

Trends Among High School Seniors 1972-2004



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Trends Among High School Seniors 1972-2004

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Executive Summary

This report presents information on similarities and differences between U.S. high school seniors as studied at four points in time over the past 32 years, with a focus on senior class demographics, senior-year coursetaking, extracurricular activities, educational/occupational expectations and plans, and life values. It provides an update to the National Center for Education Statistics (NCES) report published in 1995, *Trends Among High School Seniors, 1972–1992* (Green, Dugoni, and Ingels 1995). This report uses data from the following NCES studies:

- Seniors in 1972, as studied in the National Longitudinal Study of the High School Class of 1972 (NLS:72);
- Seniors in 1980, as studied in High School and Beyond (HS&B);¹
- Seniors in 1992, as studied in the National Education Longitudinal Study of 1988 (NELS:88); and
- Seniors in 2004, as studied in the Education Longitudinal Study of 2002 (ELS:2002).

The report is descriptive, updating published information on the NLS:72, HS&B, and NELS:88 senior surveys with additional information from ELS:2002 for selected comparable questionnaire items. The primary focus of this report is observation of change over the period for national averages and for subgroupings that have been of traditional interest to the NCES longitudinal studies.

Differences discussed in the text of this report had to meet statistical significance requirements. For establishing statistical significance, *t*-tests taking into account the effects of sampling error were performed and the 0.05 level of significance was used as a criterion. Comparisons were tested across years for all seniors and by subgroup, within years across subgroups, and across subgroup gaps across years (e.g., Black-White gap in 1972 versus the same gap in 2004). Given the large number of comparisons made, and because even very small differences can be statistically significant with the large sample sizes involved in these analyses, not all statistically significant differences are discussed in the text. Appendix A—Technical Notes provides more information about the statistical tests used, and appendix B—Standard Errors provides the standard errors of the table estimates. Readers can use these two sources to calculate *t*-statistics for independent sample comparisons.

The next sections provide highlights of the report presented in their order of appearance.

Chapter 1. Demographic Profile of High School Seniors: 1972–2004

Changes in the racial/ethnic makeup of high school seniors include the following:

- Eighty-six percent of high school seniors were White in 1972. By 2004, White seniors accounted for 62 percent of the high school senior population.

¹ Chapter 2 uses alternate data from High School and Beyond to examine coursetaking among seniors. Because no high school transcript study was conducted for the HS&B 1980 senior cohort, data on coursetaking have been provided using the HS&B 1980 sophomore cohort as 12th-graders in 1982.

- The proportion of Hispanics in the high school senior population increased from 4 percent in 1972 to 15 percent in 2006.
- The proportion of Black seniors who were in the highest socioeconomic (SES) quartile doubled from 1972 to 1992 (from 5 percent to 10 percent), and increased overall from 5 percent to 14 percent between 1972 and 2004.

Chapter 2. Coursetaking in the Senior Year: 1982–2004

This report examines the courses taken by seniors during their senior year (in contrast to courses accumulated throughout their high school program, as examined in, for example, Bozick and Ingels 2008 and Dalton et al. 2007). During this last year of high school, seniors took higher-level courses in mathematics, science, and foreign language in greater proportions in 2004 than in 1982 (the first year for which coursetaking data are available).

- The percentage of seniors enrolling in calculus during their senior year grew from 6 to 13 percent between 1982 and 2004. The percentage of seniors taking no mathematics courses during their senior year declined from 57 percent to 34 percent over this time period.
- In each senior class, higher percentages of Asian seniors than their peers enrolled in an advanced mathematics course: 27 percent of Asian seniors enrolled in advanced mathematics in 2004, versus 4 percent of Blacks, 6 percent of Hispanics, and 15 percent of Whites.
- Seniors increased their senior-year enrollment in advanced science courses (chemistry II, physics II, and advanced biology) from 12 percent in 1982 to 25 percent in 2004.
- Additionally, the percent of seniors taking no science courses in their senior year declined from 66 percent in 1982 to 46 percent in 2004.
- High-SES seniors were less likely to forgo science courses than lower-SES seniors in all years: for example, in 2004, thirty-eight percent of the highest SES quartile seniors did not enroll in a science course, compared to 52 percent of the lowest SES quartile seniors.
- Though the majority of students in all years did not enroll in foreign language courses during their senior year, the percentage declined from 87 percent in 1982 to 76 percent in 2004.
- In 2004, more females than males enrolled in third-year-and-above foreign language courses in their senior year (18 versus 11 percent, respectively).

Chapter 3. Extracurricular Activities: 1972–2004

Seniors participated in a variety of extracurricular activities. The ones examined in this report are student government, honor society, athletics, newspaper or yearbook, vocational club, and academic club. There was both some overall change and a good deal of stability in the patterns of participation among seniors.

- Of these six activities, seniors most often participated in high school athletics: participation ranged from 45 percent in 1972 to a high of 52 percent in 1980, with 43 and

44 percent in 1992 and 2004, respectively. At each of the four points in time, a higher percentage of males than females, and a higher percentage of highest SES seniors than lowest SES seniors, were high school athletes.

- Participation in student government declined, from 19 percent in 1972 to 13 percent in 2004. At all time points, highest SES seniors participated at higher percentages than lowest SES seniors.
- Participation in honor societies increased, from 14 percent in 1972 to 22 percent in 2004. At all 4 time points, female, Asian, and highest SES seniors participated at higher percentages than other groups (except Asians compared to Whites in 2004).
- Participation in vocational clubs declined from 22 percent in 1972 to 16 percent in 2004. At all time points, lowest SES seniors participated in vocational clubs at higher percentages than highest SES seniors.
- Finally, participation in academic clubs declined, from 26 percent in 1972 to 21 percent in 2004. In 2004, a higher proportion of female than male seniors, and of highest SES versus lowest SES seniors, were enrolled in academic clubs.

Chapter 4. Plans for Next Year: 1972–2004

Chapter 4 examines plans for work and school immediately after high school, as well as the importance of certain factors in choosing a postsecondary education institution.

- Compared to high school seniors in 1972, a smaller percentage of seniors in 2004 planned to work full-time in the year after their high school completion (declining from 32 to 19 percent). This corresponded to increasing proportions of seniors planning to continue their education in postsecondary institutions (rising from 59 percent in 1972 to 79 percent in 2004).
- In all four years, males planned to work immediately after high school in greater percentages than females; in 2004, 23 percent of males and 14 percent of females planned to do so.
- In all years (except compared to Whites in 1992), higher percentages of Hispanic seniors planned to work full-time after high school than Asian or White students (in 2004, 24 percent of Hispanics versus 9 percent of Asians and 18 percent of Whites planned to work right after high school).
- In each class of seniors, most of those who planned further schooling intended to attend 4-year schools, with the proportion of students planning to attend 4-year schools rising from 34 percent in 1972 to 61 percent in 2004.
- In all years, higher percentages of Asian high school seniors, and lower percentages of Hispanic seniors (except in 1992), compared to other racial/ethnic groups, planned attendance at 4-year institutions.
- The gap between the highest and lowest SES seniors in plans to attend 4-year schools after high school declined between 1972 and 2004. However, the gap between them remained above 20 percentage points in all four years. In 2004, eighty-one percent of

highest SES quartile seniors planned to attend a 4-year school, compared to 58 percent of lowest SES quartile seniors.

- In all years, larger percentages of seniors planning to continue their education after high school rated course availability or curriculum as very important to their college choice than rated school expenses, financial aid, or institutional reputation as very important. Females valued this factor in greater proportions than males did in all four senior classes, with 70 percent of females versus 62 percent of males reporting it as very important in 2004.

Chapter 5. Plans for the Future: 1972–2004

Plans for highest educational level and occupational attainment at age 30 are examined in chapter 5. In addition, the importance of eight life values is discussed. Overall, successive senior classes had heightened expectations for attaining graduate and professional degrees, increasingly expected to work in a professional field, and rated such values as living close to family and developing friendships more highly in 2004 than in 1972.

- In 1992 and 2004, a greater proportion of seniors expected to earn a bachelor's degree or a graduate/professional degree as their highest level of education than expected to reach some college education or a high school degree or less. In 2004, thirty-eight percent of seniors expected a graduate/professional degree and 37 percent of seniors expected to earn a bachelor's degree as their highest level of education, compared to 20 percent expecting to attend some college and 5 percent expecting to finish high school or less as their highest educational level.
- However, no difference was observed between 1972 and 2004 between the percentage of seniors expecting a bachelor's degree as their highest level of education. Instead, growth was greatest in expectations for a graduate or professional degree: 13 percent of seniors expected to attain this level of education as their highest in 1972, compared to 38 percent of seniors in 2004.
- In 1972, males expected to earn a graduate degree as their highest educational level in greater proportions than did females (16 percent versus 9 percent); however, in 2004, females expected to earn a graduate degree more often than males (45 percent versus 32 percent).
- Asian seniors' expectations for a graduate degree, which were lower than Whites' in 1972 (17 percent versus 22 percent), topped the expectations of all other groups by 2004 (at 51 percent) and represented the largest percentage point gain in any group (35 points).
- Seniors increasingly expected to work in professional occupations (growing from 45 percent of seniors in 1972 to 63 percent of seniors in 2004 expecting to work in a professional field).
- More males than females expected to work as craftsmen across all years (10 percent of males versus less than 1 percent of females in 2004); more females expected to work as professionals in all years (71 percent of females versus 54 percent of males in 2004) and as service workers in all years but 1992 (11 percent of females versus 2 percent of males in 2004).

- Greater percentages of seniors rated certain values highly in 2004 compared to 1972. These values included giving their children better opportunities (rising from 67 to 83 percent between 1972 and 2004); living close to parents (from 8 to 25 percent); friendship (from 79 to 86 percent); steady work (from 78 to 87 percent); success at work (from 85 to 91 percent); and making money (from 18 percent to 35 percent).
- In each class of seniors, lower percentages of Whites than Asians and Hispanics indicated that living close to parents was very important (e.g., in 2004, twenty-two percent of Whites indicated that living close to parents was very important, versus 32 percent of Asians and 33 percent of Hispanics).
- In 2004, higher percentages of seniors in the lowest SES quartile than those in higher SES quartiles said that making money and working to correct social problems were very important.

Foreword

This report describes patterns of continuity and change among spring 2004 high school seniors from the Education Longitudinal Study of 2002 (ELS:2002) first follow-up study, spring 1992 seniors from the National Education Longitudinal Study of 1988 (NELS:88) second follow-up study, spring 1980 seniors from the High School and Beyond (HS&B) base-year study, and spring 1972 seniors from the National Longitudinal Study of the High School Class of 1972 (NLS:72) base-year study. All four studies were sponsored by the U.S. Department of Education, National Center for Education Statistics (NCES) and help fulfill a major purpose of NCES national education longitudinal studies, which is to provide comparative data at different points in time that are germane to education policy and permit examination of patterns relative to education, career development, and societal roles. At a time when considerable national focus has turned to high school reform, the report provides timely information on major trends at this critical period for youth. The report supplies demographic profiles of 1972, 1980, 1992, and 2004 seniors and discusses their senior-year coursetaking and extracurricular activities, life values, educational expectations, and post-high school education and career plans.

We hope that the information provided in this report will be useful to a wide range of interested readers, including policymakers and educators. We further hope that the results reported here will encourage other researchers to use the four datasets, as well as their longitudinal follow-ups, both now and in the future, as additional waves of ELS:2002 build on the three past studies.

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Acknowledgments

This report, drawing on data from four studies spanning 32 years, builds on the work of many people, only a few of whom we are able to mention. This report updates an earlier NCES publication, *Trends Among High School Seniors, 1972–1992* (Green, Dugoni, and Ingels 1995); Peggy Quinn was the NCES Project Officer for the earlier report. NCES recently published a related report on trends for the HS&B, NELS:88, and ELS:2002 sophomore cohorts between 1980 and 2004 (Cahalan et al. 2006). The sophomore report may profitably be read in conjunction with this report on high school seniors, and on several points of presentation, the current report is indebted to it.

We would like to acknowledge the helpful comments of several internal and external reviewers of this report who played important roles in refining its content and structure. We wish to thank our reviewers from the Education Statistics Services Institute (ESSI) of the American Institutes for Research: Sally Ruddy, Greg Strizek, Sandy Eyster, Xiaolei Wang, Kevin Bromer, Shijie Chen, Stephen Hocker, Jed Tank, and Siri Warkentien. We are also greatly indebted to two anonymous peer reviewers.

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Finally, we would like to note that the two authors contributed equally to the conceptualization, writing, and analysis of this report.

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Chapter 1.

Demographic Profile of High School Seniors, 1972–2004

This report presents descriptive information on similarities and differences between U.S. high school seniors as studied at four points in time over the past 32 years. Over the past three decades, the National Center for Education Statistics (NCES) has sponsored a series of studies designed to provide both cross-sectional data and longitudinal cohort data that can be used to examine the experiences, attitudes, and achievement of high school students and their transition to young adulthood, postsecondary education, and work. This report updates an NCES report published in 1995, *Trends Among High School Seniors, 1972–1992* (Green, Dugoni, and Ingels 1995), by including data from the Education Longitudinal Study of 2002 (ELS:2002). With the completion of that study's senior cohort round in 2004, it became possible to observe characteristics of high school seniors at four points in time, from 1972 to 2004. The report uses data from the following NCES studies:

- Seniors in 1972, as studied in the National Longitudinal Study of the High School Class of 1972 (NLS:72);
- Seniors in 1980,¹ as studied in High School and Beyond (HS&B);
- Seniors in 1992, as studied in the National Education Longitudinal Study of 1988 (NELS:88); and
- Seniors in 2004, as studied in the Education Longitudinal Study of 2002 (ELS:2002).

All four of these studies were principally longitudinal in design; however, the overall scope and design of each one also provides nationally representative cross-sectional profiles of the nation's high school seniors at the appropriate time in each study. As part of a historical series, the studies have repeatedly collected core questionnaire and academic records items each decade. These areas include cohort demographics; academic coursetaking in the senior year; rates of 12th-grade participation in extracurricular activities; and goals, values, and expectations.

For the analyses in this report, students who were seniors during the spring term of their respective study year were included; dropouts, early graduates, or those entering non-graded programs were not included. In this and subsequent chapters, all reported differences have been found to be statistically significant using student's *t* tests at a level of $p < 0.05$. Comparisons were tested across years for all seniors and by subgroup, within years across subgroups, and across subgroup gaps across years (e.g., Black-White gap in 1972 versus the same gap in 2004). Given the large number of comparisons made, and because even very small differences can be statistically significant with the large sample sizes involved in these analyses, not all statistically significant differences are discussed in the text. Appendix A—Technical Notes provides more information about the statistical tests used, and appendix B—Standard Errors provides the

¹ Because no high school transcript study was conducted for the HS&B 1980 senior cohort, data on coursetaking have been provided using the HS&B 1980 sophomore cohort as 12th-graders in 1982. The conservative bias of using a nonfreshened sample of seniors is discussed and quantified in appendix A, section A.8.7.

standard errors of the table estimates. Readers can use these two sources to calculate *t*-statistics for independent sample comparisons.

1.1 Race/Ethnicity: Demographic Shifts

Over the 32-year period from 1972 to 2004, there was increasing racial/ethnic diversity among high school seniors (table 1).² In 1972, eighty-six percent of high school seniors were White. By 2004, sixty-two percent were White. The percentage of Hispanics in the senior class population increased from 4 percent in 1972 to 15 percent in 2004, and the percentage of Blacks increased from 9 percent to 12 percent between 1972 and 1980.

Table 1. Percentage of high school seniors, by sex and race/ethnicity: 1972, 1980, 1992, and 2004

Characteristics	Year			
	1972	1980	1992	2004
Sex				
Male	49.9	48.1	50.4	49.9
Female	50.1	51.9	49.6	50.1
Race/ethnicity ¹				
Asian	0.9	1.3	4.5	4.5
Black	8.7	11.6	11.9	13.3
Hispanic	3.5	6.3	10.0	15.0
White	85.8	79.9	72.7	62.3
More than one race	—	—	—	3.9

— Not available.

¹ Due to small sample sizes for the group, the category “American Indian or Alaska Native” was omitted from the tables in this report but included for the purposes of computing percentages.

NOTE: Detail may not sum to totals because of rounding. Asian includes Native Hawaiian or Other Pacific Islander, Black includes African American, and Hispanic includes Latino. All race categories exclude Hispanic or Latino origin.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Longitudinal Study of the High School Class of 1972 (NLS:72), “Base Year”; High School and Beyond Longitudinal Study of 1980 Seniors (HS&B-Sr:80/86); National Education Longitudinal Study of 1988 (NELS:88/92), “Second Follow-up, Student Survey, 1992”; Education Longitudinal Study of 2002 (ELS:2002/2004), “First Follow-up, 2004.”

1.2 Race/Ethnicity and Socioeconomic Status

For each of the four NCES senior cohort studies (NLS:72, HS&B, NELS:88, ELS:2002), a standardized socioeconomic status (SES) variable³ was constructed based on a composite of parent or guardian education, income, occupation and, prior to ELS:2002, household items (such as number of books, electric dishwasher, number of cars, student having own room, etc.).

² Note that the category “more than one race” was added for the ELS:2002 survey but was not available in the earlier studies. Also note that table 1 and subsequent tables and figures do not include the “American Indian” category in consideration of the small sample size for this group. More specifically, for all four cohorts, the category “American Indian or Alaska Native” was included for the purposes of computing percentages but was omitted from the tables in this report.

³ Details about the socioeconomic status composite, including continuity, differences in its composition, and comparability across studies, are provided in appendix A.

Table 2 provides data on the percentage of Black, White, Asian, and Hispanic seniors in each quartile of socioeconomic status.⁴ Focusing on the highest and lowest SES quartiles, table 2 shows that the percentages of Black and Asian seniors from homes in the highest SES quartile increased over time:

- The proportion of Black seniors in the highest SES group doubled from 1972 to 1992 (from 5 percent to 11 percent), and increased overall from 1972 to 2004 (from 5 percent to 14 percent). The proportion of Black seniors in the lowest SES group decreased from 63 percent in 1972, to 42 percent in 1992, and to 37 percent in 2004.

Table 2. Percentage of high school seniors in socioeconomic (SES) quartiles, by race/ethnicity: 1972, 1980, 1992, and 2004

Characteristics	Year			
	1972	1980	1992	2004
Asian	100.0	100.0	100.0	100.0
Lowest SES quartile	25.4	21.2	23.3	27.5
Middle two SES quartiles	51.5	46.4	43.3	41.6
Highest SES quartile	23.1	32.4	33.4	30.9
Black	100.0	100.0	100.0	100.0
Lowest SES quartile	62.8	55.8	42.2	37.1
Middle two SES quartiles	31.9	35.8	47.3	49.4
Highest SES quartile	5.2	8.5	10.5	13.5
Hispanic	100.0	100.0	100.0	100.0
Lowest SES quartile	61.2	51.9	49.4	50.5
Middle two SES quartiles	31.6	37.8	35.6	39.4
Highest SES quartile	7.2	10.3	15.0	10.1
White	100.0	100.0	100.0	100.0
Lowest SES quartile	18.5	21.4	18.3	16.4
Middle two SES quartiles	54.1	50.8	51.9	52.7
Highest SES quartile	27.4	27.8	29.8	30.9
More than one race	100.0	100.0	100.0	100.0
Lowest SES quartile	—	—	—	26.1
Middle two SES quartiles	—	—	—	52.7
Highest SES quartile	—	—	—	21.2

— Not available.

NOTE: Detail may not sum to totals because of rounding. Asian includes Native Hawaiian or Other Pacific Islander, Black includes African American, and Hispanic includes Latino. All race categories exclude Hispanic or Latino origin. Due to small sample sizes for the group, the category "American Indian or Alaska Native" was omitted from the tables in this report.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Longitudinal Study of the High School Class of 1972 (NLS:72), "Base Year"; High School and Beyond Longitudinal Study of 1980 Seniors (HS&B-Sr:80/86); National Education Longitudinal Study of 1988 (NELS:88/92), "Second Follow-up, Student Survey, 1992"; Education Longitudinal Study of 2002 (ELS:2002/2004), "First Follow-up, 2004."

⁴ SES quartiles are based on the SES distribution for all high school seniors in a given year (i.e., in each study year, 25 percent of seniors are in the lowest quartile, 50 percent are in the middle two quartiles, and 25 percent are in the highest quartile). Please note that because SES quartiles are based on distributions within each sample, rather than on fixed levels of parental education, family income, or possession of particular household items, cut-points for quartiles do not reflect identical socioeconomic conditions across all time points.

- In 1972, 23 percent of Asian seniors came from homes in the upper quartile of SES. This grew to about a third (32 percent) of Asian seniors in 1980 and showed no additional statistically significant change through 2004.
- Twenty-seven percent of White seniors were in the highest SES quartile in 1972, while 31 percent were in the highest quartile in 2004. In 1980, twenty-one percent of White seniors were in the lowest SES quartile, while in 2004, sixteen percent of White seniors were in the lowest SES quartile.
- The proportion of Hispanic seniors in the highest SES quartile grew from 10 percent in 1980 to 15 percent in 1992, followed by a decline to 10 percent in 2004. Overall, between 1972 and 2004, there was no statistically significant difference in the proportion of Hispanic seniors in the highest SES quartile. However, the proportion of Hispanic seniors in the lowest SES quartile was higher in 2004 than in 1972, with a statistically significant decline from 61 to 52 percent between 1972 and 1980, and no statistically significant change from 1980 through 2004.

Chapter 2.

