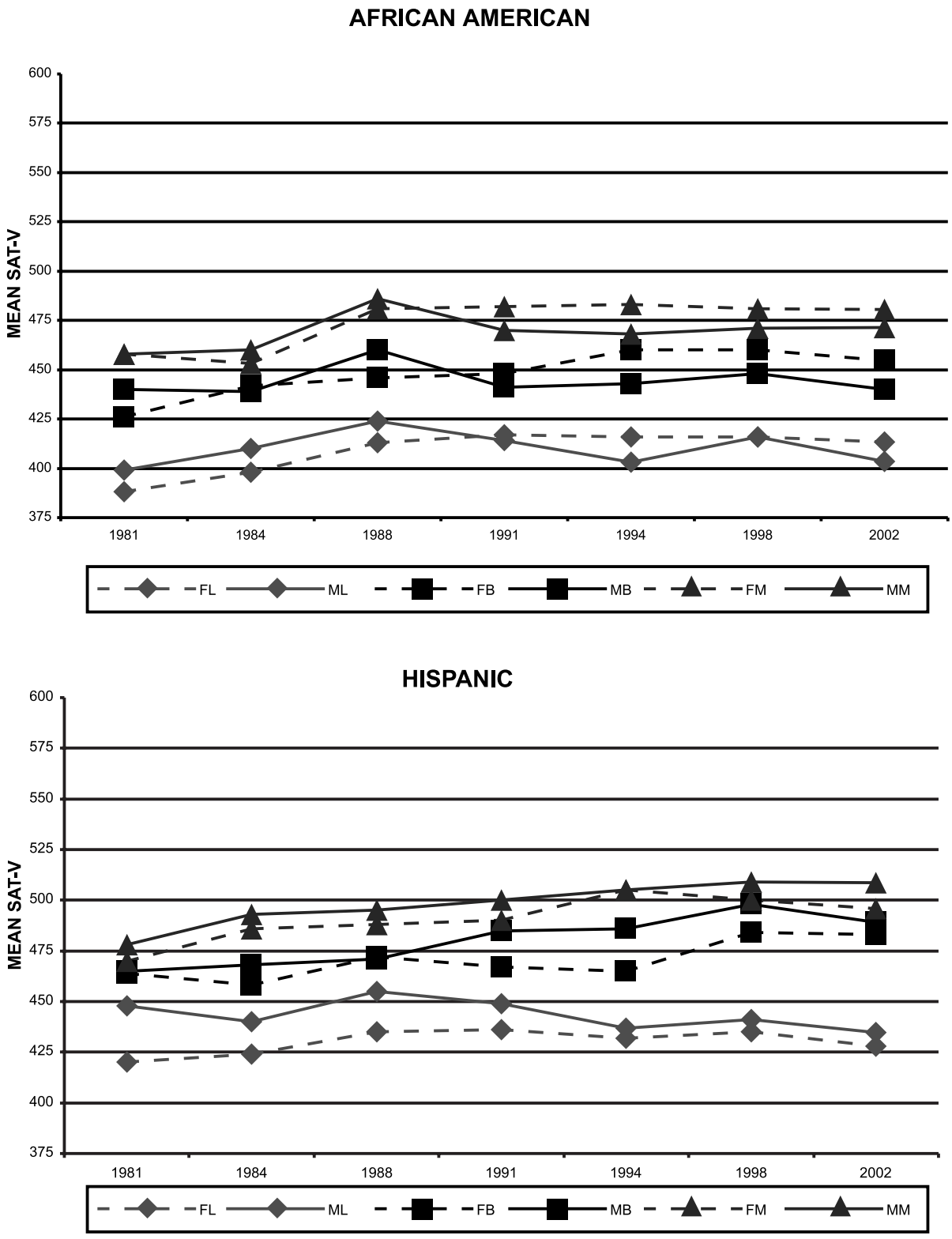