Academic Coursetaking in the Senior Year of High School

The recommendations from the oft-quoted *A Nation at Risk: The Imperative for Educational Reform* (National Commission on Excellence in Education 1983) called for increased core academic subject graduation requirements, implementation of testing standards, increased teacher professionalization, and increased emphasis on student preparation for college in high schools. More recently, the National Goals for Education (1995) and the No Child Left Behind Act of 2001 (NCLB) have emphasized similar strategies and recommendations for reform. By 1992, most states (42 of 50) had raised course requirements for graduation.⁵ Between 1987 and 2004, the number of states requiring at least 2.5 credits in mathematics grew from 12 to 26, and the number of states requiring at least 2.5 credits in science grew from 6 to 23 (Council of Chief State School Officers [CCSSO] 2005). Given such changes in course requirements and demonstrated growth in academic credits among high school graduates (e.g., Planty et al. 2007), more recent senior classes may enroll in academic⁶ courses during their senior year in greater proportions than earlier cohorts.

This chapter presents new results regarding senior-year coursetaking in three academic subjects—mathematics, science, and foreign language—for the period of 1982 to 2004.⁷ While all levels of courses are considered, the focus is on non-enrollment in subject-area courses and enrollment in advanced courses. These provide a snapshot of the extent to which seniors are or are not using their senior year to continue their academic development in these subjects. This snapshot of senior-year coursetaking does not specifically address total credits earned or highest courses taken at any point during high school, but rather provides insight into the coursetaking patterns of seniors only (cumulative credits earned and highest courses taken during high school are the subject of other NCES reports, including Perkins et al. 2004, Dalton et al. 2007, and Planty et al. 2007).

Other subjects such as English and social studies are not included in this chapter because of the difficulty of providing any comprehensive ordering of courses from “low-level” to “advanced.” Due to data limitations of early studies (HS&B in particular), trend analysis of Advanced Placement (AP) courses—the most obvious candidate for distinguishing between high- and low-level English and social science courses—is not feasible (AP courses were not identified in HS&B, and some existing AP courses in NELS:88 were also not identified). A

⁵ See Medrich, Brown, and Henke 1992. On more recent school reform, encompassing the ELS:2002 cohort, see Hurst et al. 2003 and Planty et al. 2007.

⁶ Academic courses exclude career and technical education courses and courses such as physical education, art, and music.

⁷ No high school transcripts were collected for National Longitudinal Study of the High School Class of 1972 (NLS:72) nor for 1980 HS&B seniors. However, transcript studies were conducted for the HS&B sophomore cohort (most were 12th-graders in 1982), and the senior cohorts of NELS:88 (1992) and ELS:2002 (2004). There is some conservative bias in employing the HS&B sophomore cohort for trend analysis, since the senior sample was not freshened in 1982 and therefore does not include retained students who were not 10th-graders in 1980 (the observed seniors would be less likely to have poor coursetaking outcomes). See appendix A (section A.8) of this report for a discussion of HS&B bias and issues of comparability across the four cohorts.

alternative approach would be to examine whether or not students took a full credit in English or social science that year, but this does not provide much information about senior-year coursetaking differences, as the majority of students would have done so.

2.1 Mathematics Coursetaking

Tables 3 and 4 present the patterns of coursetaking in mathematics for the senior cohorts of 1982, 1992, and 2004. First, table 3 shows the percentage of high school seniors enrolled in specific mathematics courses during their senior year.

Table 3. Percentage of high school seniors enrolled in specific mathematics courses in their senior year: 1982, 1992, and 2004

Mathematics course ¹	Year		
	1982	1992	2004
No mathematics	57.3	38.4	33.6
Basic mathematics	1.3	1.5	2.1
General mathematics	4.2	3.0	3.6
Applied mathematics	3.8	5.0	4.2
Pre-algebra	1.1	1.4	1.7
Algebra I	2.7	4.2	3.7
Geometry	4.0	6.5	6.0
Algebra II	5.0	10.4	8.9
Algebra III	4.4	3.2	3.6
Trigonometry	7.0	9.6	6.9
Advanced geometry	7.0	9.6	6.9
Statistics/probability	0.9	1.6	6.0
Other intermediate mathematics	2.0	4.0	4.3
Precalculus	4.7	9.0	12.7
Calculus	5.5	10.1	12.5
Tutoring ²	0.1 !	#	0.1 !

Rounds to zero.

! Interpret data with caution. Standard error is more than one-third as large as estimate.

¹ Mathematics courses are listed from lowest to highest level, except for tutoring. Basic and general mathematics refer to courses labeled as such, with the exact distinction in content not provided from the transcripts. Applied mathematics refers to courses such as consumer mathematics, actuarial mathematics, and nurse's mathematics. Other intermediate mathematics includes courses such as linear algebra and higher-level independent study.

² Tutoring may be received in any subject and does not necessarily represent a level higher than calculus.

NOTE: Percentages do not sum to 100. About 9 percent of seniors take multiple types of mathematics courses in their senior year. Course titles were obtained from transcripts; information on the quality of the course or instruction and on the specific content delivered is not available.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B-So:80/82), "High School Transcript Study"; National Education Longitudinal Study of 1988 (NELS:88/92), "Second Follow-up, Transcript Survey, 1992"; and Education Longitudinal Study of 2002 (ELS:2002/2004), "First Follow-up, High School Transcript Study, 2004."

- In 2004, thirty-four percent of seniors took no mathematics classes during their senior year, a decline from 57 percent of seniors in 1982 (table 3). Most of this decline occurred between 1982 and 1992.
- In 1982, seven percent of seniors were taking trigonometry and 7 percent were taking advanced geometry, more than any other specific mathematics courses (such as basic mathematics, pre-algebra, and statistics and/or probability).

- By 1992, algebra II, trigonometry, advanced geometry, and calculus were each being taken by ten percent of seniors, more than were taking any class at or below geometry.
- In 1982, five percent of seniors were taking precalculus and 6 percent were taking calculus. These percentages grew to 13 percent of seniors taking precalculus and 13 percent taking calculus in 2004, higher percentages than were taking any other single mathematics course.

Second, table 4 presents the percentage of seniors enrolled in no mathematics course and in basic, intermediate, or advanced mathematics courses during their senior year, by selected student characteristics.⁸ Basic mathematics courses refer to basic, general, or applied mathematics, pre-algebra, algebra I, and geometry. Intermediate courses refer to algebra II, algebra III, trigonometry, advanced geometry, statistics, probability, and other intermediate courses such as linear algebra. Advanced mathematics refers to precalculus and calculus (including Advanced Placement [AP] or International Baccalaureate [IB] precalculus or calculus).⁹

While table 3 shows that the percentage of seniors not enrolling in any mathematics course declined between 1982 and 2004 and that advanced mathematics (i.e., precalculus and calculus) coursetaking during the senior year increased over this period, table 4 indicates that the percentage of seniors enrolled in basic mathematics courses did not statistically significantly differ between 1982 and 2004 (standing at 16 percent in the latest cohort). Intermediate mathematics coursetaking rose from 17 percent to 25 percent between 1982 and 1992, but showed no difference between 1992 and 2004. Among seniors with different background characteristics, the following was observed:

- **Sex.** In 1982, a higher percentage of females than males (63 versus 52 percent, respectively) did not enroll in a mathematics course their senior year, and higher percentages of males than females enrolled in basic, intermediate, and advanced mathematics courses; by 2004, however, there were no differences in enrollment between male and female seniors (table 4).
- **Race/ethnicity.** In 1982 and 2004, lower percentages of Asian and Black seniors than their Hispanic or White peers did not enroll in mathematics courses during their senior year. In 2004, twenty-one percent of Asian seniors and 27 percent of Black seniors did not enroll in mathematics, compared to 38 percent of Hispanic and 35 percent of White seniors. However, for all racial/ethnic groups, the percentage taking no mathematics courses declined from 1982 to 2004.
- Asian seniors in each cohort enrolled in an advanced mathematics course at higher rates than their peers, and Whites in each cohort enrolled in an advanced mathematics

⁸ Since courses listed in table 3 are not mutually exclusive (i.e., many seniors take two or more mathematics courses during their senior year), the categories shown in table 4 will not sum to the totals of the courses as shown in table 3.

⁹ These level definitions (for mathematics and science) differ somewhat from “pipeline” measures of achieved course levels used in previous NCES reports (such as, most recently, Dalton et al. 2007). The pipeline measures indicate the highest course level taken at any point in the high school career; a student may take their highest mathematics or science course, for example, not in their senior year, but in their junior year, and this course would be reflected in the pipeline measure. In contrast, the courses discussed here are courses taken only during senior year.

course at higher rates than their Black or Hispanic peers. In 2004, forty-two percent of Asian seniors enrolled in advanced mathematics, versus 15 percent of Blacks, 15 percent of Hispanics, and 28 percent of Whites.

- **Socioeconomic status (SES).** In all years, seniors from the highest SES quartile took advanced mathematics courses at higher rates than seniors from lower SES groups (in 2004, forty percent of highest SES quartile seniors, versus 14 and 21 percent of lowest and middle two SES quartile seniors, respectively, enrolled in advanced mathematics courses).

Table 4. Percentage of high school seniors enrolled in mathematics courses during their senior year, by course level, sex, race/ethnicity, and socioeconomic status (SES) quartile: 1982, 1992, and 2004

Characteristics	1982				1992				2004			
	Not enrolled	Basic math courses	Inter-mediate math courses	Advanced math courses	Not enrolled	Basic math courses	Inter-mediate math courses	Advanced math courses	Not enrolled	Basic math courses	Inter-mediate math courses	Advanced math courses
Total	57.3	15.5	17.1	10.0	38.4	17.3	25.4	18.9	33.6	16.4	25.6	24.4
Sex												
Male	51.6	17.9	19.2	11.2	36.1	18.4	26.1	19.4	33.6	17.5	25.0	24.0
Female	62.7	13.3	15.1	8.9	40.8	16.2	24.6	18.4	33.6	15.4	26.3	24.8
Race/ethnicity ¹												
Asian	33.6	14.6	24.1	27.7	32.1	11.4	19.9	36.7	21.0	9.7	26.9	42.4
Black	51.3	29.5	15.4	3.8	34.0	28.8	26.6	10.6	27.1	24.6	33.4	14.9
Hispanic	61.7	22.5	11.2	4.5	39.9	25.8	23.6	10.7	37.8	25.7	22.0	14.5
White	57.9	12.3	18.3	11.6	39.4	14.2	25.8	20.6	35.0	12.6	24.8	27.6
Multiracial	—	—	—	—	—	—	—	—	31.3	20.2	25.1	23.5
SES quartile												
Lowest	67.0	20.6	9.8	2.6	47.1	27.6	18.5	6.8	37.8	24.6	23.8	13.8
Middle two	59.0	15.4	17.0	8.6	40.5	17.8	26.5	15.2	36.9	17.3	25.1	20.8
Highest	45.4	10.7	24.3	19.6	27.1	9.1	28.5	35.3	24.2	8.1	28.1	39.6

— Not available.

¹ Asian includes Pacific Islander; Black includes African-American; and Hispanic includes Latino. All race categories exclude Hispanic and Latino.

NOTE: "Basic mathematics course" refers to basic, general, or applied mathematics, pre-algebra, algebra I, and geometry. "Intermediate mathematics course" refers to algebra II, algebra III, trigonometry, advanced geometry, statistics, probability, and other intermediate courses such as linear algebra. "Advanced mathematics course" refers to precalculus and calculus courses.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B-So:80/82), "High School Transcript Study"; National Education Longitudinal Study of 1988 (NELS:88/92), "Second Follow-up, Transcript Survey, 1992"; and Education Longitudinal Study of 2002 (ELS:2002/2004), "First Follow-up, High School Transcript Study, 2004."

2.2 Science Coursetaking

Tables 5 and 6 present the coursetaking patterns of seniors in science. Nearly half of seniors—46 percent—took no science courses their senior year in 2004, a decline from the 67 percent of seniors not taking a science course in 1982 (table 5). Also:

- In all years, the science courses most often taken by seniors were advanced biology and general physics: 9 percent of seniors took each in 1982, growing to 18 percent of seniors taking advanced biology and 13 percent taking general physics in 2004 (table 5).

Table 5. Percentage of high school seniors enrolled in specific science courses in their senior year: 1982, 1992, and 2004

Science course	Year		
	1982	1992	2004
No science	65.6	52.8	46.1
General science	2.2	2.5	2.4
General physical science	1.4	2.9	2.9
Regular earth science	1.1	2.1	2.3
Advanced earth science	0.1	0.1	1.4
Astronomy/meteorology	0.7	1.0	1.7
Basic biology	1.2	0.6	0.6
General biology	2.6	2.7	3.2
Advanced biology	8.8	13.6	18.0
Basic chemistry	1.4	1.5	1.1
General chemistry	4.9	6.3	7.8
Chemistry I	2.0	2.5	3.3
Basic physics	2.2	2.9	2.3
General physics	9.1	12.7	12.7
Physics I	1.6	2.6	3.2
Engineering	0.1 !	0.2	0.8
Chemistry II or AP/IB chemistry	1.7	2.3	2.8
Physics II or AP/IB physics	1.2	2.6	3.1

! Interpret data with caution. Standard error is more than one-third as large as estimate.

NOTE: Percentages do not sum to 100. About 8 percent of seniors take multiple types of science courses during their senior year. Course titles were obtained from transcripts; information on the quality of the course or instruction is not available.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B-So:80/82), "High School Transcript Study"; National Education Longitudinal Study of 1988 (NELS:88/92), "Second Follow-up, Transcript Survey, 1992"; and Education Longitudinal Study of 2002 (ELS:2002/2004), "First Follow-up, High School Transcript Study, 2004."

Table 6 shows the percentage of seniors taking no science and taking basic, intermediate, and advanced science courses during their senior year. Basic science courses refer to general science; regular and advanced earth science; general physical science; basic biology, chemistry, and physics; and astronomy/meteorology. The intermediate category represents general biology, chemistry I, and physics I. Advanced science courses refer to chemistry II, physics II, and advanced biology, and include all Advanced Placement (AP) and International Baccalaureate (IB) science courses.

Table 6 indicates that the percentage of seniors enrolling in advanced science courses increased between 1982 and 2004 from 12 percent to 25 percent. As with mathematics, however, the percentage of seniors taking basic science courses showed no overall differences between 1982 and 2004. By student subgroups:

- **Sex.** In 1982, 69 percent of females were not enrolled in any science courses, compared to 63 percent of males; however, there was no difference between the percentages of males and females enrolled in advanced science courses. In 2004, the science pattern changed: there was no statistically significant difference in non-enrollment, but females enrolled in advanced science courses at higher rates than males: 27 percent of females and 23 percent of males enrolled in advanced science courses in 2004.
- **Race/ethnicity.** Asian seniors had the highest levels of enrollment in advanced science courses and the lowest levels of non-enrollment in science in all years. In 2004, for example, 37 percent of Asian seniors enrolled in an advanced science course, compared to 21 percent of Blacks, 18 percent of Hispanics, 27 percent of Whites, and 23 percent of multiracial students.
- Black and Hispanic seniors had lower rates of advanced science coursetaking than Asian and White seniors in all years, though all groups' participation increased from 1982 to 2004 (growing from 8 to 21 percent for Blacks, 6 to 18 percent for Hispanics, 22 to 37 percent for Asians, and 14 to 27 percent for Whites).
- **SES.** In all years, non-enrollment in science courses was lower among the highest SES quartile seniors than among the lowest and middle two SES quartile seniors. In 2004, thirty-eight percent of the highest SES quartile seniors did not enroll in science courses, versus 52 percent of the lowest SES quartile seniors.

Table 6. Percentage of high school seniors enrolled in science courses during their senior year, by course level, sex, race/ethnicity, and socioeconomic status (SES) quartile: 1982, 1992, and 2004

Characteristics	1982			1992			2004					
	Not enrolled	Basic science courses	Inter-mediate science courses	Advanced science courses	Not enrolled	Basic science courses	Inter-mediate science courses	Advanced science courses	Not enrolled	Basic science courses	Inter-mediate science courses	Advanced science courses
Total	65.6	7.5	14.7	12.2	52.8	10.1	19.1	17.9	46.1	8.6	20.4	24.9
Sex												
Male	62.5	8.5	17.6	11.4	51.8	11.8	19.6	16.8	45.4	9.8	22.1	22.8
Female	68.6	6.5	12.0	12.9	53.9	8.4	18.6	19.1	46.8	7.4	18.8	27.1
Race/ethnicity ¹												
Asian	39.1	11.1	28.3	21.5	41.5	8.8	25.1	24.6	34.6	5.9	22.3	37.1
Black	68.8	11.3	12.0	7.8	57.3	11.4	20.5	10.7	44.1	13.5	21.1	21.3
Hispanic	75.2	6.5	11.9	6.4	58.6	13.2	15.5	12.6	51.5	10.7	19.6	18.2
White	64.1	7.0	15.3	13.6	52.1	9.5	19.0	19.4	46.1	7.1	20.2	26.5
Multiracial	—	—	—	—	—	—	—	—	45.0	10.3	21.4	23.3
SES quartile												
Lowest	74.7	8.5	9.8	6.9	62.2	12.4	15.0	10.4	51.5	11.0	18.0	19.5
Middle two	68.3	6.9	13.4	11.4	56.0	10.7	19.1	14.2	47.9	8.9	19.9	23.4
Highest	52.5	7.1	21.8	18.5	38.8	8.1	22.6	30.5	38.4	6.1	23.3	32.2

— Not available.

¹ Asian includes Pacific Islander; Black includes African-American; and Hispanic can be of any race.

NOTE: "Basic science courses" represent general science, regular and advanced earth science, general physical science, basic chemistry, basic physics, and astronomy/meteorology; "intermediate science courses" represent general biology, chemistry I, and physics I; "Advanced science courses" represent chemistry II, physics II, and advanced biology; these include all AP and IB science courses.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B-So:80/82), "High School Transcript Study"; National Education Longitudinal Study of 1988 (NELS:88/92), "Second Follow-up, Transcript Survey, 1992"; and Education Longitudinal Study of 2002 (ELS:2002/2004), "First Follow-up, High School Transcript Study, 2004."

2.3 Foreign Language Coursetaking

Table 7 shows the percentage of students enrolling in foreign language courses during their senior year. Courses are divided between non-enrollment in senior-year foreign language courses, first- and second-year foreign language enrollment, and third-year-and-above enrollment, including Advanced Placement courses. A breakdown of course-specific enrollment rates is not provided because foreign language courses are more difficult to categorize than mathematics or science subjects: some schools provide less-offered languages, and high school seniors may opt to start a new foreign language after completing multiple years of a previous one.

- In all cohorts, the majority of seniors were not enrolled in foreign language courses, though the percentage declined from 87 percent in 1982 to 75 percent in 1992 and 76 percent in 2004.
- Similarly, the percentage of seniors enrolled in a third year or above foreign language course rose from 7 percent in 1982 to 15 percent in 2004. First- and second-year enrollment grew from 6 percent in 1982 to 11 percent in 1992, but no statistically significant difference was observed between 1992 and 2004.
- **Sex.** In 1992 and 2004, more females than males enrolled in third year or above foreign language courses (in 2004: 18 versus 11 percent, respectively). In all years, the percentages of seniors who did not enroll in any foreign language courses were higher among males than among females.
- **Race/ethnicity.** In all years, a smaller percentage of Black seniors took third year or above foreign language courses than did Asian or White seniors; a greater percentage of Asian seniors took third year or above courses in foreign language (and a smaller percentage took no foreign language) than did Blacks or Hispanics in all years.
- **SES.** Highest SES quartile seniors enrolled in third year or above foreign language courses at higher rates than did the lowest SES quartile seniors, in all years. In 2004, twenty-four percent of high-SES quartile seniors did so, compared to 9 percent of low-SES quartile seniors. Seniors in all SES quartile groups had higher rates of foreign language coursetaking in 2004 than in 1980.

Table 7. Percentage of high school seniors enrolled in foreign language courses during their senior year, by course level, sex, race/ethnicity, and socioeconomic status (SES) quartile: 1982, 1992, and 2004

Characteristics	1982			1992			2004		
	Not enrolled	First- or second-year course	Third-year or above course	Not enrolled	First- or second-year course	Third-year or above course	Not enrolled	First- or second-year course	Third-year or above course
Total	86.6	6.3	7.2	75.3	11.5	13.2	75.5	9.9	14.6
Sex									
Male	89.9	5.0	5.1	79.1	11.0	9.9	78.0	10.7	11.3
Female	83.4	7.5	9.1	71.5	12.0	16.5	73.1	9.0	17.9
Race/ethnicity ¹									
Asian	69.3	14.7	16.0	67.6	12.6	19.9	70.3	9.6	20.2
Black	88.6	8.6	2.9	76.8	15.7	7.5	76.7	15.8	7.5
Hispanic	89.0	6.0	5.0	75.5	14.3	10.2	77.3	9.0	13.7
White	86.2	5.8	8.0	75.6	10.1	14.3	75.0	8.9	16.1
More than one race	—	—	—	—	—	—	78.9	9.3	11.8
SES quartile									
Lowest	92.5	5.2	2.3	83.1	10.6	6.3	80.1	11.0	8.9
Middle two	87.5	6.6	5.9	76.8	12.8	10.4	77.5	10.5	12.0
Highest	79.3	6.9	13.8	65.9	10.2	23.9	68.3	7.7	23.9

— Not available.

¹ Due to small sample sizes for the group, the category "American Indian or Alaska Native" was omitted from the tables in this report but included for the purposes of computing percentages.

NOTE: Asian includes Native Hawaiian or Other Pacific Islander, Black includes African American, and Hispanic includes Latino. All race categories exclude Hispanic or Latino origin. Student courses count only once, with the highest level of foreign language coursetaking being credited to a student if they took foreign language courses at two or more levels.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B-So:80/82), "High School Transcript Study"; National Education Longitudinal Study of 1988 (NELS:88/92), "Second Follow-up, Transcript Survey, 1992"; and Education Longitudinal Study of 2002 (ELS:2002/2004), "First Follow-up, High School Transcript Study, 2004."

Chapter 3.

Extracurricular Activities

This chapter focuses on the extracurricular activities of high school seniors. Students in each of the four cohorts—the National Longitudinal Study of the High School Class of 1972 (NLS:72), High School and Beyond (HS&B), the National Education Longitudinal Study of 1988 (NELS:88), and the Education Longitudinal Study of 2002 (ELS:2002)—reported on their senior-year participation in a range of extracurricular activities. While not all items were retained in an arguably comparable format across rounds, the following high school activities may be compared: student government, honor society, athletics, newspaper or yearbook, vocational club, and academic club.¹⁰ Figure 1 displays national data on participation rates for each of the six senior-year extracurricular activities reported on here, for each of the four points in time. Table 8 presents the participation rates by sex, race/ethnicity, and socioeconomic status (SES).

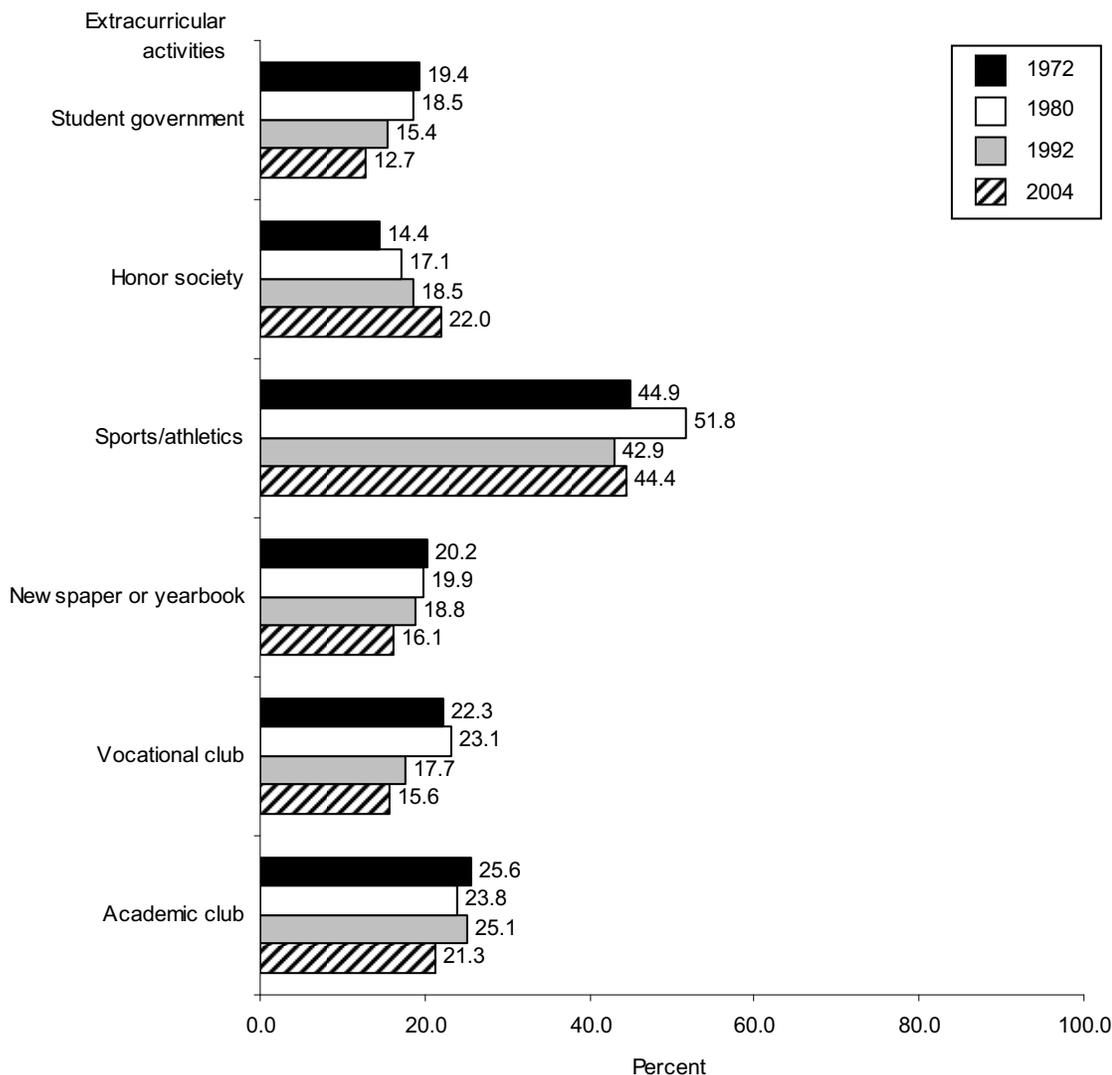
3.1 Student Government

With respect to participation in student government, there was a decline between 1972 and 2004. Participation levels fell from 19 percent in 1972 and 1980 to 13 percent in 2004 (figure 1 and table 8).

- In all years, females participated in student government at higher percentages than males (table 8). For example, in 2004, the difference was 16 percent of female seniors versus 10 percent of male seniors.
- Consistently across the time points, higher socioeconomic status (SES) quartile seniors had higher rates of student government participation than lower SES quartile seniors, though the gap declined over time. For example, 14 percent of the lowest SES quartile seniors participated in student government in 1972, as contrasted to 27 percent of the highest SES quartile seniors; in 2004, ten percent of the lowest SES quartile seniors participated, as contrasted to 16 percent of the highest SES quartile seniors.

¹⁰ For a systematic account of specific differences in item wording or response options, see the glossary of this report in appendix A.

Figure 1. Percentage distribution of high school seniors reporting participation in various extracurricular activities: 1972, 1980, 1992, and 2004



SOURCE: U.S. Department of Education, National Center for Education Statistics, National Longitudinal Study of the High School Class of 1972 (NLS:72), “Base Year”; High School and Beyond Longitudinal Study of 1980 Seniors (HS&B-Sr:80/86); National Education Longitudinal Study of 1988 (NELS:88/92), “Second Follow-up, Student Survey, 1992”; Education Longitudinal Study of 2002 (ELS:2002/2004), “First Follow-up, 2004.”

3.2 Honor Society

The proportion of high school seniors in an honor society increased over the last three decades. The proportion climbed from 14 percent in 1972 to 22 percent in 2004 (figure 1 and table 8).

- Consistently across the 4 time points, higher percentages of females than males participated in honor societies—in 2004, 28 percent of female seniors participated, compared to 16 percent of males (table 8).

Table 8. Percentage of high school seniors reporting participation in various extracurricular activities, by sex, race/ethnicity, and socioeconomic status (SES): 1972, 1980, 1992, and 2004

Characteristics	Student government				Honor society				Sports/athletics			
	1972	1980	1992	2004	1972	1980	1992	2004	1972	1980	1992	2004
Total	19.4	18.5	15.4	12.7	14.4	17.1	18.5	22.0	44.9	51.8	42.9	44.4
Sex												
Male	18.1	15.8	13.1	9.6	10.7	13.8	14.4	16.3	58.2	64.0	55.3	50.6
Female	20.8	21.0	17.7	15.7	18.1	20.1	22.7	27.7	31.6	40.6	30.3	38.2
Race/ethnicity ¹												
Asian	24.9	23.6	14.6	13.2	23.6	23.4	27.2	29.5	36.0	48.8	45.2	39.5
Black	25.3	23.1	16.7	13.5	11.7	13.7	14.0	13.1	49.6	54.4	41.4	45.6
Hispanic	16.0	16.7	14.6	9.0	10.2	11.9	12.4	12.0	38.5	49.4	35.3	34.3
White	19.2	17.7	15.4	13.2	15.1	17.8	19.6	26.2	45.1	51.6	44.1	46.7
More than one race	—	—	—	15.2	—	—	—	17.6	—	—	—	47.0
SES quartile												
Lowest	14.0	13.3	11.5	9.9	10.3	11.1	10.2	12.2	38.7	43.2	33.9	33.7
Middle two	18.6	18.0	15.2	12.4	13.2	16.3	16.8	20.4	44.6	52.1	41.7	44.3
Highest	26.6	25.2	19.6	16.0	21.2	25.1	29.7	35.1	51.7	61.7	53.9	55.3

See notes at end of table.

Table 8. Percentage of high school seniors reporting participation in various extracurricular activities, by sex, race/ethnicity, and socioeconomic status (SES): 1972, 1980, 1992, and 2004—Continued

Characteristics	Newspaper or yearbook				Vocational club				Academic club			
	1972	1980	1992	2004	1972	1980	1992	2004	1972	1980	1992	2004
Total	20.2	19.9	18.8	16.1	22.3	23.1	17.7	15.6	25.6	23.8	25.1	21.3
Sex												
Male	14.7	15.4	14.0	12.1	15.5	19.1	14.7	14.8	20.3	19.0	22.8	17.8
Female	25.5	24.0	23.5	20.1	29.0	26.7	20.6	16.3	30.9	28.3	27.4	24.7
Race/ethnicity ¹												
Asian	16.2	21.4	18.9	17.1	12.1	9.6	8.8	8.6	26.6	29.6	32.3	35.5
Black	20.7	17.8	14.3	16.7	32.7	30.1	22.5	16.8	33.1	28.8	20.6	15.5
Hispanic	16.2	15.8	16.8	13.2	26.3	27.3	16.4	11.3	24.2	24.7	22.6	17.7
White	20.4	20.1	19.7	16.8	21.3	22.3	17.6	16.5	25.0	22.9	25.8	22.6
More than one race	—	—	—	14.7	—	—	—	19.7	—	—	—	18.5
SES quartile												
Lowest	17.6	15.7	14.2	13.4	30.9	30.6	24.8	17.4	24.4	22.6	19.4	17.1
Middle two	20.2	19.2	17.5	16.2	22.6	24.1	18.5	16.4	25.2	23.8	24.5	19.9
Highest	22.8	25.3	25.5	18.8	13.1	13.4	9.3	12.1	27.7	25.7	31.7	28.3

— Not available.

¹ Due to small sample sizes for the group, the category "American Indian or Alaska Native" was omitted from the tables in this report but included for the purposes of computing percentages.

NOTE: Asian includes Native Hawaiian or Other Pacific Islander, Black includes African American, and Hispanic includes Latino. All race categories exclude Hispanic or Latino origin. SOURCE: U.S. Department of Education, National Center for Education Statistics, National Longitudinal Study of the High School Class of 1972 (NL.S:72), "Base Year"; High School and Beyond Longitudinal Study of 1980 Seniors (HS&B-Sr:80/86); National Education Longitudinal Study of 1988 (NELS:88/92), "Second Follow-up, Student Survey, 1992"; Education Longitudinal Study of 2002 (ELS:2002/2004), "First Follow-up, 2004."

- Asian seniors participated in honor society in greater proportions than any other race/ethnicity group at all 4 time points (except in 2004 compared to Whites).
- Participation in honor societies at all 4 time points differed between each SES quartile. For example, in 2004, thirty-five percent of seniors in the highest SES quartile, but only 12 percent of seniors in the lowest SES quartile, participated in honor society activities. This represents a larger gap (23 percentage points) than in 1972 (11 percentage points).

3.3 Athletics

For each of the four cohorts, across the six activities examined here, high school seniors most frequently reported participating in athletics (figure 1 and table 8). Participation ranged from 45 percent in 1972, to a high of 52 percent in 1980, with 43 and 44 percent participating in 1992 and 2004, respectively.

- At each of the four points in time, higher percentages of male seniors than female seniors were school athletes (in 2004, for example, 51 percent of males were school athletes, compared to 38 percent of females) (table 8). However, the gap between male and female athletic participation declined between 1972 and 2004, from 27 percent to 12 percent.
- At each of the four points in time, higher percentages of high-SES seniors than low-SES seniors were high school athletes.

3.4 Newspaper or Yearbook

Seniors' participation in high school publications activities (such as the school paper or yearbook) declined between 1992 and 2004, from 19 to 16 percent (figure 1 and table 8).

- In each of the four senior cohorts, a higher proportion of female seniors than male seniors participated in high school publication activities (in 1972, for example, 26 percent of females compared to 15 percent of males; in 2004, it was 20 percent of females compared to 12 percent of males).
- At all 4 time points, high-SES seniors participated at higher rates than low-SES seniors (table 8). In 2004, thirteen percent of seniors in the lowest SES quartile were active in the school newspaper or yearbook, compared to 19 percent of those in the highest SES quartile.

3.5 Vocational Club

Senior-year vocational club participation—22 percent in 1972 and 23 percent in 1980—dropped to 16 percent in 2004 (figure 1 and table 8).

- Unlike the other extracurricular areas in which high-SES seniors were more likely to be participants than low-SES seniors, the pattern for vocational club participation was reversed (table 8). Seniors in the lowest SES quartile participated at higher percentages in vocational clubs than seniors in the highest quartile: for example, 31 percent compared to 13 percent in both 1972 and 1980, and 17 percent compared to 12 percent in 2004.

3.6 Academic Club

There was a change in the questionnaire examples given for academic club across surveys, and a caveat must therefore be considered concerning the possibility that some of the measured change could be an artifact of the new item wording. Specifically, in 1992 and 2004, academic club included debate, but in the earlier surveys, debate was included with drama and was not associated with an academic club category. Even with this more inclusive category, senior-year academic club participation was lower in 2004 (21 percent) than in 1972 (26 percent) (figure 1 and table 8).

- Female seniors participated at higher rates than male seniors in high school academic clubs in all years (table 8). For example, in 1972, twenty percent of male seniors and 31 percent of female seniors participated, while in 2004, eighteen percent of male seniors and 25 percent of female seniors participated in academic clubs.
- There were statistically significant differences in academic club participation among all SES groups in 1992 and 2004. In 2004, for example, 17 percent of seniors in the lowest SES quartile, compared to 28 percent in the highest SES quartile, were academic club participants.

Chapter 4.

Plans for Next Year

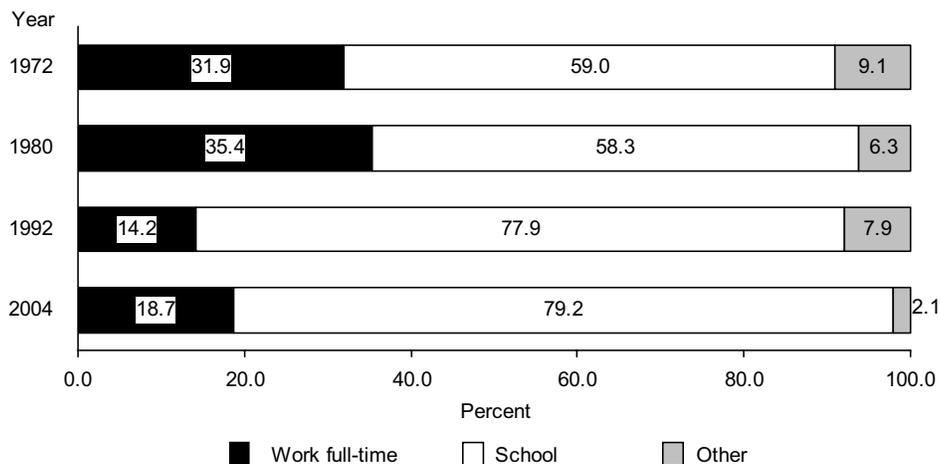
High school seniors' postsecondary plans for work or further schooling immediately after high school represent decisions that seniors must face in their next stage of life. These decisions may be influenced by a host of personal attributes and values, family expectations, financial considerations, and local labor market conditions (Goyette and Xie 1999; Grabowski, Call, and Mortimer 2001; Morgan 1996). They are the first component of a trajectory of decisions leading to eventual educational attainment and occupational placement in adulthood (Shanahan 2000). The first two sections of this chapter discuss the immediate plans seniors have for school or work in the year after their high school completion; the third section discusses some of the factors involved in choosing a higher education institution, for those who planned to do so.

4.1 Plans for School, Work, or Other Activities

Figure 2 shows the overall percentage of high school seniors intending to work full time, attend school, or engage solely in other activities (such as travel, homemaking, or part-time work) in the year immediately after high school.

- In all four cohorts, a majority of seniors planned to attend school in the year following high school; this proportion rose from 59 percent in 1972 to 78 percent in 1992, but no differences were observed between 1992 and 2004 percentages.
- In contrast, the percentage of seniors intending to work full time after high school varied across years, rising from 32 percent in 1972 to 35 percent in 1980, declining to 14 percent in 1992, and rising again to 19 percent in 2004.
- Finally, the percentage of seniors not planning to work full-time or to attend school in the year following graduation (i.e., whose plans were not specified) declined between 1972 and 2004, from 9 percent to 2 percent.

Figure 2. Percentage of high school seniors planning to work full-time, attend school, or engage in other activities immediately after high school: 1972, 1980, 1992, and 2004



NOTE: Detail may not sum to totals because of rounding. The category “other” indicates students who did not specify full-time work or school attendance.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Longitudinal Study of the High School Class of 1972 (NLS:72), “Base Year”; High School and Beyond Longitudinal Study of 1980 Seniors (HS&B-Sr:80/86); National Education Longitudinal Study of 1988 (NELS:88/92), “Second Follow-up, Student Survey, 1992”; Education Longitudinal Study of 2002 (ELS:2002/2004), “First Follow-up, 2004.”

4.2 Plans for Full-time Work

Table 9 displays the percentage of students intending to work full-time in the year following graduation by sex, race/ethnicity, and socioeconomic status.

4.2.1 Sex

In all four cohorts, males planned on working full-time after high school at higher rates than females (table 9). In 1972, among males, 35 percent planned on working after high school, compared to 29 percent of females; this declined to 23 percent for males and 14 percent for females in 2004. The declining pattern was not consistent, however; for example, the percentage of males intending to work full-time grew from 16 percent in 1992 to 23 percent in 2004. Similarly, the percentage of females who intended to work was relatively stable in 1972 and 1980 (standing at 30 percent in the latter year) before dropping to 13 percent in 1992 and showing no additional change in 2004.

Table 9. Percentage of high school seniors planning to work full-time immediately after high school, by sex, race/ethnicity, and socioeconomic status (SES): 1972, 1980, 1992, and 2004

Characteristics	1972	1980	1992	2004
Total	31.9	35.0	14.2	18.7
Sex				
Male	34.6	40.3	15.9	23.2
Female	29.2	30.0	12.6	14.1
Race/ethnicity ¹				
Asian	18.1	12.8	10.8	8.9
Black	37.4	35.8	11.4	17.0
Hispanic	38.5	41.3	16.4	24.3
White	30.6	35.2	14.4	17.9
More than one race	—	—	—	23.3
SES quartile				
Lowest	46.6	49.7	24.8	28.7
Middle two	33.4	36.6	14.1	19.2
Highest	13.8	15.8	5.1	7.5

— Not available.

¹ Due to small sample sizes for the group, the category "American Indian or Alaska Native" was omitted from the tables in this report but included for the purposes of computing percentages.

NOTE: Asian includes Native Hawaiian or Other Pacific Islander, Black includes African American, and Hispanic includes Latino. All race categories exclude Hispanic or Latino origin.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Longitudinal Study of the High School Class of 1972 (NLS:72), "Base Year"; High School and Beyond Longitudinal Study of 1980 Seniors (HS&B-Sr:80/86); National Education Longitudinal Study of 1988 (NELS:88/92), "Second Follow-up, Student Survey, 1992"; Education Longitudinal Study of 2002 (ELS:2002/2004), "First Follow-up, 2004."

4.2.2 Race/Ethnicity

Among different racial/ethnic groups, Hispanic seniors more often than Asian or White students reported planning to work full-time immediately after high school (except compared to Whites in 1992) (table 9):

- In 1972, thirty-nine percent of Hispanic seniors intended to work full-time after school, compared to 18 percent of Asians and 31 percent of Whites. In 2004, 24 percent of Hispanic seniors planned to work, compared to 9 percent of Asians and 18 percent of Whites.
- In addition, in 2004, higher percentages of Hispanic than Black seniors planned to work full-time (24 percent versus 17 percent, respectively). In all years except 1992, Asians were less likely than all other groups to plan to work immediately after high school.

Excepting Asians, all racial/ethnic groups for which there were multiple years of information showed a decline from 1980 to 1992 in the percentage of seniors planning to work full-time after high school, and a subsequent increase from 1992 to 2004. Between 1980 and 1992, plans for work dropped 25 percentage points for Hispanics, 24 percentage points for Blacks, and 21 percentage points for Whites. Between 1992 and 2004, plans for work rose 8 percentage points for Hispanics, 6 points for Blacks, and 4 points for Whites. Plans for work for

all racial/ethnic groups (including Asians) declined when comparing the 1972 and 2004 time points.