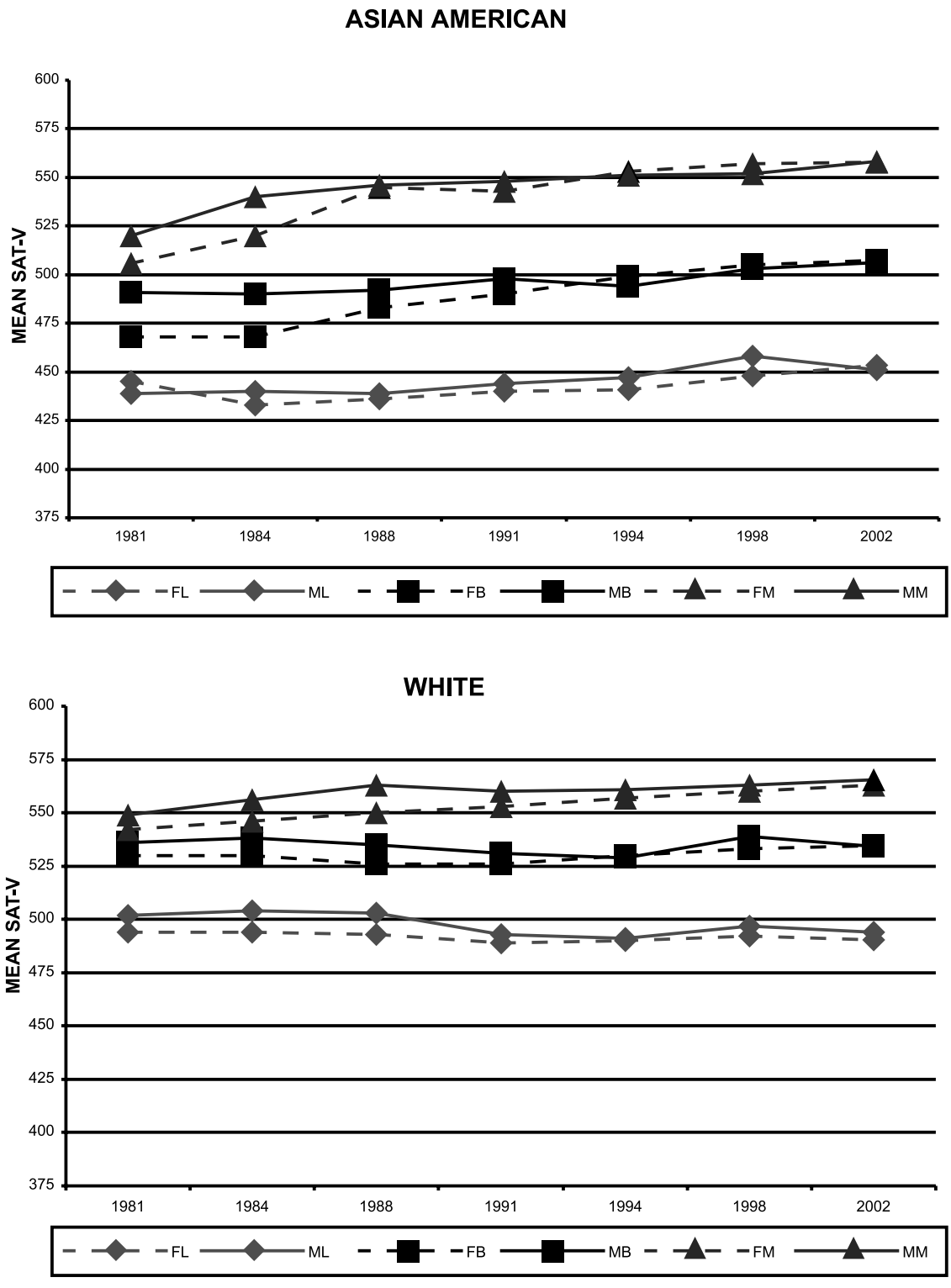