4.2.3 Socioeconomic Status

A consistent pattern emerged for students from different socioeconomic status (SES) quartiles. In all four cohorts, lower percentages of seniors in the highest SES quartile than in other quartiles planned to work full-time after high school, and students in the middle two SES quartiles planned to work immediately after graduation less often than seniors in the lowest SES quartile (table 9):

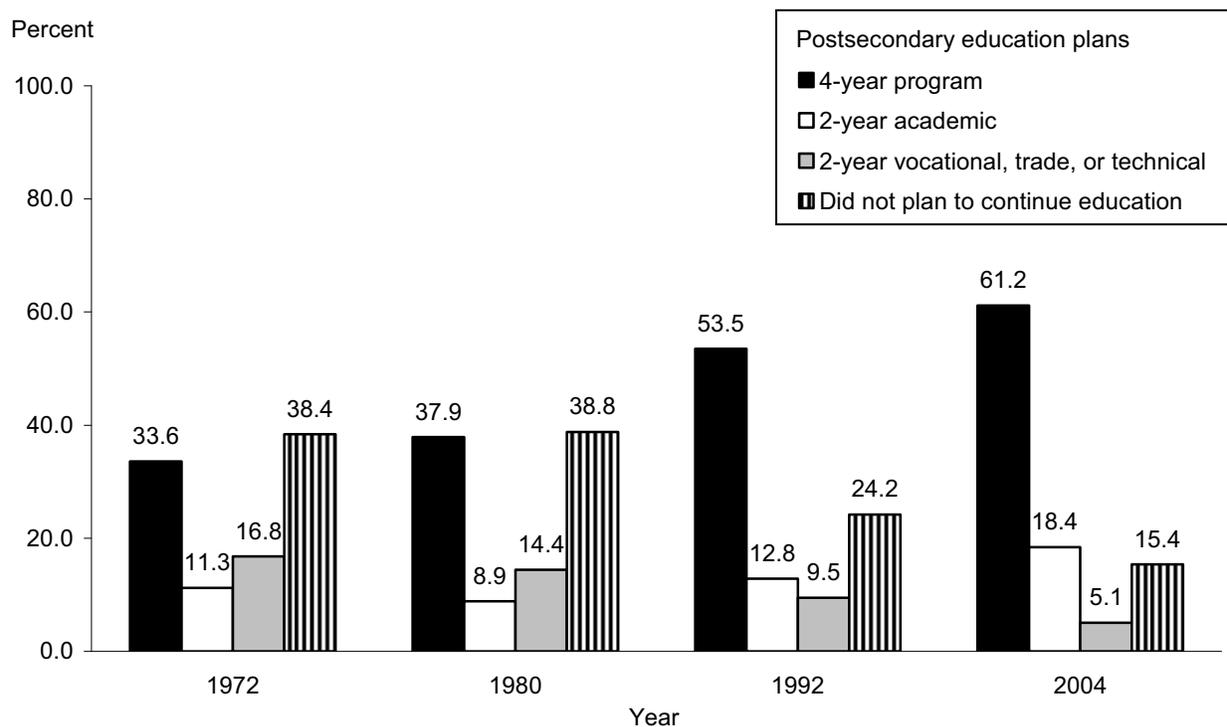
- In 1972, for example, 47 percent of seniors in the lowest SES quartile planned to work full-time, compared to 33 percent in the middle two SES quartiles and 14 percent in the highest SES quartile. In 2004, twenty-nine percent of students in the lowest SES quartile planned to work, compared to 19 percent of the middle two SES quartiles and 7 percent of the highest SES quartile. Overall, the gaps between the highest SES quartile and other SES groups were smaller in 2004 than in 1972.
- In each SES group, the percentage of seniors planning to work full-time in the year after leaving high school grew between 1972 and 1980; however, the percentage planning full-time work in the year after high school declined from 1980 and 1992, and rose again between 1992 and 2004. For example, the percentage of middle two SES quartile seniors changed from 33 percent in 1972 to 37 percent in 1980, followed by a drop to 14 percent in 1992 and a subsequent rise to 19 percent in 2004.

4.3 Plans for Postsecondary Education

Figure 3 shows the postsecondary education plans high school seniors held for the year after high school. Seniors in all cohorts more often planned attendance at postsecondary education institutions than planned not to continue their education. In 1972 and 1980, the percentages of seniors who did not plan on pursuing postsecondary education were 38 and 39 percent, respectively; this dropped to 24 percent in 1992 and dropped again to 15 percent in 2004.

- In 1972, thirty-four percent of seniors planned to attend a 4-year school; in 1992, this had increased to 54 percent, and by 2004 the rate had reached 61 percent.
- For 2-year academic institutions, the percent of seniors intending attendance at 2-year academic institutions increased from a low of 9 percent in 1980 to 18 percent in 2004.
- Between 1972 and 2004, the percent of seniors planning to attend a 2-year vocational, trade, or technical school declined from 17 percent to 5 percent.

Figure 3. Percentage of high school seniors with postsecondary education plans: 1972, 1980, 1992, and 2004



NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Longitudinal Study of the High School Class of 1972 (NLS:72), "Base Year"; High School and Beyond Longitudinal Study of 1980 Seniors (HS&B-Sr:80/86); National Education Longitudinal Study of 1988 (NELS:88/92), "Second Follow-up, Student Survey, 1992"; Education Longitudinal Study of 2002 (ELS:2002/2004), "First Follow-up, 2004."

4.3.1 Sex

As with high school seniors overall, greater percentages of both male and female seniors in each cohort intended to go to a 4-year postsecondary institution than to a 2-year academic or 2-year vocational, trade, or technical school (table 10).

- While there were no differences observed between male and female plans for attending 4-year institutions in 1972 and 1980, by 1992 and 2004, females reported planning to attend a 4-year school at higher rates than males (64 percent of males versus 69 percent of females planning attendance in 2004).
- Among other choices in 2004, males reported not planning to continue their education at a higher rate (19 percent) than females (12 percent), and males planned on attending a 2-year vocational, technical, or trade school at a higher rate (6 percent) than females (4 percent).

4.3.2 Race/Ethnicity

For all racial/ethnic groups among all four senior cohorts, more seniors report plans to attend 4-year postsecondary education institutions than other types of schools (table 10). All groups also grew between 1972 and 2004 in the percentage intending to attend 4-year schools:

- In 1972, thirty-two percent of Blacks and 35 percent of Whites planned to attend a 4-year institution; by 2004, sixty-two percent of Blacks and 64 percent of Whites planned to do so, a 29- and 30-point increase, respectively.
- In addition, in all years, higher percentages of Asian high school seniors and lower percentages of Hispanic seniors (except in 1992, when the percentage for Hispanics was not statistically significantly different from the percentage for Blacks) than seniors from all other racial/ethnic groups planned attendance at 4-year institutions. In 2004, forty-six percent of Hispanics planned to attend 4-year institutions compared to 73 percent of Asians, 62 percent of Blacks, 64 percent of Whites, and 58 percent of multiracial seniors.
- In 2004, Hispanic seniors planned attendance at 2-year academic schools in greater percentages than other groups: 27 percent of Hispanic seniors planned to attend a 2-year academic institution, compared to 16 percent of Asians, 18 percent of Blacks, 17 percent of Whites, and 18 percent of multiracial seniors.
- Finally, the percentage of all racial/ethnic groups intending to attend a 2-year vocational, technical, or trade school was lower in 2004 than in 1972.

4.3.3 Socioeconomic Status

In all cohorts and across all SES quartiles, more seniors planned to attend 4-year postsecondary institutions than any other type of school (table 10). Seniors from families in the highest SES quartile intended attendance at 4-year postsecondary institutions at higher rates than their counterparts, in all four cohorts:

- In 2004, eighty-one percent of high-SES quartile seniors planned to attend a 4-year school, compared to 58 percent of the middle SES quartiles seniors and 43 percent of low-SES quartile seniors (23 and 38 percentage point gaps, respectively).

Table 10. Percentage of high school seniors with postsecondary education plans, by sex, race/ethnicity, and socioeconomic status (SES): 1972, 1980, 1992, and 2004

Characteristics	4-year program				2-year academic			
	1972	1980	1992	2004	1972	1980	1992	2004
Total	33.6	37.9	53.5	61.2	11.3	8.9	12.8	18.4
Sex								
Male	34.6	37.2	50.4	64.3	11.4	7.1	11.0	24.0
Female	32.5	39.2	57.5	69.3	11.2	10.2	14.7	24.9
Race/ethnicity ¹								
Asian	47.0	59.6	64.6	73.2	16.8	10.4	11.9	16.5
Black	32.4	40.7	51.0	61.7	5.4	6.2	10.9	17.9
Hispanic	24.0	26.7	45.6	46.0	11.0	8.6	19.6	27.5
White	34.8	38.6	54.4	63.9	12.1	9.3	12.3	16.7
More than one race	—	—	—	57.8	—	—	—	17.6
SES quartile								
Lowest	18.7	22.1	31.3	42.9	6.9	6.4	14.2	25.2
Middle two	29.2	33.9	48.6	57.7	12.3	10.1	14.8	20.1
Highest	58.3	62.9	76.2	80.6	13.6	9.0	8.7	10.4
Characteristics	2-year vocational, trade, or technical				Did not plan to continue education			
	1972	1980	1992	2004	1972	1980	1992	2004
Total	16.8	14.4	9.5	5.1	38.4	38.8	24.2	15.4
Sex								
Male	16.3	13.5	10.2	6.3	37.8	42.6	28.9	19.3
Female	17.3	15.3	8.9	3.9	38.9	35.3	19.6	11.7
Race/ethnicity ¹								
Asian	13.5	12.7	6.1	3.0	22.8	17.2	17.4	7.3
Black	19.7	14.1	11.1	5.6	42.5	39.0	27.1	14.7
Hispanic	21.8	16.6	10.0	7.4	43.1	48.1	24.8	19.1
White	16.6	14.2	9.4	4.6	36.5	38.0	23.9	14.8
More than one race	—	—	—	4.4	—	—	—	20.2
SES quartile								
Lowest	19.0	16.5	14.4	8.2	55.4	55.1	40.1	23.7
Middle two	19.0	17.0	11.0	5.5	39.5	39.0	25.6	16.7
Highest	9.9	7.7	3.9	2.1	18.2	20.4	11.2	6.9

— Not available.

¹ Due to small sample sizes for the group, the category "American Indian or Alaska Native" was omitted from the tables in this report but included for the purposes of computing percentages.

NOTE: Asian includes Native Hawaiian or Other Pacific Islander, Black includes African American, and Hispanic includes Latino. All race categories exclude Hispanic or Latino origin.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Longitudinal Study of the High School Class of 1972 (NLS:72), "Base Year"; High School and Beyond Longitudinal Study of 1980 Seniors (HS&B-Sr:80/86); National Education Longitudinal Study of 1988 (NELS:88/92), "Second Follow-up, Student Survey, 1992"; Education Longitudinal Study of 2002 (ELS:2002/2004), "First Follow-up, 2004."

- SES group differences in the percentages of seniors planning to attend 2-year academic schools were not as consistent over time. In 1972, higher percentages of the highest SES quartile seniors (at 14 percent) than the lowest SES quartile seniors (at 7 percent) reported planning to attend a 2-year academic institution. However, in 1992, lower percentages of the highest SES quartile seniors than lower SES quartile seniors planned attendance at 2-year academic schools (9 percent for the highest SES quartile versus 14 percent for the middle two SES quartiles and 15 percent for the lowest SES quartile). In 2004, the percentage of lowest SES quartile seniors intending attendance at 2-year academic schools in their first year out of high school increased to 25 percent, and the percentage of seniors in the middle 2 quartiles intending 2-year academic school attendance increased to 20 percent (there was no statistically significant difference in the percentage of highest SES seniors intending attendance at 2-year academic schools between 1992 and 2004).
- Finally, in all years, a relatively greater percentage of seniors in the lowest SES quartile planned to attend 2-year vocational, technical, or trade schools, or to attend no school at all, than seniors from the highest SES quartile. For example, in 2004, twenty-four percent of the lowest SES quartile seniors did not plan to continue their education, versus 7 percent of the highest SES quartile seniors.

4.4 Factors in Choosing a Postsecondary School

Table 11 shows the percentage of high school seniors who planned to continue their education in the future who reported four postsecondary school choice factors as “very important.” The four factors are course availability, expenses, financial aid, and reputation of institution.

4.4.1 Course Availability

With respect to the availability of specific courses or curriculum at a prospective school, 62 percent of high school seniors reported this factor as very important in choosing a school in 1972, compared to 66 percent in 2004. (table 11). In all years, however, more seniors rated course availability as very important than any other school choice factor.

- Females valued this factor in greater proportions than males in all four cohorts, with 70 percent of females in 2004 reporting it as very important versus 62 percent of males. The percentage of males rating course availability as very important was 5 percentage points higher in 2004 than in 1972 (62 versus 57 percent, respectively); for females, this difference was 3 percentage points (70 percent in 2004 and 67 percent in 1972).
- Black high school seniors in 2004 valued course availability more highly than all other racial/ethnic groups except multiracial seniors: 74 percent of Blacks reported specific courses or curricula as very important, compared to 65 percent each of Asian, Hispanic, and White seniors. This represents a change from 1972, when Blacks were no more likely than Asian or White seniors to highly value course availability.

Table 11. Percentage of high school seniors with postsecondary aspirations who reported four postsecondary school choice factors as very important, by sex, race/ethnicity, and socioeconomic status (SES): 1972, 1980, 1992, and 2004

Characteristics	Course availability				Expenses			
	1972	1980	1992	2004	1972	1980	1992	2004
Total	62.2	66.1	64.5	66.5	40.5	37.5	30.2	35.6
Sex								
Male	57.3	62.0	60.6	62.3	37.1	32.9	26.8	33.3
Female	67.3	69.6	68.0	70.3	44.0	41.4	33.2	37.7
Race/ethnicity ¹								
Asian	59.4	72.2	64.4	64.9	37.9	37.5	29.0	33.1
Black	60.4	64.1	67.8	74.1	57.2	58.3	44.8	53.8
Hispanic	53.3	56.0	60.9	65.3	53.7	47.4	38.4	43.1
White	62.6	67.1	64.6	65.1	38.5	34.0	26.8	29.7
More than one race	—	—	—	68.6	—	—	—	42.2
SES quartile								
Lowest	58.1	61.0	64.3	65.7	54.9	51.4	42.3	47.1
Middle two	63.0	66.8	64.7	68.1	43.7	39.2	30.9	36.9
Highest	62.8	68.9	64.3	64.1	29.8	24.4	20.8	22.6
Characteristics	Financial aid				Reputation of institution			
	1972	1980	1992	2004	1972	1980	1992	2004
Total	28.6	39.1	45.9	57.3	42.7	49.8	53.6	57.6
Sex								
Male	26.5	36.5	41.2	50.9	37.8	46.1	49.9	51.8
Female	30.8	41.2	50.1	63.3	47.8	52.8	56.9	63.1
Race/ethnicity ¹								
Asian	24.1	36.3	44.2	57.7	42.4	55.8	64.8	66.2
Black	64.7	67.8	67.4	76.0	43.4	47.8	57.8	66.3
Hispanic	54.5	52.4	61.8	69.9	34.4	44.0	51.1	53.1
White	24.3	34.2	40.3	50.0	43.1	50.4	52.6	56.2
More than one race	—	—	—	62.1	—	—	—	56.8
SES quartile								
Lowest	52.6	58.7	63.8	71.4	38.1	41.9	45.3	51.5
Middle two	30.2	40.8	47.8	59.5	41.1	48.4	50.6	55.9
Highest	16.0	22.1	30.7	40.3	46.7	57.7	64.2	66.5

— Not available.

¹ Due to small sample sizes for the group, the category "American Indian or Alaska Native" was omitted from the tables in this report but included for the purposes of computing percentages.

NOTE: Asian includes Native Hawaiian or Other Pacific Islander, Black includes African American, and Hispanic includes Latino. All race categories exclude Hispanic or Latino origin.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Longitudinal Study of the High School Class of 1972 (NLS:72), "Base Year"; High School and Beyond Longitudinal Study of 1980 Seniors (HS&B-Sr:80/86); National Education Longitudinal Study of 1988 (NELS:88/92), "Second Follow-up, Student Survey, 1992"; Education Longitudinal Study of 2002 (ELS:2002/2004), "First Follow-up, 2004."

- In 1972 and 1980, seniors in the lowest SES quartile valued course availability less than their peers in the middle two and highest SES quartile groups (e.g., 61 percent versus 67 and 69 percent in 1980, respectively). In 1992 and 2004, however, there was no statistically significant difference between lowest SES quartile seniors and each of the two other SES quartile groups.

4.4.2 Expenses

The percentage of seniors who rated school expenses (tuition, books, room, and board) as very important in choosing a postsecondary school declined from 41 percent in 1972 to 30 percent in 1992; it rose from 1992 to 36 percent in 2004 (table 11).

- In all years, females identified expenses as very important more often than males. In 2004, 38 percent of females and 33 percent of males identified expenses as very important.
- Black and Hispanic seniors reported expenses as very important more often than their other racial/ethnic group peers in all cohorts (except multiracial students in 2004, the percentage of which was not different from Hispanics), and Blacks rated expenses as very important more than Hispanics in the three latest cohorts. In 2004, fifty-four percent of Blacks and 43 percent of Hispanics said expenses were very important, while 33 percent of Asians, 30 percent of Whites, and 42 percent of multiracial seniors said so.
- In comparison with 1972, the percentage of students who rated expenses as very important in 2004 was statistically significantly lower for Hispanic students (43 percent in 2004, compared to 54 percent in 1972) and for White students (30 percent in 2004, compared to 39 percent in 1972).
- Students from lower SES quartiles rated school expenses as very important more often than higher SES quartile students, in each cohort year. In 2004, for example, 23 percent of the highest SES quartile students said expenses were very important, compared to 47 percent of the lowest SES quartile seniors. Seniors from each SES quartile rated expenses as very important in smaller percentages in 2004 than in 1972; however, gaps between the SES quartiles showed no significant change between these two time points.

4.4.3 Financial Aid

Financial aid for school (loans, grants, and scholarships) is a complementary concern to school expenses. The percentage of seniors reporting financial aid as very important to their school choice grew from 29 percent in 1972 to 57 percent in 2004, a 29-percentage point increase that was spread out over the four decades (table 11).

- Both males and females increasingly cited financial aid as a very important factor in choosing a postsecondary school. In all cohorts, females said financial aid was very important in greater percentages than males. In 2004, for example, 63 percent of females and 51 percent of males said financial aid was very important.
- In each of the senior cohorts, Blacks and Hispanics rated financial aid as very important more often than seniors from other racial/ethnic backgrounds. In addition,

in every case except compared to Hispanics in 1992, Blacks said financial aid was very important to their school choice more often than other racial/ethnic groups. In 2004, seventy-six percent of Blacks said financial aid was very important, compared to 58 percent of Asians, 70 percent of Hispanics, 50 percent of Whites, and 62 percent of multiracial seniors. However, all groups with data from 1972 to 2004 rated financial aid as very important more often in 2004 than in 1972.

- Seniors in all SES groups also showed increasing concern with financial aid from 1972 to 2004. For example, 16 percent of the highest SES quartile seniors in 1972 said financial aid was very important to their school choice; this increased to 40 percent by 2004.
- In each cohort, the lowest SES quartile students reported financial aid as very important more often than higher SES quartile students (71 percent for the lowest SES quartile seniors, 60 percent for the middle two SES quartiles, and 40 percent for the highest SES quartile seniors in 2004). The gaps between the lowest SES quartile versus the middle two SES quartiles and the highest SES quartile declined between 1972 and 2004.

4.4.4 Reputation of Institution

The institutional reputation of potential postsecondary school choices was identified as very important by a majority of seniors in 2004, having grown in importance since 1972 (table 11). In the earliest senior cohort, 43 percent said reputation was very important, while 58 percent in 2004 said reputation was very important.

- Females consistently rated reputation as very important more often than males, while the importance of reputation grew for both sexes from 1972 to 2004. In 2004, fifty-two percent of males and 63 percent of females indicated reputation was very important to their school choices, versus 38 percent and 48 percent of males and females, respectively, in 1972.
- Seniors from each racial/ethnic group valued reputation more in 2004 than in 1972. In 1972, a smaller proportion of Hispanic seniors (34 percent) rated reputation as important than did Black or White seniors (43 percent each). In 2004, Asian and Black seniors valued reputation as very important more than Hispanics or Whites (and more than multiracial students, for whom data were available only in 2004). Sixty-six percent of Asian and Black seniors valued reputation highly in 2004, compared to 53 percent of Hispanic, 56 percent of White, and 57 percent of multiracial seniors.
- Among high school seniors from different SES groups, the highest SES quartile seniors consistently rated reputation as very important more than other SES quartile students. In 2004, sixty-six percent of the highest SES quartile students said institutional reputation was very important, compared to 56 percent of the middle two SES quartiles and 51 percent of the lowest SES quartile. In addition, the difference between the highest SES quartile students and other SES quartile students was larger in 2004 than in 1972.

Chapter 5.

Plans for the Future

Beyond immediate plans for continuing school or entering the workforce, high school seniors possess expectations for long-term educational and occupational outcomes. These expectations, along with the values that seniors profess to be important in life generally, represent a measure of the hopes for the future that they possess and the kind of quality of life they might desire to achieve. Their occupational aspirations and educational expectations are associated with their academic achievement and educational attainment (Ainsworth-Darnell and Downey 1998; Reynolds and Pemberton 2001), and some research has shown that minority students possess an advantage in these areas, once differences in socioeconomic status are accounted for (Cheng and Starks 2002; Kao and Tienda 1998; Qian and Blair 1999). In addition, life values play a role in shaping the balance between work and home life and between private goals and public participation (Johnson 2002). This chapter describes the highest education level students expect to eventually attain, the occupational sector within which they expect to work at age 30, and their perspectives on eight life values such as family life, work life, and impact on society.

5.1 Educational Expectations

In each cohort, seniors were asked to indicate the highest level of education that they expected to obtain. The four response categories used in this report are a) high school or less; b) some college (but less than a bachelor's degree); c) bachelor's degree; and d) graduate or professional degree. Table 12 provides the percentages of seniors whose expectations fell into each of these four categories.

In 1992 and 2004, a greater proportion of seniors expected their highest level of educational attainment to be a bachelor's degree or a graduate/professional degree than expected to reach some college education or a high school degree or less as their highest level of education. While more seniors expected to end their postsecondary education with a bachelor's degree than a graduate or professional degree in 1972, 1980, and 1992, in 2004, a greater proportion of seniors expected to earn a graduate or professional degree (38 percent) than expected to end their postsecondary education with a bachelor's degree (37 percent). Expectations of attaining a graduate degree increased from 13 percent of seniors in 1972 to 38 percent of seniors in 2004, while expectations for finishing with a bachelor's degree showed no difference when comparing 1972 to 2004. Expectations of attaining some college education short of a bachelor's degree were lower in 2004 (20 percent) than in 1972 (31 percent), as were expectations that a high school diploma or less would be the highest level of education attained (5 percent in 2004, compared to 19 percent in 1972).

Table 12. Percentage of high school seniors expecting to complete various educational levels, by sex, race/ethnicity, and socioeconomic status (SES): 1972, 1980, 1992, and 2004

Characteristics	High school or less				Some college			
	1972	1980	1992	2004	1972	1980	1992	2004
Total	18.9	19.5	5.3	5.4	30.9	34.5	25.3	19.7
Sex								
Male	15.5	21.0	6.8	7.6	29.0	31.7	26.0	22.8
Female	22.2	18.2	3.9	3.4	32.7	37.0	24.6	16.8
Race/ethnicity ¹								
Asian	8.4 !	3.3 !	2.9	2.7	23.1	18.6	19.0	11.2
Black	15.0	17.0	4.7	5.5	34.0	35.4	23.5	20.6
Hispanic	16.3	25.0	6.3	7.4	41.2	39.1	31.4	26.7
White	18.8	20.1	5.4	5.1	30.4	34.3	25.1	18.6
More than one race	—	—	—	6.8	—	—	—	18.2
SES quartile								
Lowest	33.6	34.4	10.8	10.8	36.0	39.5	40.0	30.6
Middle two	19.8	18.5	4.9	5.0	35.6	39.6	26.9	21.0
Highest	5.8	5.0	1.3	1.3	17.8	19.3	9.3	7.3
Characteristics	Bachelor's degree				Graduate or professional degree			
	1972	1980	1992	2004	1972	1980	1992	2004
Total	37.6	25.5	36.1	36.6	12.6	20.5	33.3	38.3
Sex								
Male	39.2	26.0	36.2	37.9	16.3	21.2	31.1	31.8
Female	36.0	25.1	36.1	35.3	9.1	19.8	35.4	44.6
Race/ethnicity ¹								
Asian	52.1	34.9	35.7	35.1	16.5	43.2	42.5	51.1
Black	37.5	24.3	34.0	35.2	13.5	23.2	37.9	38.7
Hispanic	33.3	19.2	31.3	32.6	9.2	16.8	31.0	33.3
White	38.2	26.0	37.2	37.7	21.6	19.6	32.3	38.6
More than one race	—	—	—	40.7	—	—	—	34.2
SES quartile								
Lowest	24.5	16.2	27.9	33.3	6.0	10.0	21.2	25.4
Middle two	35.1	25.3	40.1	39.3	9.5	16.6	28.2	34.8
Highest	52.6	36.6	36.1	34.6	23.8	39.2	53.3	56.9

— Not available.

¹ Due to small sample sizes for the group, the category "American Indian or Alaska Native" was omitted from the tables in this report but included for the purposes of computing percentages.

NOTE: Categories are mutually exclusive. Detail may not sum to totals because of rounding. Asian includes Native Hawaiian or Other Pacific Islander, Black includes African American, and Hispanic includes Latino. All race categories exclude Hispanic or Latino origin.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Longitudinal Study of the High School Class of 1972 (NLS:72), "Base Year"; High School and Beyond Longitudinal Study of 1980 Seniors (HS&B-Sr:80/86); National Education Longitudinal Study of 1988 (NELS:88/92), "Second Follow-up, Student Survey, 1992"; Education Longitudinal Study of 2002 (ELS:2002/2004), "First Follow-up, 2004."

5.1.1 Sex

For both males and females, the percentages expecting to end their education with a high school diploma or less, and percentages expecting to attain some college education short of a bachelor's degree, were lower in 2004 than in 1972 (table 12). Expectations of attaining a bachelor's degree as their highest level of education were not statistically significantly different in 2004 compared to 1972 for either males or females. Expectations of attaining a graduate or professional degree were higher in 2004 than in 1972 for both males and females. One noticeable difference occurred at this higher end: whereas in 1972, males expected to earn a graduate or professional degree in greater proportions than females (16 percent versus 9 percent), in 2004, females expected to earn a graduate or professional degree more often than males (45 percent versus 32 percent). Another difference occurred at the low end of expectations, where females expected as their highest level of education a high school diploma or less more often than males in 1972 (22 percent versus 16 percent), but in all later cohorts, a greater percentage of males than females expected a high school diploma or less as their highest level of education (in 2004, 8 percent versus 3 percent, respectively).

5.1.2 Race/Ethnicity

Among all racial/ethnic groups, the percentages of seniors expecting to end their education with either a high school diploma or less or to attain some college education short of a bachelor's degree were lower in 2004 than in 1972 (except for Asians expecting high school or less) (table 12).

- Hispanic and White seniors consistently expected to finish their education with a high school diploma or less in greater proportions than Asians in all years.
- Expectations for finishing with a bachelor's degree showed no statistically significant difference in 1972 compared to 2004 for all racial/ethnic groups except Asians, whose expectations for a bachelor's degree as their highest level of education fell from 52 percent to 35 percent.
- Expectations for a graduate or professional degree were higher in 2004 than 1972 for all racial/ethnic groups. Asian seniors' expectations for a graduate or professional degree, which were lower than Whites' in 1972 (17 percent versus 22 percent), topped the expectations of all other groups in 2004 (at 51 percent) and represented the largest percentage point gain in any group, 35 points.
- Hispanic seniors had lower expectations for finishing with graduate or professional degrees (33 percent) and higher expectations for some college short of a bachelor's degree (27 percent) in 2004, compared to all other groups except multiracial seniors.

5.1.3 Socioeconomic Status

The percentage of seniors from each socioeconomic status (SES) quartile expecting to complete high school or less or to attain some college education short of a bachelor's degree as their highest level of education was lower in 2004 than in 1972. The percentage of seniors from the lowest SES quartile expecting to finish their education with a bachelor's degree or a graduate/professional degree was higher in 2004 than in 1972 (table 12). In contrast, the percentage of highest SES quartile seniors expecting to finish with a bachelor's degree declined

from 1972 to 1980 (from 53 percent to 37 percent), with no differences detected between 1980 and 2004. This is complemented by growth in the percentage of the highest SES quartile seniors expecting a graduate or professional degree (growing from 24 percent in 1972 to 57 percent in 2004, a 33-percentage point increase). The middle two and lowest SES quartile seniors also expected a graduate or professional degree as their highest level of education in higher proportions in 2004 compared to 1972 (growing from 10 percent to 35 percent and from 6 percent to 25 percent for each group, respectively).

- At the lowest level of educational expectations, the lowest SES quartile seniors consistently expected to end their education with a high school diploma or less in greater proportions than their peers in higher SES quartiles; however, the gaps between these groups at this educational level declined from 1972 to 2004.

5.2 Occupational Expectations

Table 13 shows the percentage of high school seniors expecting to hold various occupations by age 30. In all years, only small percentages of seniors (less than 10 percent) expected to work in most occupational fields. In one—professional occupations (such as accountant, engineer, librarian, or school teacher)—seniors expected to work in that field at a higher rate than all others in all years. For more information about the content and definition of these occupational categories, including specific job examples for each category, see appendix A section A.6.3.

Table 13. Percentage of high school seniors expecting to hold various occupations at age 30: 1972, 1980, 1992, and 2004

Occupation	1972	1980	1992	2004
Clerical	14.2	9.6	3.5	0.5
Craftsman	7.5	8.3	2.8	5.2
Farmer	1.6	2.3	1.0	0.2
Homemaker	3.1	2.9	1.2	0.1 !
Laborer	2.5	1.9	0.7	0.7
Manager	3.1	6.9	5.8	4.2
Military	2.3	1.8	3.2	1.5
Operative	2.3	2.7	1.2	0.8
Professional	45.4	43.4	59.4	62.5
Proprietor	1.8	3.7	6.7	4.0
Protective services	2.2	2.0	4.1	4.2
Sales	3.0	1.8	1.9	1.8
Service	4.2	3.7	2.6	6.5
Technical	6.7	9.1	6.0	6.9
Other	—	—	—	0.9

— Not available.

! Interpret data with caution. Standard error is more than one-third as large as estimate.

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Longitudinal Study of the High School Class of 1972 (NLS:72), "Base Year"; High School and Beyond Longitudinal Study of 1980 Seniors (HS&B-Sr:80/86); National Education Longitudinal Study of 1988 (NELS:88/92), "Second Follow-up, Student Survey, 1992"; Education Longitudinal Study of 2002 (ELS:2002/2004), "First Follow-up, 2004."

- Fourteen percent of seniors in 1972 expected to work in clerical occupations (e.g., secretary, mail carrier) at age 30; this declined to less than one percent in 2004.
- By contrast, 45 percent of seniors in 1972 expected to work in professional jobs, and this percentage increased to 59 percent in 1992 and stood at 63 percent in 2004.
- Collectively, job expectations for occupations besides professional declined from 55 percent of seniors in 1972 to 38 percent of seniors in 2004. In 2004 itself, the main difference among seniors' expectations was that professional occupations were chosen more often than any other occupation (63 percent for professional versus 7 to less than 1 percent for others).

Table 14 shows occupational expectations at age 30 by sex, racial/ethnic group, and SES quartile. Statistically significant differences within occupational categories exist by sex, such as:

- More males than females expected to work as craftsmen (such as mechanics or painters) across all years (10 percent of males versus less than 1 percent of females in 2004); more females expected to work as professionals in all years (71 percent of females versus 54 percent of males in 2004) and as service workers in all years (11 percent of females versus 2 percent of males in 2004).
- In addition, in all years, females expected to be clerical workers at higher rates than males, but the gap declined from 24 percent in 1972 to less than 1 percent in 2004.

Across racial/ethnic groups, there were few differences that occurred in all years:

- More Asian seniors expected to be working as professionals at age 30 than did Blacks or Hispanics in all years, and Whites in all but 1992. In 2004, for example, 70 percent of Asian high school seniors expected to be professionals, compared to 62 percent of Blacks, 59 percent of Hispanics, 63 percent of Whites, and 64 percent of multiracial seniors.
- Whites more often expected a professional occupation than their Black peers in 1972; by 1980 and in later cohorts, however, there were no statistically differences between Whites and Blacks in this occupational category.
- Beyond expectations of being a professional, Black and Hispanic seniors in 1972 expected to be clerical workers more often than White seniors (27 percent of Blacks and 23 percent of Hispanics versus 13 percent of Whites). However, in 2004, there were no statistically significant differences between these groups in their expectations of clerical occupational status, and all groups had 1 percent or fewer students expecting clerical work in 2004.

Among SES quartile groups, smaller percentages of seniors in all SES quartile groups expected clerical work in 2004 than in 1980, while greater percentages expected professional occupations at age 30 in 2004 than in 1980. Some statistically significant differences between SES quartile groups were also found in all years, such as:

- In 1972, 21 percent of the lowest SES quartile seniors and 6 percent of the highest SES quartile seniors expected to be employed in clerical work at age 30, but this gap (15 percent) declined to less than 1 percent by 2004 (1 percent versus 0.3 percent expecting clerical work, respectively).

- Although the gaps between the highest SES group and the two lower SES groups were smaller in 2004 than in 1972, highest SES quartile seniors expected to be professionals at higher rates than seniors from lower SES groups in all years. In 2004, 53 percent of the lowest SES quartile seniors, 62 percent of the middle two SES quartiles seniors, and 74 percent of the highest SES quartile seniors expected to be employed as professionals at age 30.

Table 14. Percentage of high school seniors expecting to hold various occupations at age 30, by sex and race/ethnicity: 1972, 1980, 1992, and 2004—Continued

Characteristics	Service				Technical				Other			
	1972	1980	1992	2004	1972	1980	1992	2004	1972	1980	1992	2004
Sex												
Male	1.6	0.7	0.6	1.8	8.8	10.5	8.4	8.8	—	—	—	1.2
Female	6.7	6.1	4.6	10.9	4.6	6.0	3.7	5.1	—	—	—	0.5
Race/ethnicity¹												
Asian	‡	3.1	0.7	3.8	11.0	11.6	6.5	8.2	—	—	—	0.1
Black	2.8	3.8	3.3	9.0	8.7	10.2	6.0	6.5	—	—	—	0.9
Hispanic	4.6	3.8	2.7	7.7	7.8	9.0	8.4	8.0	—	—	—	0.8
White	4.3	3.5	2.6	5.8	6.5	7.9	5.7	6.6	—	—	—	0.9
More than one race	—	—	—	8.8	—	—	—	6.0	—	—	—	0.6
SES quartile												
Lowest	6.7	5.4	5.0	11.0	6.8	8.9	7.7	7.7	—	—	—	1.0
Middle two	4.4	4.0	2.6	6.1	7.3	9.8	6.6	7.7	—	—	—	0.8
Highest	2.1	1.5	1.0	3.1	5.3	7.8	3.9	4.4	—	—	—	0.7

— Not available.

Rounds to zero.

! Interpret data with caution. Standard error is more than one-third as large as estimate.

‡ Reporting standards not met.

¹ Due to small sample sizes for the group, the category "American Indian or Alaska Native" was omitted from the tables in this report but included for the purposes of computing percentages.

NOTE: Asian includes Native Hawaiian or Other Pacific Islander, Black includes African American, and Hispanic includes Latino. All race categories exclude Hispanic or Latino origin. SOURCE: U.S. Department of Education, National Center for Education Statistics, National Longitudinal Study of the High School Class of 1972 (NLS:72), "Base Year"; High School and Beyond Longitudinal Study of 1980 Seniors (HS&B-Sr:80/86); National Education Longitudinal Study of 1988 (NELS:88/92), "Second Follow-up, Student Survey, 1992"; Education Longitudinal Study of 2002 (ELS:2002/2004), "First Follow-up, 2004."

5.3 Life Values

Table 15 presents the percentage of high school seniors reporting their perspectives on eight values as very important. Five of the values were identified as very important among a majority of seniors in each cohort (and by 80 percent or more of seniors in 2004): marrying and having a happy family life, giving their children better opportunities, having strong friendships, attaining steady work, and achieving success at work. The other three values were rated as very important by less than half of each senior cohort (and by no more than 35 percent of seniors in 2004): living close to parents, making money, and working to correct social problems or inequalities.

Only the importance of a good marriage showed no statistically significant change between 1972 and 2004, with between 79 and 82 percent of each cohort indicating that it was very important to them. The importance of six values were higher in 2004 than in 1972: giving their children opportunities (83 versus 67 percent, respectively); living close to parents (25 versus 8 percent); friendship (86 versus 79 percent); steady work (87 versus 78 percent); success at work (91 versus 85 percent); and making money (35 versus 18 percent). Only the importance of working to correct social problems was lower in 2004 than in 1972, at 20 percent and 27 percent, respectively.

5.3.1 Sex

Males and females identified similar values as important, with a few key differences.

- Males rated making money as very important more often than females in all years; in 2004, for example, 43 percent of males said making money was very important versus 28 percent of females (table 15).
- More females than males said marriage and working to correct social problems were very important in all years.
- In 1972 and 1980, a greater percentage of males than females rated steady work as very important; this reversed by 2004, with 89 percent of females and 86 percent of males rating steady work as very important.

- In each cohort, lower percentages of Whites than Asians and Hispanics indicated that living close to parents was very important (e.g., in 2004, twenty-two percent of Whites indicated living close to parents was very important, versus 32 percent of Asians and 33 percent of Hispanics).
- By contrast, a lower percentage of Blacks than Asian or White seniors in each year said that friendship was very important (75 percent versus 85 percent and 89 percent in 2004, respectively).
- A greater percentage of Blacks than Hispanic or White seniors in each cohort said making money was very important (55 percent versus 40 percent and 29 percent in 2004, respectively).

5.3.3 Socioeconomic Status

For seniors in all SES groups, six life values were ranked higher in importance in 2004 than 1972: giving their children better opportunities, living close to parents, friendship, steady work, work success, and making money (table 15). For certain values, few consistent differences across SES quartiles were detectable over time: a good marriage, living close to parents, steady work, and work success were all typically valued similarly across SES quartiles. One consistent difference was observed with regard to giving children better opportunities, however:

- Compared to seniors in the highest SES quartile, higher percentages of seniors in lower SES quartiles said giving their children better opportunities was very important (in 2004, seventy-three percent of highest SES quartile seniors said so versus 84 percent of the middle two SES quartiles and 88 percent of the lowest SES quartiles).
- Seniors in the highest SES quartile reported strong friendships as very important in higher percentages than lowest SES quartile seniors in all cohorts (in 2004, ninety percent of highest SES seniors said friendships were very important, compared to 78 percent of lowest SES seniors).

Chapter 6. Conclusion

This report examined the following characteristics: demographic characteristics, coursetaking patterns, extracurricular participation, and plans and values of high school seniors across four decades (1972–2004). Focusing on experiences during the 12th-grade year itself, the analysis found shifts in the national composition of high school seniors, changes in senior-year coursetaking, and a variety of differences between student subgroups and over time in extracurricular activities and plans for the future. Some of these changes reflect the continuation of trends observed in the prior version of this report (Green, Dugoni, and Ingels 1995), while others represent breaks or reverses.

Changes in the racial/ethnic makeup of high school seniors tracked overall trends in the population, with increasing proportions of Hispanic seniors and a decreasing share of White seniors (chapter 1). Black and Asian seniors also increased their representation in the highest socioeconomic status (SES) groups over time.

Students' senior-year coursetaking also mirrored previously observed trends in overall high school coursetaking (Dalton et al. 2007): in their last year of high school, students increasingly enrolled in advanced mathematics, science, and foreign language courses, and smaller proportions skipped enrolling in these subjects at all (chapter 2). The lowest quartile SES groups, in particular, shifted from nonenrollment and into intermediate and advanced courses in these subjects, making SES differences in coursetaking in the latest year of observation (2004) less frequent than in 1982.

Seniors' extracurricular participation showed stability or decline in certain activities when comparing 1972 to 2004 (chapter 3). Seniors had higher rates of participation in honor societies in 2004 versus 1972, but lower rates of participation in academic clubs, vocational clubs, newspaper/yearbook, and student government; no differences were observed in sports/athletics. Among student subgroups, other differences were observed: for example, the gap between male and female participation rates in athletics (favoring males) was lower in 2004 than in 1972, but the gap between male and female participation in honor societies was higher in 2004 than in 1972 (favoring females).

Senior-year plans also changed over time, but in some instances there was little change in recent years. For example, seniors planned to enter postsecondary school after leaving high school in greater proportions in 2004 than in 1972, but this change occurred entirely between 1980 and 1992—between 1992 and 2004, no significant differences in plans for attending school were observed (chapter 4). Seniors' plans to attend 4-year postsecondary institutions continued to rise, however, with the proportion planning attendance at a 4-year school growing from 54 percent in 1992 to 61 percent in 2004. The gap between highest and lowest SES quartile seniors in highest educational expectations for an eventual bachelor's degree was lower in 2004 compared to 1972 as well, though the high-low SES quartile gap in graduate/professional degree expectations was higher in 2004 than in 1972 (chapter 5). Compared to seniors in 1972, greater percentages of seniors in 2004 expected to work in a professional occupation by age 30, regardless of sex, race/ethnicity, or socioeconomic status.

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Appendix A

Technical Notes and Glossary

A.1 Overview of the Technical Appendix

The National Center for Education Statistics (NCES) of the U.S. Department of Education has collected longitudinal data for more than 35 years. Starting in 1972 with the National Longitudinal Study of the High School Class of 1972 (NLS:72) and continuing to the Education Longitudinal Study of 2002 (ELS:2002), NCES has provided longitudinal and trend data to education policymakers and researchers that link secondary school educational achievement and experiences with important outcomes, such as entry into the labor market and postsecondary educational access and attainment.

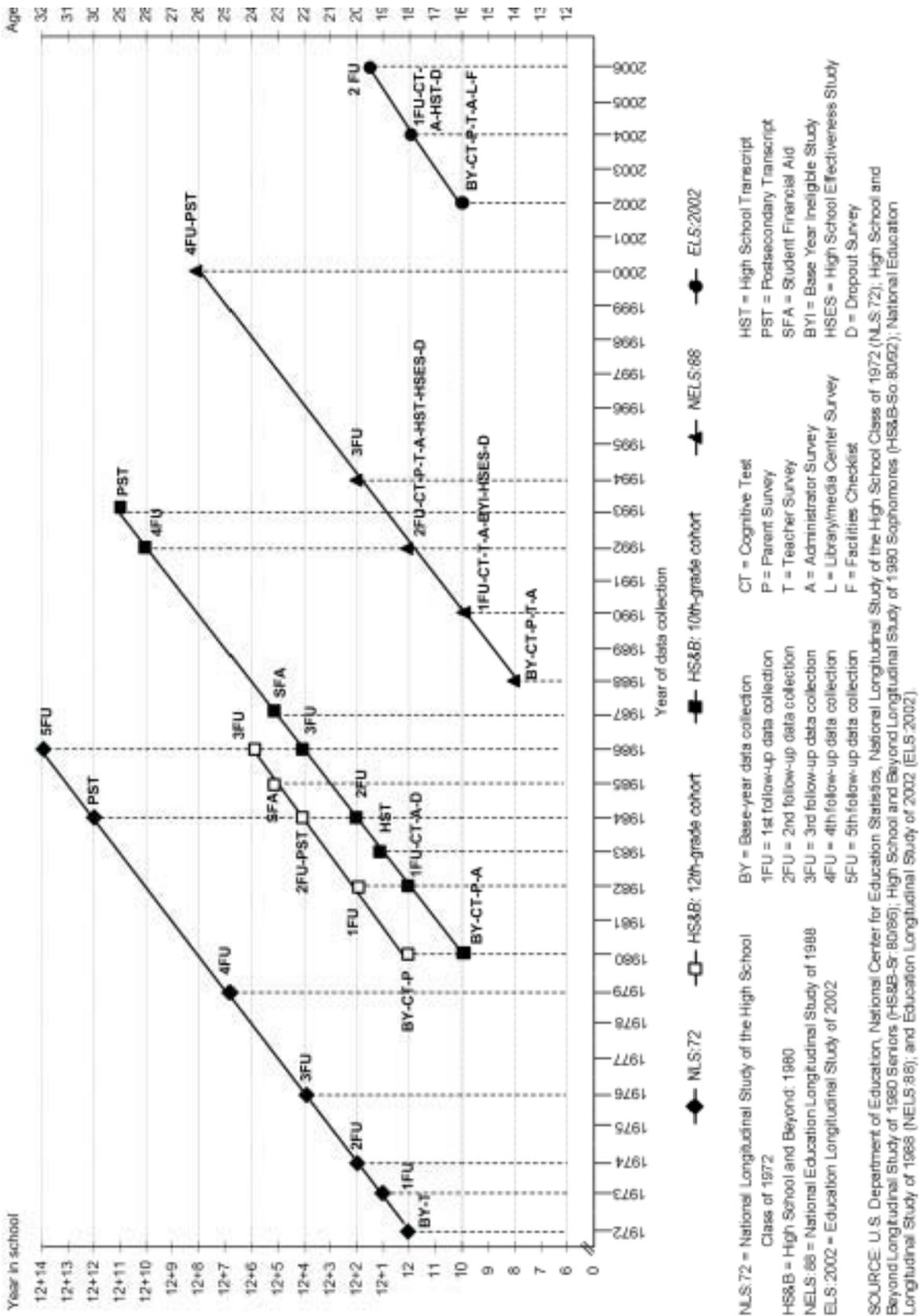
The first section of this appendix gives further information about the design and content of the four studies whose data are drawn upon in this report: the National Longitudinal Study of the High School Class of 1972 (NLS:72), High School and Beyond (HS&B), the National Education Longitudinal Study of 1988 (NELS:88), and the Education Longitudinal Study of 2002 (ELS:2002). This section is followed by discussions of sampling, weighting, response rates, quality of estimates, and standard errors. Next, an account is offered of the statistical procedures employed. In addition, this appendix catalogues the specific variables used in the analyses in this report and addresses questions of sample comparability.