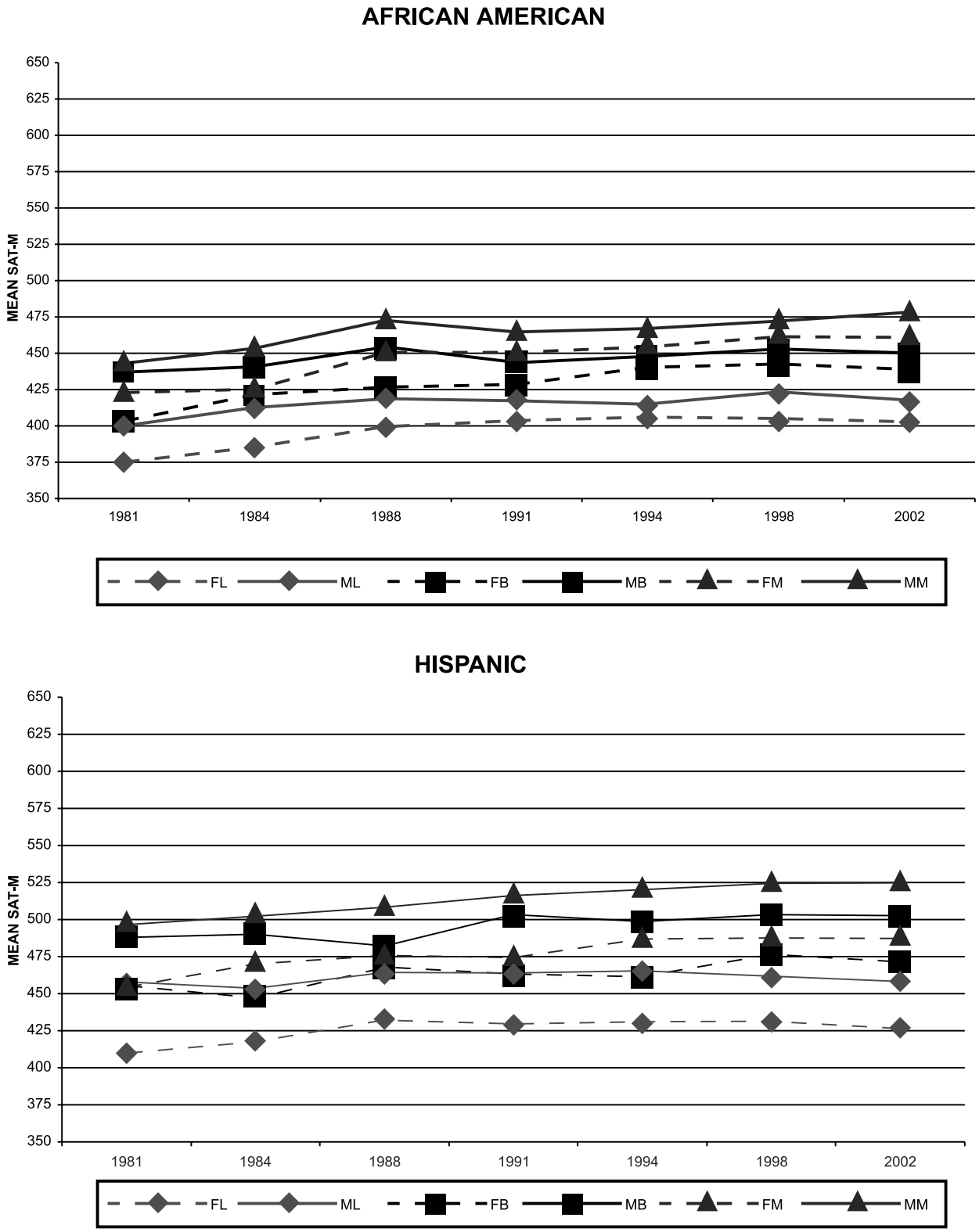