A.2 NCES High School Longitudinal Studies Program

In response to its mandate to “collect and disseminate statistics and other data related to education in the United States” and the need for policy-relevant, nationally representative longitudinal samples of elementary and secondary students, NCES instituted the High School Longitudinal Studies program. The aim of this continuing program is to study the educational, vocational, and personal development of students at various stages in their educational careers and the personal, familial, social, institutional, and cultural factors that may affect that development.

The high school longitudinal studies program consists of three completed studies: NLS:72, HS&B, and NELS:88. In addition, base-year, first and second follow-up data for ELS:2002, the fourth longitudinal study in the series, are now available. (A fifth study, the High School Longitudinal Study of 2009 [HSLs:09], has just been initiated). Taken together, these studies describe the educational experiences of students from four decades—the 1970s, 1980s, 1990s, and 2000s—and also provide bases for further understanding of the correlates of educational success in the United States. Figure A-1 includes a temporal presentation of these four longitudinal education studies, including completed waves of the ELS:2002, and highlights their component and comparison points. For ELS:2002, the general expectation is that sample members will be followed until about age 26 or 30.

Figure A-1. Longitudinal design for the NCES high school cohorts: 1972–2006



A.2.1 National Longitudinal Study of the High School Class of 1972 (NLS:72)

The Education Longitudinal Studies program began over 35 years ago with the implementation of the National Longitudinal Study of the High School Class of 1972 (NLS:72).¹ NLS:72 was launched with a survey of a national probability sample of 19,001 seniors from 1,061 public and private schools. The sample was designed to be representative of the approximately three million high school seniors enrolled in more than 17,000 schools in the spring of 1972. Each sample member was asked to complete a student questionnaire and a 69-minute test battery. School administrators were also asked to supply survey data on each student, as well as information about the school's programs, resources, and grading systems. Five follow-ups, conducted in 1973, 1974, 1976, 1979, and 1986, were completed, including collection of postsecondary transcripts. In the current report, the base year (1972) data are used.

A.2.2 High School and Beyond (HS&B)

HS&B—the second in the series of NCES longitudinal studies—was launched in 1980.² HS&B included one cohort of high school seniors comparable to the NLS:72 sample; however, the study also extended the age span and analytical range of NCES longitudinal studies by surveying a sample of high school sophomores. Base-year data collection took place in the spring term of the 1979–80 academic year with a two-stage probability sample. Some 1,015 schools served as the first-stage units, and 35,723 sophomores and 34,981 seniors within these schools were the second-stage units and eligible to participate (of whom about 58,000 total participated in the base year). Subsamples of both cohorts of HS&B were resurveyed in 1982, 1984, and 1986; the sophomore cohort also was surveyed in 1992. High school transcripts were collected for a subsample of approximately 15,941 sophomore cohort members in the 1982 first follow-up, when most were seniors. As in NLS:72, postsecondary transcripts were collected for both HS&B cohorts. This report uses questionnaire data collected in the HS&B base year (1980) from the senior cohort, and transcript data collected for the 1980 sophomore cohort in the first follow-up (1982).

With the study design expanded to include a sophomore cohort, HS&B provided critical data on the relationships between early high school experiences and students' subsequent educational experiences in high school. For the first time, national data were available that showed students' academic growth over time and how family, community, school, and classroom factors were associated with student learning. Researchers were able to use data from the extensive battery of achievement tests within the longitudinal study to assess growth in subject-specific concepts and skills over time. Moreover, data were then available to analyze the school experiences of students who later dropped out of high school and, eventually, to investigate their later educational and occupational outcomes.

¹ For documentation of NLS:72, see Riccobono et al. (1981) and Tourangeau et al. (1987). While recent NCES reports and user documentation may be found on the NCES website (<http://nces.ed.gov>), older documentation (e.g., from the 1980s) is sometimes not available there. HS&B manuals may be downloaded from the International Archive of Education Data (IAED) at the Inter-university Consortium for Political and Social Research (ICPSR) at the University of Michigan (<http://www.icpsr.umich.edu>). Materials may also be obtained in microfiche or photocopy format from the ERIC (Education Resources Information Center) database (<http://www.eric.ed.gov>).

² For a summation of the HS&B sophomore cohort study, see Zahs et al. (1995). For more information on HS&B in the high school years, with a focus on the sophomore cohort, see Jones et al. (1983). For further information on HS&B, see the NCES website (<http://www.nces.ed.gov/surveys/hsb/>).

A.2.3 National Education Longitudinal Study of 1988 (NELS:88)

Data collection for NELS:88 was initiated with the eighth-grade class of 1988 in the spring term of the 1987–88 school year. The first follow-up took place when most sample members were high school sophomores and the second follow-up when most were seniors. The sample was also surveyed after scheduled high school graduation, in 1994 and 2000.³ The data used in this report are from seniors surveyed in the second follow-up conducted in 1992.

NELS:88 base year and first follow-up. The NELS:88 base year (1988) successfully surveyed 24,599 students, out of some 26,432 selected eighth-graders, across 1,052 public, Catholic, and other private schools. In addition to filling out a questionnaire, students also completed assessments in reading, mathematics, science, and social studies. The base year also surveyed one parent, two teachers, and the principal of each selected student. A first follow-up took place in 1990. At that time, student cohort members, their teachers, and their principals were resurveyed, and the tenth-grade sample freshened for representativeness.

NELS:88 second follow-up. The second follow-up took place in the spring term of the 1991–92 school year, when most sample members were in their final semester of high school. There were 21,188 participants, of whom slightly more than 16,000 were spring 1992 seniors. The remaining sample members included dropouts, early graduates, and students who fell behind the modal grade progression of their cohort. Although these students were surveyed, they are not included in the analyses conducted for this report. As in the first follow-up, the sample was freshened, this time to provide a nationally representative sample of the high school senior class of 1992. The senior class sample used for the analyses in this report included a total of 17,176 participants. Among these seniors, 16,399 were selected in late 1992 and early 1993 as part of the high school transcripts (covering coursework in grades 9–12) sample, from which 14,315 senior-class members' transcripts were collected (yielding a unweighted response rate of 87 percent) (Ingels et al. 1995, p. 13).

NELS:88 third and fourth follow-up. The third follow-up took place in 1994. The fourth follow-up took place in 2000, when many sample members who attended college and technical schools had completed their postsecondary education. In fall 2000 and early 2001, postsecondary transcripts were collected.

A.2.4 Education Longitudinal Study of 2002 (ELS:2002)

ELS:2002 is designed to monitor the transition of a national sample of young people as they progress from 10th grade through high school and on to postsecondary education and/or the world of work. In the first year of data collection (the 2002 base year), ELS:2002 measured students' tested achievement in reading and mathematics. ELS:2002 also obtained information from students about their attitudes and experiences. These same students (including those who dropped out of school) were tested and surveyed again, in 2004 (and the sample freshened to

³ The entire compass of NELS:88, from its baseline through its final follow-up in 2000, is described in Curtin et al. (2002). More detailed information about the senior-year surveys of NELS:88 can be found in Ingels et al. (1994) and academic transcript collection and processing in Ingels et al. (1995). The quality of NELS:88 data in the in-school rounds is examined in McLaughlin and Cohen (1997). The sample design is documented in Spencer et al. (1990). Eligibility and exclusion issues are addressed in Ingels (1996). NCES maintains an updated version of the NELS:88 bibliography on its website. The bibliography encompasses both project documentation and research articles, monographs, dissertations, and paper presentations employing NELS:88 data (see <http://nces.ed.gov/surveys/nels88/Bibliography.asp>).

provide a nationally representative sample of high school seniors), and re-interviewed in 2006. This report uses data from the 2004 first follow-up, which included 14,989 sample members, of which 13,424 were seniors and were the basis of analysis. High school transcripts were obtained from 12,014 of these seniors. Dropouts and others from the base year sophomore cohort who did not progress on time to their senior year in 2004 are not included in the analyses conducted for this report.

A.3 Measures of Survey Precision and Quality

A.3.1 Survey Standard Errors

Because the longitudinal studies' sample designs involved stratification, the disproportionate sampling of certain strata, and clustered (i.e., multistage) probability sampling, the resulting statistics are more variable than they would have been if they had been based on data from a simple random sample of the same size.

The calculation of exact standard errors for survey estimates can be difficult. Several procedures are available for calculating precise estimates of sampling errors for complex samples. Procedures such as Taylor Series approximations, Balanced Repeated Replication (BRR), and Jackknife Repeated Replication (JRR), which can be found in advanced statistical programs such as SUDAAN, AM, or WESVAR, produce similar results. The analyses included in this report used SUDAAN and the Taylor Series procedure to calculate standard errors.

A.3.2 Sampling, Weighting, Response Rates, and Quality of Estimates

NLS:72. Limited sampling, data quality and response rate documentation is available from NCES on the NLS:72. The base-year sample design called for a deeply stratified national probability sample of 1,200 schools with 18 seniors per school, school size permitting. A total of 19,001 students from 1,061 high schools provided base-year data on up to three data collection forms: a Test Battery, a School Record Information Form, and a Student Questionnaire. The student questionnaire was completed by 16,683 seniors, and provides the basis for the NLS:72 analyses contained in this report.

HS&B. This report uses questionnaire data collected in the HS&B base year (1980) from the senior cohort, and transcript data collected for the 1980 sophomore cohort in the first follow-up (1982). The base-year survey was conducted in the spring term of 1980. The study provided for a national probability sample of 1,015 secondary schools as the first units of selection. In the second stage, up to 36 seniors and 36 sophomores were selected in each school. Schools with high percentages of Hispanic students, Catholic schools with a high percentage of minority students, alternative public schools, and private schools with high-achieving students were oversampled. The HS&B sophomore and senior cohorts were followed in 1982, 1984, and 1986; postsecondary transcripts were also collected, and the sophomore cohort was also surveyed in 1992. The unweighted response rate at the baseline school level was 70 percent and at the baseline student level was 85 percent for the sophomore cohort, and 81 percent for the senior

cohort used as an analysis sample in this report.⁴ For the senior HS&B cohort in the base year, there are 28,240 cases on the analysis file. Case weights were adjusted for nonresponse at each level. As noted above, a subsample of the HS&B 1980 sophomore cohort (in 1982, when most were seniors) is also used in this report, in order to report coursetaking information from high school transcripts. For the transcript subsample of 18,427 sophomore cohort members, transcripts were received for 15,941, yielding an unweighted response rate of 87 percent.

NELS:88. NELS:88 differs from NLS:72, HS&B, and ELS:2002 in that the first data collection phase began in the eighth grade rather than the sophomore or senior year; nonetheless, through a freshening procedure, NELS:88 generated nationally representative sophomore and senior cohorts as well. The data used in this report are from seniors surveyed in the second follow-up conducted in 1992. The base-year (eighth-grade) cohort was drawn from a stratified national probability sample of 1,052 public and private eighth-grade schools from which about 25,000 students participated in the base-year study. Additional follow-ups were implemented in 1994 and 2000, and postsecondary transcripts collected in 2000–2001.

The unweighted response rate at the baseline eighth-grade school level was 70 percent for the initial school selections. Replacement schools were used to achieve a realized sample of 815 public and 237 private schools. The eighth-grade student questionnaire completion rate was 93 percent. Two years later, most students had dispersed to new schools; 99 percent of these schools cooperated. The unweighted first follow-up (1990) student questionnaire completion rate was 94 percent (unweighted). The unweighted second follow-up (1992) student questionnaire completion rate was 93 percent. Transcripts were collected for a subsample of 19,320 sample members and obtained for 17,285 of them (a coverage rate of over 89 percent). Case weights were adjusted for nonresponse.

The senior class sample used for the analyses in this report included a total of 17,176 participants. In late 1992 and early 1993, 16,399 seniors were among those selected as part of the high school transcripts (covering coursework in grades 9–12) sample, from which 14,315 senior-class members' transcripts were collected (yielding a unweighted response rate of 87 percent) (Ingels et al. 1995, p. 13)

ELS:2002. The ELS:2002 base-year study was carried out in a national probability sample of 752 public, Catholic, and other private schools in the spring term of the 2001–02 school year. Of 17,591 eligible selected sophomores, 15,362 completed a base-year questionnaire. The unweighted response rate at the school level was 62 percent and at the sophomore baseline level student questionnaire completion was 87 percent. In the first follow-up (2004), 16,252 students participated, for an unweighted completion rate of 95 percent. Transcripts were requested for all sample members and obtained for about 91 percent of them (about 14,990 obtained of about 16,520 requested). Case weights were adjusted for nonresponse.

This report uses data from the 2004 first follow-up, which included 14,989 sample members, of which 13,424 were seniors and were the basis of analysis. High school transcripts

⁴ Weighted response rates for HS&B are not included in published documentation. Note that all four surveys have two-stage samples (the school is the primary sampling unit, and the student is the second stage sampling unit). In such a sample, the true response rate is the product of the response rates for the two levels (e.g., for HS&B seniors, $0.70 \times 0.81 = 0.567$, or 57 percent) (Seastrom 2002). However, bias analyses have also been conducted for school nonresponse for each of the surveys, to provide further information about possible bias in estimates (see, for example, Spencer et al. 1990).

were obtained from 12,014 of these seniors. Dropouts and others from the base year sophomore cohort who did not progress on time to their senior year in 2004 are not included in the analyses conducted for this report.

Additional information about the design of HS&B, NELS:88, and ELS:2002 questionnaire wording, data collection results, structure of the data files, specifications used in creating composite variables, universe coverage, sample selection procedures, weighting methodology, selected standard error estimates, estimates of design effects for categories of students, and results of nonresponse analyses is provided in each study's user manuals and technical reports. For questionnaire-based comparisons in this report, the most relevant documents are the following: Jones et al. (1983); Ingels et al. (1994); and Ingels et al. (2005). For documentation of the high school transcript studies, see Jones et al. (1984) for HS&B, Ingels et al. (1995) for NELS:88, and, for ELS:2002, Bozick et al. (2006) (restricted documentation available only to NCES license holders) or Ingels et al. (2007) (public use documentation). For detailed reliability and validity information concerning the questionnaires and cognitive tests, the various psychometric and technical reports should also be consulted. For the senior-year comparisons in this report, the following sources are particularly recommended: On data quality, see Echternacht (1973); Fetters, Stowe, and Owings (1984); Kaufman and Rasinski (1991); and McLaughlin and Cohen (1997). On sampling issues, see Williams and Folsom (1977); Fetters (1980); Frankel et al. (1981); Ingels et al. (2005); and Spencer et al. (1990). On eligibility and exclusion, see Ingels (1996). For an analysis (using cross-cohort variables from HS&B, NELS:88 and ELS:2002) of the impact of imputation on estimates for 2002 relative to the unimputed estimates of 1980 and 1992, see Ingels et al. (2005), appendix C.

A.4 Statistical Procedures

A.4.1 Student's *t* Statistic

Comparisons that have been drawn in the text of this report have been tested for statistical significance to ensure that the differences are larger than those that might be expected due to sampling variation. The statistical comparisons in this report were based largely on the *t* statistic. Whether the difference between two groups is considered significant or not is determined by calculating a *t* value for the difference between a pair of means or proportions and comparing this value to published tables of values, called critical values (cv). The alpha level is an a priori statement of the probability that a difference exists in fact rather than by chance.

The *t* statistic between estimates from various subgroups presented in the tables can be computed by using the following formula:

$$t = \frac{x_1 - x_2}{\sqrt{(SE_1^2 + SE_2^2)}}$$

where x_1 and x_2 are the estimates to be compared (e.g., the means of sample members in two groups), and SE_1 and SE_2 are their corresponding standard errors. This formula is valid only for independent estimates.

A.5 Documentation for Variables Used

In section A.6, all variables used in this report are succinctly described. For more detailed information beyond section A.6, see the applicable user's guides for the four studies:

- Bozick, R., Lytle, T., Siegel, P.H., Ingels, S.J., Rogers, J.E., Lauff, E., and Planty, M. (2006). *Education Longitudinal Study of 2002: First Follow-up Transcript Component Data File Documentation* (NCES 2006-338). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC. (Restricted use only; for less detailed but public documentation of the ELS:2002 high school transcript component, see Ingels et al. 2007.)
- Ingels, S.J., Dowd, K.L., Baldridge, J.D., Stipe J.L., Bartot, V.H., and Frankel, M.R. (1994). *User's Manual: NELS:88 Second Follow-Up Student Component Data Files* (NCES 94-374). National Center for Education Statistics, U.S. Department of Education. Washington, DC.
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- Ingels, S.J., Pratt, D.J., Rogers, J., Siegel, P.H., and Stutts, E.S. (2005). *Education Longitudinal Study of 2002: Base Year to First Follow-Up Data File Documentation* (NCES 2006-344). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.
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Section A-6 presents the variable names and explanatory notes for the variables discussed in this report.

A.6 Glossary of Variables

The glossary provides information about the following key classification variables for this report: age, sex, race/ethnicity, and SES. It also provides information about further analysis variables such as educational and occupational expectations. For more detailed information about variables used in this report, see the data file documentation for (respectively) NLS:72, HS&B, NELS:88, and ELS:2002: Riccobono et al. (1981); Jones et al. (1983) (NCES 83-214); Ingels et al. (1994) (NCES 94-374); and Ingels et al. (2005) (NCES 2006-344).

A.6.1 Defining High School Seniors

Across the five spring senior classes—1972, 1980, 1982, 1992 and 2004—there were some differences in the source information used to classify an individual as a high school senior. For NLS:72, spring-term 1972 seniors were identified from school-supplied rosters of 12th-graders. In HS&B as well, the spring-term 1980 senior cohort was identified from school rosters. For the 1980 HS&B sophomore cohort two years later—the basis for the transcript analyses in this report—senior status was based on the spring term 1982 questionnaire variable FY1 (when the respondent expects to graduate), removing dropouts, early graduates, and those who planned to graduate during the next (1982-83) academic year. In NELS:88, a special flag (G12COHRT) identifies spring-term 1992 seniors; the same cohort flag appears both on the 1992 questionnaire and transcript files, and is based on a spring term 1992 questionnaire item that directly asks “What grade are you in?” (F2S6A). When the questionnaire response was missing, grade classification was based on school report (or if still missing, based on imputation). For ELS:2002, a special flag (G12COHRT) was created to mark spring-term 2004 seniors; the same cohort flag appears both on the 2004 questionnaire and transcript files, and is based on a spring term 2004 questionnaire item that directly asks “What grade are you in?” (F1S14); if the questionnaire item was missing, senior cohort status was based on school report (or if still missing, imputation).

A.6.2 Demographic and Classification Variables

Race/ethnicity. The race categories used in this report are Asian or Pacific Islander; Black or African American; Hispanic or Latino; More than one race; and White. The category “more than one race” applies only to ELS:2002. There is no way to determine how an individual in this category in ELS:2002 would have been placed in a race or ethnicity category in the prior studies. In all four studies, race was self-reported, and based on a response in the student questionnaire. Because of the small sample size, the category “American Indian or Alaska Native” was not included in tables.

- NLS:72 (1972): VAR 1625, combining codes 3, 4 and 5 into a single “Hispanic” category.
- HS&B (1980): Respondents were classified into racial/ethnic groups based on variable BB089 (eliminating code 5).
- NELS:88 (1992): F2RACE1
- ELS:2002 (2004): F1RACE. Note that this variable includes the category “more than one race”—a category not included in the prior studies.

Sex. Consistently across the four studies, respondents were asked whether their sex was female or male. In NELS:88 and ELS:2002, name was used to impute sex in the rare cases this information was not supplied by the respondent.

NLS:72 (1972): VAR 1626

HS&B (1980): BB083

NELS:88 (1992): F2SEX

ELS:2002 (2004): F1SEX

Socioeconomic status (SES). The SES quartile variable used in this report is based on a continuous SES index variable derived from five equally weighted and standardized component scores. The SES index composite offers a good example of the subtle differences that may exist between the same variable in different studies, despite efforts to maximize cross-cohort consistency of measures.

The following SES variables were utilized (for 1982, 1992 and 2004, weighted quartiles were drawn from senior-year data rather than from prior rounds):

NLS:72 (1972): VAR1070

HS&B-Sr (1980): BBSES

HS&B-So (1982): FUSES

NELS:88 (1992): F2SES1

ELS:2002 (2004): F1SES1R

Continuities and differences in SES constituents and construction in the several studies are summarized in tables A-1 and A-2.

Table A-1. Elements of the socioeconomic composite, NLS:72, HS&B and NELS:88: 1972–1992

HS&B, NLS:72 (student reported)	NELS:88 (parent reported)	NELS:88 student survey substitutions if missing from parent
Father's occupation	Father's occupation	Father's occupation
—	Mother's occupation	Mother's occupation
Father's education	Father's education	Father's education
Mother's education	Mother's education	Mother's education
Family income	Family income	Household items ¹
Household items	—	(¹)

— Not available.

¹ In NELS:88, the mean value of a count of household items reported by the student was directly substituted for missing family income from parental reports.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Longitudinal Study of the High School Class of 1972 (NLS:72); High School and Beyond Longitudinal Study of 1980 Seniors (HS&B-Sr:80/86); and National Education Longitudinal Study of 1988 (NELS:88).

Table A-2. Elements of the socioeconomic composite, ELS:2002: 2002, 2004

Preferred source (parent reported)	Student report substitution if missing from parent	Imputed if still missing
Father's occupation	Father's occupation	Father's occupation
Mother's occupation	Mother's occupation	Mother's occupation
Father's education	Father's education	Father's education
Mother's education	Mother's education	Mother's education
Family income	—	Family income

— Not available.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

In all four studies, the composite is based on five equally weighted, standardized components summed together; however, these components differ somewhat. In NLS:72 and HS&B the household items are directly used; in NELS:88, they are used only as a proxy for missing income data; in ELS:2002, they are not used at all. In NLS:72 and HS&B only father's occupation was utilized for the composite measure; mother's occupation was available from the dataset but was not used in calculating SES (even when father's occupation was missing as in mother-only families—in these and similar cases, the remaining non-missing items form the basis of the SES composite). In NELS:88 and ELS:2002, both mother's and father's occupation are elements of SES. In NLS:72 and HS&B, student data were used to construct this composite. In NELS:88 and ELS:2002, parent data were normally used to construct the SES composite. In both NELS:88 and ELS:2002, student data were substituted where parent education or occupation data were missing. However, when both parent and student occupation or education reports were missing, ELS:2002 values were statistically imputed using a weighted sequential hot deck procedure.

In NELS:88 and ELS:2002, family income was asked only of parents, and not of students, but was asked of students in NLS:72 and HS&B. While in NELS:88 a student-provided household item index (see below for more information about the household item scale), which served as an income proxy, was substituted when income data were missing, a different procedure was followed in ELS:2002. When parent data on income were missing (parent respondents were asked to place their family's income in an income range), income was statistically imputed (again, with the weighted sequential hot deck methodology). The impact of imputation on the intercohort comparability of the SES composite was investigated by comparing two versions of the 2002 SES composite, one based on the ELS:2002 specifications, the other on NELS:88 specifications. The basic finding was of no impact or extremely small impact on estimates. Details are given in Ingels et al. (2005), appendix C.

Some SES differences across the studies are grounded in differences in design. The studies had different starting points. NLS:72 began with seniors. HS&B base-year respondents were sophomores or seniors. NELS:88 base-year respondents were eighth-graders. ELS:2002 base-year respondents were sophomores. A parent interview was sought for all NELS:88 and ELS:2002 base-year student respondents. HS&B had a parent survey, but it only encompassed a modest subsample of student respondents. Because the quality of reporting on parental occupation and education may increase with student age or grade, it may be of concern whether reports were gathered at grade 8, 10, or 12. However, since parent reports are markedly superior to student reports in these matters, it may be of concern that only in NELS:88 and ELS:2002 are the occupation and education data primarily parent-reported. Likewise, students are more

problematic reporters of family income, but the income question was asked of students in HS&B and of parents alone in NELS:88 and ELS:2002.

More specific information about each of the SES components is provided below.

SES: Household items scale. Differences in household item questions reflect changing social circumstances over time. The household items list has been revised for each survey. By 2002, HS&B items such as ownership of a typewriter had ceased to function as good proxies for family income, while other items, such as access to the Internet or having a digital video disc (DVD) player, did.⁵ Although items differ across the index over time, in each case the items are those that are needed to provide a measure that has a reasonable correlation with income.

The NLS:72 household items were as follows: regularly delivered newspaper, dictionary, encyclopedia, magazines, record player, tape recorder, color TV, typewriter, electric dishwasher, two cars. The HS&B household items were as follows: regularly delivered newspaper, more than 50 books, encyclopedia, place to study, room of own, calculator, typewriter, electric dishwasher, two cars. In NELS:88, information was collected about the following household items: regularly delivered newspaper, dictionary, encyclopedia, magazines, place to study, room of own, calculator, typewriter, electric dishwasher, more than 50 books, atlas, clothes dryer, washing machine, microwave oven, computer, and VCR. Though not used in constructing SES, the following household item questions appeared in ELS:2002: regularly delivered newspaper, magazines, room of own, internet access, electric dishwasher, fax machine, clothes dryer, computer, DVD player.

SES: Occupation. The following occupation categories were used for eliciting parental occupation from parent, and student respondents and used in building the SES composite for the 1972, 1980, 1982, 1992, and 2004 senior cohorts. (The same categories were also used for eliciting occupational expectation of students from the 1972, 1980, 1992, and 2004 senior cohorts—see section A.6.4 for details about the occupational expectation questions). In 2002, occupational expectation was asked as an open-ended question and coded to these categories, and included an option for a “Don’t Know” response. The occupation categories are listed below in hierarchical order (reflecting their average prestige scores on the Duncan Socioeconomic Index)⁶ from lowest to highest, with the exceptions of “homemaker” and “military;” these two occupation categories were not assigned occupational prestige scores. Note that in NLS:72 the professional categories (school teacher, professional A [requiring less education than professional B], and professional B [requiring more education than school teacher or professional A]) were combined, but from HS&B forward separated out. For further information on SES construction see Riccobono et al. (1981, appendix K), Jones et al. (1983), and Ingels et al. (1994, 2006). The 1970 Census categories (and examples) used in the studies are as follows:

- LABORER such as construction worker, car washer, sanitary worker, farm laborer;
- OPERATIVE, such as meat cutter, assembly worker, machine operator, welder, taxicab, bus or truck driver;
- SERVICE, such as barber, beautician, practical nurse, private household worker, janitor, waiter;

⁵ The household items were asked in ELS:2002, but the index was not used in the creation of SES, because missing income data were imputed.

⁶ See Duncan (1961).

- CRAFTSPERSON, such as baker, automobile mechanic, machinist, painter, plumber, telephone installer, carpenter;
- FARMER such as farmer, farm manager;
- PROTECTIVE SERVICES, such as detective, police officer or guard, sheriff, fire fighter;
- PROPRIETOR/OWNER, such as owner of small business, contractor, restaurant owner;
- SALES, such as salesperson, advertising or insurance agent, real estate broker;
- CLERICAL, such as bank teller, bookkeeper, secretary, typist, mail carrier, ticket agent;
- MANAGER/ADMINISTRATOR such as sales manager, office manager, school administrator, buyer, restaurant manager, government official;
- TECHNICAL, such as draftsman, medical or dental technician, computer programmer;
- SCHOOL TEACHER, such as elementary or high school teacher;
- PROFESSIONAL A, such as accountant, artist, registered nurse, engineer, librarian, writer, social worker, actor, actress, athlete, politician, but not including school teacher; and
- PROFESSIONAL B, such as clergyman, dentist, physician, lawyer, scientist, college professor.
- FULL-TIME HOMEMAKER
- MILITARY such as career officer or enlisted person in the Armed Forces.

SES: Education. In each study, respondents were asked to indicate the highest level of education students' parents had achieved. In NLS:72 and HS&B, student responses were used to construct the SES composite. In NELS:88 and ELS:2002, parent responses were used but student reports were used as substitutes if parent information was missing.

In NLS:72, students reported the highest educational level completed by their mother or father. Response categories were: none or grade school only; did not finish high school; finished high school; less than 2 years of vocational or trade school; 2 years or more of vocational or trade school; some college (including a two-year degree); finished college (four- or five-year degree); master's degree or equivalent; and Ph.D., M.D., or equivalent. In HS&B students reported on their parent's highest achieved educational level. The nine response options were: less than high school graduation; high school graduation only; less than 2 years of vocational or technical school; 2 or more years of vocational or technical school; less than 2 years of college; 2 years or more of college; finished college; finished Master's degree; or finished Ph.D. or M.D.

In the NELS:88 second follow-up, parents were asked to indicate the highest level of education they and their spouse/partner had achieved. Parent's 11 response options were: eighth grade or less; beyond eighth grade but less than high school graduation; obtained GED; completed high school; attended vocational, trade, or business school after high school for less

than 2 years; attended vocational, trade, or business school after high school for 2 years or more; attended less than 2 years of college; attended 2 or more years of college; finished college (with 4- or 5-year degree); completed Master's degree or equivalent; or completed Ph.D., M.D., or other professional degree. In the NELS:88 second follow-up, students were asked to indicate the highest level of education achieved by their father and mother. Response options were equivalent to the parent response options except that the lowest three categories were replaced by (for 10 response categories total): less than high school graduation; and high school graduation only, GED, or an equivalent.

In the ELS:2002 base year, parents were asked to indicate the highest level of education they and their spouse/partner had achieved; students were also asked for their mother's (or female guardian's) and fathers (or male guardian's) highest achieved educational level. For both respondents, the eight response options for both parent and student respondents were: did not finish high school; graduated high school or obtained equivalent (GED); attended 2-year school but did not complete degree; graduated 2-year school; attended college but did not complete degree; graduated college; completed Master's degree or equivalent; or completed Ph.D., M.D., or other professional degree.

SES: Income. In all studies, respondents were provided with a set of income ranges⁷ and asked to indicate in which of these ranges total family income fell. In NLS:72 and HS&B, family income information was obtained from students, while in NELS:88 and ELS:2002, family income was obtained from parents and, for ELS:2002, imputed where missing. For NLS:72, seniors were asked "What is the approximate income before taxes of your parents (or guardian)? Include taxable and non-taxable income from all sources." Ten options were provided, ranging from less than \$3,000 a year to more than \$18,000 a year. In HS&B, students reported total family income in one of seven categories ranging from "\$6,999 or less" to "\$38,000 or more." In the NELS:88 second follow-up, parents were asked to report total family income in one of 15 categories ranging from "none" to "\$200,000 or more." In the ELS:2002 base year, parents were asked to report total family income in one of 13 categories ranging from "none" to "\$200,000 or more."

A.6.3 Variables Concerning Extracurricular Activities

Participation in extracurricular activities. The following items were used to classify respondents into two groups, participants and nonparticipants. Respondents were classified as participants if they indicated "active participation" (code 2 for NLS:72, HS&B, and ELS:2002; code 3 for NELS:88) or "participation as a leader" (code 3 for NLS:72, HS&B, and ELS:2002; code 4 for NELS:88). If more than one item is listed, participation for any of the items was treated as participation in the general category of activity:

⁷ However, in ELS:2002, when the parent interview was conducted over the telephone, the parent was asked to name the exact amount, and the interviewer filled in the corresponding category. If the respondent did not want to give the exact amount, the interviewer read through the income categories until the respondent's income level was identified.

Student Government:
 NLS:72: VAR0248
 HS&B: EB032K
 NELS:88: F2S30BC
 ELS:2002: F1S26E

Academic Clubs:
 NLS:72: VAR0247
 HS&B: BB032J
 NELS:88: F2S30BG
 ELS:2002: F1S26I

Honor Societies:
 NLS:72: VAR0245
 HS&B: EB032H
 NELS:88: F2S30BD
 ELS:2002: F1S26F

Vocational Ed. Clubs:
 NLS:72: VAR0249
 HS&B: BB032L
 NELS:88: F2S30BI
 ELS:2002: F1S26K

School Newspaper/Yearbook:
 NLS:72: VAR0246
 HS&B: EB032I
 NELS:88: F2S30BE
 ELS:2002: F1S26G

Sports:
 NLS:72: VAR0241
 HS&B: EB032A, EB032B
 NELS:88: F2S30AA, F2S30AB, F2S30AC,
 F2S30BJ, F2S30BK
 ELS:2002: F1S26A-B

Note: The NELS:88 variables for Sports have a different set of codes than the other extracurricular activities. For these variables (asking about different types of sports such as team sports or individual sports), codes 3 through 5 (“junior varsity,” “varsity,” and “captain/co-captain”) indicated participation (codes 1 and 2 indicated, respectively, that the school did not have the sport and that the respondent did not participate).

A.6.4 Variables Concerning Expectations, Values, and Plans

Educational expectations. All four studies asked (in slightly variant ways) about seniors’ expectations for future educational attainment. For this report, the more extensive original categories were collapsed into four: high school or less, two or fewer years of college, attainment of a bachelor’s degree, and attainment of a graduate or professional degree. In ELS:2002 (but not NLS:72, HS&B, or NELS:88) missing educational expectations data were statistically imputed. The following variables were used to indicate the highest level of education expected by the respondent:

NLS:72: VAR0383, combining codes 1 and 2 (respectively, less than high school and high school only) into a single category indicating high school diploma only; and combining codes 3 and 4 (respectively, vocational or trade school, and some college [including two-year degree]) into a single category indicating some college work, but less than a 4-year degree.

HS&B: BB065, combining codes 1 and 2 (respectively, less than high school and high school graduation only) into a single category indicating a high school diploma or less; combining codes 3 through 6 (from less than 2 years of vocational school to 2 or more years of college but not completing a degree) into a single category indicating some college work, but less than a 4-year degree; and combining codes 8 and 9 (respectively, Master’s degree or its

equivalent, and Ph.D., M.D., or other professional degree) into a single category indicating a graduate/professional degree.

- NELS:88: F2S43, combining codes 1 and 2 (respectively, less than high school and high school graduation only) into a single category indicating a high school diploma or less; combining codes 3 through 7 (indicating from less than 2 years at a 2-year school to more than 2 years at college but not completing a degree) into a single category indicating some college work, but less than a 4-year degree; and combining codes 9 and 10 (respectively, Master's degree or its equivalent, and Ph.D., M.D., or other professional degree) into a single category indicating a graduate/professional degree.
- ELS:2002: F1S42, combining codes 1 through 3 (from less than high school graduation to high school graduation only) into a single category indicating a high school diploma or less; combining codes 4 and 5 (respectively, attend or complete 2-year school or college, and attend 4-year college but not complete degree) into a single category indicating some college work, but less than a 4-year degree; and combining codes 7 and 8 (respectively, Master's degree or its equivalent, and Ph.D., M.D., or other professional degree) into a single category indicating a graduate/professional degree.

Occupational expectations. Seniors were asked what occupation they expected to have in the future. For HS&B, NELS:88 and ELS:2002, this question was asked for occupation at age 30, while with NLS:72 there was no qualifier to fix a specific point in future time. In the student questionnaire, NLS:72 seniors were asked to “circle the one number that goes with the best description of the kind of work you would like to do.” The same occupation scheme (based on 1970 Census Bureau codes) that was employed for father's and mother's current occupation (and used in the SES composite—see the occupation categories and examples in section A.6.2) was employed for asking about future occupational expectations. As noted earlier, the NLS:72 scheme combined three professional categories that were later (1980 and thereafter) broken out separately (school teacher, professional A, and professional B).

In HS&B, the question read “What kind of work will you be doing when you are 30 years old?” In NELS:88 the question read “Which of the categories below comes closest to describing the job or occupation that you expect or plan to have...when you are 30 years old?” In both HS&B and NELS:88, the 1970 Census occupation categories were again used in the occupational expectation question, with the tripartite breakout of professional occupations.

In ELS:2002, the question read “Write in the name of the job or occupation that you expect or plan to have at age 30.” ELS:2002 used the same 1970 Census occupation categories as HS&B and NELS:88 to code the ELS:2002 verbatim responses (in the earlier studies, respondents self-coded their expectations with the provided occupation categories list). In addition, a “don't know” option was offered in ELS:2002.

The relevant variables are as follows:

NLS:72: VAR0367

HS&B: BB062, combining codes 9 (professional), 10 (professional, doctor), and 14 (school teacher) into a single category of professional positions. See

occupational list in section A.6.2 for the distinction between professional A and professional B categories.

NELS:88: F2S64B, combining code 9 (professional A), 10 (professional B) and 14 (school teacher) into a single category of professional positions. See occupational list in section A.6.2 for the distinction between professional A and professional B categories.

ELS:2002 F1S57, verbatim coded to the HS&B/NELS:88 categories

Postsecondary choice factors. Each survey asked the following question of those seniors planning to attend school after high school completion: “How important is or was each of the following in choosing a school you would like to attend?” Response options were “not important,” “somewhat important,” and “very important.” Multiple factors were then presented. The following variables correspond (in order) to the four surveys: NLS:72, HS&B-Sr, NELS:88, and ELS:2002.

VAR0561 EB116A F2S59A F1S52A:

College expenses (tuition, books, room and board) (NLS:72/HS&B)
Low expenses (tuition, books, room and board) (NELS:88/ELS:2002)

VAR0562 EB116B F2S59B F1S52B:

Availability of financial aid such as a school loan, scholarship or grant.

VAR0563 EB116C F2S59C F1S52C:

Availability of specific courses or curriculum.

VAR0564 EB116D F2S59L F1S52K:

Reputation of the college in academic areas (NLS:72/HS&B)
Strong reputation of the school’s academic programs (NELS:88/ELS:2002)

VAR0565 EB116E F2S59D F1S52D:

Reputation of the college in athletic programs (NLS:72/HS&B)
Strong reputation of the school’s athletic programs (NELS:88/ELS:2002)

VAR0571 EB116G F2S59F F1S52F:

Able to live at home and attend the college (NLS:72/HS&B)
Ability to attend school while living at home (NELS:88/ELS:2002)

Life values. Respondents addressed the following life values (among others) in answering the question, “How important is each of the following to you in your life?” Response options were “not important,” “somewhat important,” and “very important.”

NLS:72	HS&B	NELS:88	ELS:2002	Question
VAR0313	BB057A	F2S40A	F1S40A	Being successful in my line of work
VAR0314	BB057B	F2S40B	F1S40B	Finding the right person to marry and having a happy family life
VAR0315	BB057C	F2S40C	F1S40C	Having lots of money
VAR0316	BB057D	F2S40D	F1S40D	Having strong friendships
VAR0317	BB057E	F2S40E	F1S40E	Being able to find steady work
VAR0319	BB057G	F2S40G	F1S40G	Being able to give my children better opportunities than I've had
VAR0320	BB057H	F2S40H	F1S40H	Living close to parents and relatives
VAR0322	BB057J	F2S40J	F1S40J	Working to correct social and economic inequalities

Plans to attend college/vocational school next year. For each of the four studies, students were asked to indicate their plans immediately following high school. For NLS:72 and HS&B, single variables were used (VAR0385 and BB071, respectively), with the codes indicating plans for nonacademic pursuits immediately after high school (codes 1 [work full-time], 2 [apprenticeship, job training program], 3 [military service], 4 [homemaker], 9 [work part-time], and 10 [other plans]) combined into a single category, with the remaining codes (5 [vocational and/or technical courses], 6 [junior college academic courses], 7 [junior college vocational and/or technical courses], and 8 [4-year college or university]) reflecting plans for academic pursuits.

For NELS:88, these same categories were constructed using two separate variables (F2S49, indicating that the respondent planned to continue in school immediately following high school [code 1], and F2S61, indicating the specific type of college or vocational program they the respondent intended to attend).

For ELS:2002, the respondent was coded as planning to attend postsecondary school after high school if, first, they responded 1 (yes) to F1S45 (whether they planned on attending postsecondary school immediately after high school), with, second, the same postsecondary education categories as in other studies coded from F1S49.

Plans to work next year. Plans to work next year were coded on the basis of one to three separate variables, depending on the study. In NLS:72, students were asked if they planned to work full-time right after high school; respondents are routed to a section “For those planning to work full-time during the year after they leave high school...” and asked: “When do you plan to go to work full-time?”

In HS&B, students were asked to indicate their “main activity” immediately following high school (BB071); response options are detailed under “Plans to attend college/vocational school next year,” above.

In NELS:88, three variables were used: F2S51, indicating whether the respondent planned to work next year (1=yes, 2=no; 9=skip, indicating the student had answered F2S48A); F2S48A, indicating whether the student planned (code 2) or had already joined (code 3) the armed forces; and F2S49, indicating whether the student planned to attend school immediately following high school (1=yes). In ELS:2002, two variables were used: F1S53, indicating the respondent’s work plans immediately after high school (1=full-time, 2=part-time, 3=no plans to work); and F1S46H, indicating whether respondent would or had joined the military (0=no; 1=yes). Respondents were classified into one of two categories based on the following logic (those planning on military service were classified as “full-time work”):

1. Those who planned to work full time, with the following codes (each indicating, in various ways, in combination or separately, plans for full-time work):
 - NLS:72 – VAR0385 codes 1, 2, or 3;
 - HS&B – BB071 codes 1, 2, or 3;
 - NELS:88 – F2S51 code 1 or F2S51 code 9 in combination with F2S48A code 2 or 3;
 - ELS:2002 – F1S53 code 1 in combination with F1S46H code 1; and
2. Those who did not plan to work full time the next year, who were classified as having other plans, with the following remaining codes:
 - NLS:72 – NVAR0385 codes 4 through 10;
 - HS&B – BB071 codes 4 through 10;
 - NELS:88 – F2S51 code 2 or F2S51 code 9 in combination with F2S49 code 1;
 - ELS:2002 – F1S53 code 2 or 3 in combination with F1S46H code 0.

Transcript variables: coursetaking in academic subjects. High school transcripts from HS&B, NELS:88, and ELS:2002 were the source of coursetaking information for high school seniors. As no transcript study was conducted with the HS&B 1980 senior cohort but was conducted in 1982 for the HS&B 1980 sophomore cohort, the latter sample is used in this report. The 1982 follow-up transcript study of HS&B 1980 sophomores did not identify seniors directly. Variable FY1 (when the respondent expects to graduate) was used to identify the sample of seniors, removing dropouts, early graduates, and those that planned to graduate during the next academic year. In addition, the HS&B files used for the analyses in this report are the archived first follow-up files, which may have produced different estimates than the fourth follow-up Electronic Codebook files of HS&B 1980 sophomores.