Figure A2. Mean SAT-V by parental education, ethnicity, and gender, 1981–2002.



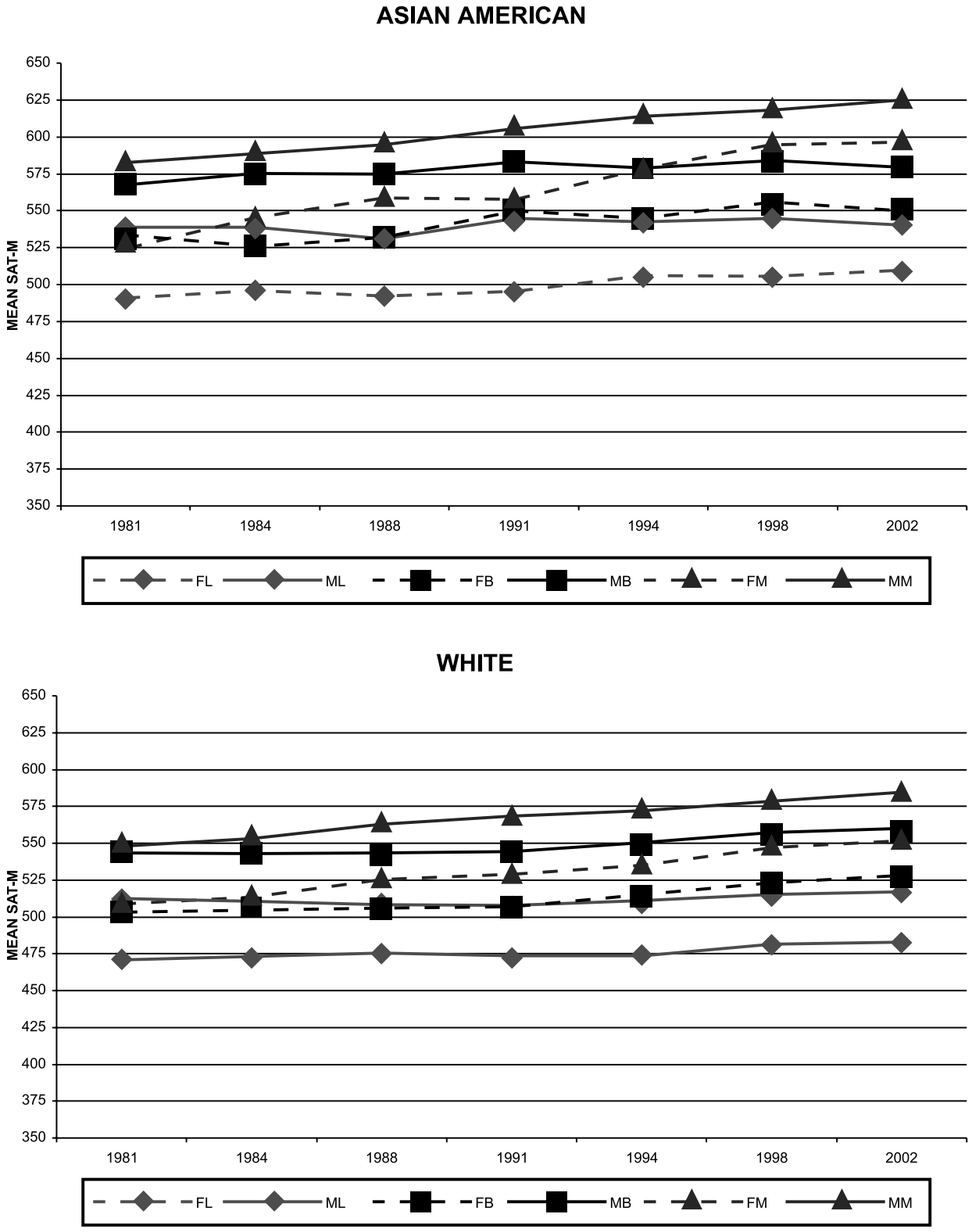
First letter=gender where F=Female and M=Male
Last letter=parents' education where M=More than bachelor's, B=Bachelor's degree, L=Less than bachelor's

Figure A2 (continued). Mean SAT-V by parental education, ethnicity, and gender, 1981–2002.



First letter=gender where F=Female and M=Male
Last letter=parents' education where M=More than bachelor's, B=Bachelor's degree, L=Less than bachelor's

Figure A3. Mean SAT-M by parental education, ethnicity, and gender, 1981–2002.



First letter=gender where F=Female and M=Male
Last letter=parents' education where M=More than bachelor's, B=Bachelor's degree, L=Less than bachelor's

Figure A3 (continued). Mean SAT-M by parental education, ethnicity, and gender, 1981–2002.

connect to college success™
www.collegeboard.com

30481021