The Classification of Secondary School Courses (CSSC) codes were used to define the courses in Chapter 2. This classification changed slightly over the years, so some caution may be used in interpreting changes. The CSSC classification for ELS:2002, for example, separated out many Advanced Placement courses, but earlier CSSC definitions used with HS&B and NELS:88 often did not. All courses used in this report come from high school transcripts and only present themselves as course titles; information about the quality or content of these courses is not available.

All courses in Chapter 2 were defined with reference to senior-year coursetaking; this contrasts with other definitions of advanced or low-level courses used in NCES reports based on

a “pipeline” of coursetaking (e.g., Dalton et al. 2007). The pipeline measures were designed to capture coursetaking levels over the course of the entire high school career, and as such do not fit senior-year patterns adequately; for example, the highest level of course in a particular subject may be taken by students in their junior year, not their senior year. The lists of specific mathematics and science courses provided in tables 3 and 5, respectively, follow the sequence of coursetaking as previously identified and discussed in the construction of the pipeline measures of coursetaking (see Burkam and Lee 2003).

For the classification of mathematics courses in table 4, four categories were constructed: (1) Not enrolled; (2) Basic mathematics courses (basic mathematics, general mathematics, applied mathematics [e.g. consumer mathematics, actuarial mathematics, and nurse’s mathematics], pre-algebra, algebra I, and geometry); (3) Intermediate mathematics courses (algebra II, algebra III, trigonometry, advanced geometry, statistics, probability, and other intermediate courses such as linear algebra); and (4) Advanced mathematics courses (precalculus and calculus, including Advanced Placement [AP] or International Baccalaureate [IB] precalculus or calculus). For science in table 6, the categories were: (1) No enrollment; (2) Basic science courses (general science, regular and advanced earth science, general physical science, basic/introductory biology, basic/introductory chemistry, basic/introductory physics, astronomy, and meteorology); (3) Intermediate science courses (general biology, chemistry I, physics I); and (4) Advanced science courses (chemistry II, physics II, and advanced biology; these include all AP and IB science courses). Foreign language courses in table 7 were coded as (1) no enrollment; (2) First or second-year course enrollment; and (3) Third-year and above course enrollment. Foreign language coursetaking was in any language. For all students in these three tables, only the highest level full-credit course counted for inclusion in a category.

A.7 Comparability of Data Across Cohorts

A major question for cross-cohort comparisons such as are reported in this report is the comparability of the data sets to be used. Although the four studies have been designed to produce comparable results, there are also differences between them that may affect the comparability and precision of estimates.

A.7.1 Eligibility

Similar definitions were used in deciding issues of school eligibility across the studies. Differences in student sampling eligibility, however, are more problematic. Although the target population is highly similar⁸ across the studies (all seniors who can validly be assessed or at minimum meaningfully respond to the questionnaire), exclusion rules and their implementation have varied somewhat, and exclusion rates are known to differ where they are known at all.

Not all students are able to meaningfully respond to research instruments such as the assessments and questionnaires administered in the four studies. Some English language learners are too limited in their English proficiency to do so, whereas others may be precluded from participation by a severe physical or mental disability. HS&B excluded as ineligible students

⁸ “Similar” seems a more accurate description than “the same” because of differences in emphasis, such as between the importance of test completion and the importance of questionnaire completion. HS&B, for example, regarded impediments to assessment as of overriding importance for determining eligibility, whereas ELS:2002 included students who could not be tested but could complete the questionnaire (in either self- or interviewer-administered interviews).

with such barriers to participation, although an overall exclusion rate has not been documented. Nor are ineligibility rates available for NLS:72, with the result that computation of intercohort bias is not possible. In NELS:88, 5.3 percent of the base-year eighth-grade sample was excluded for such reasons (this figure is similar to the exclusion rate for eighth grade in the National Assessment of Educational Progress [NAEP] in similar subjects in the same period). However, a sample of the NELS:88 ineligible students was followed over time, and students whose status changed were incorporated into the first and second follow-ups, from which the NELS:88 sophomore and senior cohorts are drawn. In ELS:2002, no students were classified as ineligible as such, although some were exempted from completing the questionnaire (and others also a test); still others were tested under circumstances in which they were provided with special accommodations. The overall rate of instrument-exempted sophomores in ELS:2002 is quite low, below 1 percent in the ELS:2002 base year. Base-year students incapable of completing a questionnaire were reevaluated in the first follow-up. Although not all were seniors, and the eligibility status of many remained unchanged, others became capable of questionnaire completion, particularly students who had been excluded for language reasons. (Note that the questionnaire-incapable students are considered to be part of the study but do not appear on the ELS:2002 public-use file.) In ELS:2002 (but not the earlier studies), transcripts were collected for all sample members, including both test- and questionnaire-incapable.

The fact that a larger proportion of the student population was included in ELS:2002 (99 percent of the potential cohort in ELS:2002 as contrasted to 95 percent in NELS:88 base year) may affect cross-cohort estimates of change. This is the case because though the numbers are small (about 2.5 percent of the NELS:88 senior cohort), the excluded students in NELS:88 tended to be quite different from the included students.⁹

A.7.2 Sample Design Differences

Differences in sampling rates, sample sizes, and design effects across the studies also affect precision of estimation and comparability of findings across studies. Asian students, for example, were oversampled in NELS:88 and ELS:2002, but not in NLS:72 or HS&B, where their numbers were quite small. Also, although Catholic schools were oversampled in three of the four studies, HS&B had few (only 38) private non-Catholic schools, and NLS:72 had few nonpublic schools. While sampling weights adjust for the effects of oversampling on estimation, rare populations that had no oversampling will tend to have higher standard errors. The base-year (1980) participating sample in HS&B numbered 30,030 sophomores. In contrast, 15,362 sophomores participated in the base year of ELS:2002. Cluster sizes within schools were much larger for HS&B (on average, 30 sophomores per school) than for ELS:2002 (just over 20 sophomores per school; larger cluster sizes are better for school effects research but carry a penalty in greater sample inefficiency). Mean design effect (a measure of sample efficiency)¹⁰

⁹ For example (Ingels 1996), though just 5 percent of the population, inclusion of the ineligible students changes the cohort dropout rate between 1988 and 1990 from 6 percent to 7 percent. Only 62 percent of the base-year ineligible students were still in high school 4 years later, compared to 83 percent of the total sample. Of this 62 percent, 58 percent were in modal-grade sequence, and 42 percent were not (80 percent of the overall in-school sample was in modal-grade sequence (i.e., seniors 4 years later).

¹⁰ Effective sample size can be quite different from the nominal sample size; effective sample size is more meaningful than raw sample size in terms of statistical analysis—for example, the sampling variance of a mean standard score is equal to the reciprocal of the effective sample size, not the reciprocal of the raw sample size. Effective sample size may be defined as the raw sample size divided by the design effect.

also is quite variable across the studies: for example, for the modal 12th-grade year, 3.6 for HS&B and 3.7 for NELS:88 with the most favorable design effect, 2.3, for the ELS:2002 first follow-up. Other possible sources of difference between the cohorts that may impair change measurement are different levels of sample attrition over time and changes in the characteristics of the population of nonrespondents.

Freshening may also have affected the transcript portion of this report's analysis (chapter 2). Freshening is a process for updating a sample to enhance its representativeness. In NELS:88 and ELS:2002 a freshening process was employed so that spring-term 1992 and 2004 seniors who had not been in the sampling frame 2 years before (e.g., were not 10th-graders or not in the country at that time) were given a chance of selection into the sample. An extremely important sampling difference is that the HS&B sophomore cohort was not freshened 2 years later, while the senior-year samples of NELS:88 and ELS:2002 were. The case of the HS&B 1980 sophomores in 1982 becomes an issue because of the high level of interest in the HS&B high school transcript component for coursetaking trend analysis. While the HS&B 1982 senior sample is not fully representative of 1982 seniors, two questions remain: (1) what is the magnitude of bias for the 1982 seniors, and (b) what is the direction of that bias, that is, what are the characteristics of those whose data are missing? These questions are addressed in section A.7.7 below.

A.7.3 Participation Rates

Response rates also differ somewhat across the studies, although nonresponse-adjusted weights were generated for each of the cohorts. At the school level, response rates were somewhat higher in HS&B and NELS:88 (unweighted, around 70 percent) than in ELS:2002 (unweighted, 62 percent). School nonresponse bias analyses were performed for each study and may be found in the study documentation. At the student level, there is even more variation in response rates. In HS&B, 80.7 percent of 1980 senior cohort members completed a questionnaire (Zahs et al. 1995, p. 67). In the NELS:88 second follow-up, 92.5 percent of students participated (Ingels et al. 1994), and in ELS:2002, 93.6 percent of the in-school sample was surveyed in the first follow-up (all response rates are unweighted).

A.7.4 Dropout Rates

Another issue for cross-cohort comparison is the effect of changes in dropout rates on the high school twelfth-grade population. Changes in dropout rates over time might affect observed differences in the characteristics of the senior class that are examined in this report. This issue is especially salient because we know that the sophomore cohort dropout rate in HS&B was substantially higher than in NELS:88 or ELS:2002. For example, we know that dropout rates declined by over 5 full percentage points between 1982 and 1992 (from 11 percent to 6 percent), and that while rate declines were widespread, there were also subgroup differences in the rate of decline (Kaufman, McMillen and Sweet 1996).

A.7.5 Changing Race Definitions

In some cases, federal race definitions or preferences for the means by which ethnicity and race data are to be collected have changed. In HS&B and NELS:88, students were asked to mark one race only. Based on revised race-reporting guidelines issued by the Office of Management and Budget (OMB), ELS:2002 added a new race category, and, more important,

students are now allowed to mark all that apply, thus generating a further category, Multiracial/More than one race.

The new race category is Native Hawaiian or Other Pacific Islander. For purposes of cross-cohort comparisons, cases identified in ELS:2002 as Native Hawaiian or Other Pacific Islander should be combined with the Asian category to achieve comparability with earlier studies.

However, for students who considered themselves to be multiracial and marked more than one race, there is no ready means to map them back into a one-race scheme. With 5 race categories and with values based on a single race reported, none reported, the 10 possible combinations of 2 races, the 10 possible combinations of 3 races, the 5 possible combinations of 4 races, and the possibility of a combination of all 5 races, there are 32 separate race categories. When race is crossed by ethnicity (race by Hispanic or not Hispanic), there are 64 possible race/Hispanic ethnicity combinations. It is impossible to know, for example, whether a student who marked White and Black in ELS:2002 would have marked White or Black in NELS:88, in which only one race was allowed. There are more than 700 non-Hispanic multiracial sophomores recorded in the ELS:2002 base-year dataset, but the distorting effect on cross-cohort estimation is likely to be greatest for small population subgroups with many claimants to multiple race, such as the American Indian category. Analysts should be cautious, then, about conclusions concerning racial subgroup trends between the seniors of 2004 and seniors of previous years.

A.7.6 Imputation of Missing Data for ELS:2002 Key Variables

One difference between the SES variable in ELS:2002 and in prior studies arises from the use of imputation in ELS:2002. Because all the constituents of SES are subject to imputation, it has been possible to create an SES composite with no missing data for ELS:2002. For the HS&B sophomores, SES was missing for around 9 percent of the participants, and for NELS:88 (in 1990) just under 10 percent. The availability of imputed variables (including both key classification variables and achievement test scores) also poses a novel question for analysts interested in intercohort comparisons. Because imputed values are flagged, it is the analyst's choice whether or not to employ them. If the imputed variables are used, they should have the effect of improving cross-sectional estimation. On the other hand, since imputation was not used in the prior studies, it is also possible that use of ELS:2002 imputed values might decrease comparability of results across studies. To explore the issue of the magnitude of the effect of imputation on comparative bivariate and multivariate analysis, Ingels et al. (2005) appendix C compares imputed and unimputed ELS:2002 estimates, including estimates based on an SES composite using the household items index substitution and an SES composite based on parent data with missings imputed. Imputed data were used for the current report.

A.7.7 Differences of Questionnaire Content

Despite the intention to preserve a core of comparable items, for many reasons, some questions have changed—while others have been added or dropped. Across the cohorts, questions may be identical in content and format or may differ in one or more ways: the question, item, or response wording; the order in which response options were presented; the manner in which the data were collected (e.g., categorical response option versus open-ended response fields, instructions to mark one versus mark all that apply); and the population to which

the question applies. For this report, items thought to be comparable have been selected, though sometimes with caveats and qualifications.

A.7.8 Special Issue: Senior Cohort Freshening

The lack of a freshened senior cohort in HS&B's 1982 follow-up survey to the 1980 sophomore survey may introduce bias with respect to cross-study comparisons of transcript data from HS&B to NELS:88 and ELS:2002 senior cohort transcript data. To assess the presence and extent of bias arising from the different cohort definitions, this section presents results from an analysis of the differences between freshened and unfreshened samples in NELS:88 and ELS:2002, and of the differences between the HS&B senior and sophomore cohorts.¹¹

Thus this analysis examines differences in student characteristics between freshened and unfreshened (longitudinal) senior samples (for NELS:88 and ELS:2002) and differences in student characteristics between the 1980 and 1982 senior samples (of HS&B). Since HS&B's 1980 sophomore survey does not have a freshened senior cohort sample for 1982, but there is a 1980 senior survey, they may be compared profitably. Both survey samples are nationally representative (in 1980) and were drawn from the same schools, heightening the prospect that the true 1982 senior cohort and the observed 1982 senior cohort (measured as 1980 sophomores two years later) are similar. With the (relatively strong) assumption that the 1980 senior and sophomore cohorts were similarly composed with respect to student demographics, a finding of few differences between the 1980 senior cohort and the 1980 sophomore cohort in 1982 would suggest that the 1982 seniors fairly represent the population of seniors at that time. The assumption of cohort similarities limits the ability to draw positive conclusions, but the findings may be used alongside the other approaches in this section to provide an overall picture of potential bias.

For NELS:88 and ELS:2002 within-study comparisons, the analyses are more straightforward. Here we compare (for each study) the freshened senior sample, the longitudinal sample of seniors, and the combination of the two. Few differences in student characteristics between the different sample definitions in these studies would suggest, by analogy, that the lack of freshening as present in HS&B does not substantially distort HS&B estimates. The main difference between NELS:88 and ELS:2002 is the fact that key item statistical imputation was performed for the latter.

Characteristics of freshened versus unfreshened senior samples in NELS:88 and ELS:2002. Table A-3 shows selected student characteristics from both the full (freshened) senior samples and the longitudinal (unfreshened) samples of seniors who were sophomores two years earlier (using the transcript weight). The latter samples are analogous to the HS&B 1980 sophomore cohort two years later, in terms of selection into the sample. The NELS:88 sophomores were surveyed in 1990 and are a nationally representative sample of sophomores in that year; the NELS:88 seniors were surveyed in 1992 and include both sophomores surveyed in the previous wave (in 1990) and an additional supplement of seniors that together are a nationally representative sample of seniors in 1992. Similarly, ELS:2002 sophomores are nationally representative of high school sophomores in 2002, when they were surveyed, and the

¹¹ An additional question of interest, but not explored here, is the effect of sample definitions that filter cases based on curricular minima and graduation requirements, and which have been used to compare longitudinal study results to NAEP results. The hypothetical effect of such filters would be to make freshened and unfreshened samples more similar, given the known characteristics (typically high school grade repeaters) of the freshened samples.

ELS:2002 senior cohort includes both sophomores surveyed in the previous study wave as well as additional seniors in 2004.

For NELS:88, no statistically significant differences were observed between the alternatively defined senior cohorts in terms of student characteristics of sex, race/ethnicity, socioeconomic status (SES) quartile, school sector, region, or senior-year mathematics test score. For ELS:2002, only one statistically significant difference was observed: a 2 percentage-point difference in the percentage of seniors who were non-Hispanic White. Sixty-four percent of sophomores who were seniors two years later were White in 2004, while 62 percent of all seniors were White in 2004.

Table A-3. Percentage distribution of selected student characteristics and mean mathematics IRT score for freshened versus unfreshened samples (transcript weight) of NELS:88 and ELS:2002 seniors: 1992 and 2004

Characteristic	NELS:88: 1992		ELS:2002: 2004	
	Seniors who were sophomores 2 years earlier	Full senior cohort (freshened sample)	Seniors who were sophomores 2 years earlier	Full senior cohort (freshened sample)
Sex				
Male	50.3	50.3	49.6	49.9
Female	49.7	49.7	50.4	50.1
Race/ethnicity				
Asian/Pacific Islander	4.1	4.3	4.2	4.5
Hispanic	9.8	10.0	14.1	15.0
Black	12.0	12.0	13.1	13.3
White	72.9	72.1	63.7	62.2*
American Indian/Alaska Native	1.1	1.2	0.9	0.9
More than one race	—	—	4.1	4.1
SES quartile				
Lowest	18.6	18.8	22.2	22.3
Middle two	52.2	52.0	50.8	50.7
Highest	29.2	29.2	27.0	27.0
School control				
Public	90.4	91.0	91.8	91.9
Catholic	5.7	5.2	4.7	4.5
NAIS private	1.6	1.5	—	—
Other private	2.3	2.2	3.6	3.6
Region				
Northwest	20.2	20.4	18.7	18.7
Midwest	25.9	25.6	24.9	24.5
South	35.0	34.4	34.4	34.0
West	18.9	19.6	22.1	22.7
Math test (mean IRT score)	48.9	48.7	48.8	48.5

— Not available.

* Statistically significantly different from sample based on seniors who were sophomores two years earlier.

NOTE: Detail may not sum to totals because of rounding. SES = socioeconomic status. NAIS = National Association of Independent Schools. IRT = item response theory.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88/92), "Second Follow-up, 1992"; and Education Longitudinal Study of 2002 (ELS:2002/2004), "First Follow-up, 2004."

To the extent that the difference observed in ELS:2002 might also be observed in differences between a hypothetical HS&B full (freshened) senior cohort in 1982 versus the actual 1980 HS&B sophomore cohort two years later (this would assume similar demographic changes in the HS&B and ELS cohorts), this suggests that the HS&B survey could have a small overrepresentation of Whites. Since White seniors in HS&B were more likely to have completed more and higher levels of mathematics and science coursetaking than students overall, this could have inflated overall estimates of coursetaking in the HS&B sample used for the current report, making the actual growth in coursetaking between 1982 and 2004 somewhat greater. However, the lack of any other differences either in ELS:2002 or NELS:88 suggests that a sophomore cohort two years later is a good approximation for a fully representative senior cohort.¹²

Characteristics of HS&B sophomore cohort as seniors (in 1982) versus senior cohort (in 1980). Another way of examining the potential bias in using the 1980 HS&B sophomore cohort two years later as an approximation of 1982 seniors is to compare this senior sample to the nationally representative senior cohort surveyed in 1980. Table A-4 presents selected student and school characteristics from these two senior samples.¹³

In contrast to the NELS:88 and ELS:2002 results, comparison of the two temporally close HS&B samples shows that the longitudinal sample of seniors (who were sophomores in 1980) may somewhat underestimate, in particular, the percentage of White and low socioeconomic status (SES) students, and somewhat overestimate the percentage of seniors in the middle SES quartiles: there were 4 percentage points fewer Whites, 3 percentage points fewer low-SES seniors, and 2 percentage points more middle-SES seniors among the longitudinal sample of 1982 seniors than the cross-sectional 1980 senior sample. Additional but smaller differences were observed in the percentage of Blacks (0.3 percentage point fewer in the longitudinal sample) and in the mean number of mathematics test items answered correctly (about one-half a test question less [0.4] in the longitudinal sample; this corresponds to about a half-percentage point fewer seniors in the longitudinal sample scoring in the middle and upper quartile of items answered correctly).

The smaller proportions of Whites and low-SES seniors in the longitudinal sample may be attributable to cohort differences between the two groups of seniors measured two years apart. Indeed, the shifts are consistent with the overall decline in the proportion of Whites and the shifts in SES from the 1980 HS&B to the 1992 senior cohort of NELS:88 (see table A-3). However, differences due to the sampling procedure (a longitudinal versus full cross-sectional cohort) cannot be ruled out. With respect to the trend analysis presented in the current report, these underestimates may have balanced each other, as Whites were more likely, and lower SES students less likely, to take some higher level courses in 1982.

¹² A similar analysis for both NELS:88 and ELS:2002 was conducted using the full-sample weights appropriate to each wave. Though the transcript weight is most germane to the analysis used in this report, the full weights did produce two additional differences between freshened and unfreshened senior samples: in NELS:88, there was a similar 1-point higher percentage of Whites in the unfreshened sample as in the freshened sample; and in ELS:2002, there was a one point lower percentage of Hispanic seniors in the unfreshened sample compared to the freshened sample.

¹³ The HS&B analysis samples used here are based on base-year and first follow-up files, not on the four-round longitudinal files currently available as an Electronic Codebook (ECB) from NCES.

Table A-4. Percentage distribution of selected student characteristics and mean mathematics score for 1980 senior cohort and 1980 sophomore cohort 2 years later (in 1982) of HS&B: 1980 and 1982

Characteristic	Senior cohort of 1980	Sophomore cohort of 1980, as seniors in 1982
Sex		
Male	48.1	49.4
Female	51.9	50.6
Race/ethnicity		
Asian	1.3	1.4
Black	11.5	11.2*
Hispanic	6.3	11.7
White	79.0	74.5*
American Indian/Alaska Native	0.7	1.0
Other	1.2	0.3
SES quartile		
Lowest	27.4	23.8*
Middle two	48.1	50.2*
Highest	24.5	26.0
Census division		
New England	6.9	7.0
Mid Atlantic	16.0	16.5
South Atlantic	15.4	16.3
East South Central	5.3	5.4
West South Central	9.7	9.9
East North Central	19.9	20.3
West North Central	8.7	8.2
Mountain	5.1	4.8
Pacific	13.0	11.5
Math test (mean number right)	10.8	10.4*

* Statistically significantly different ($p < .05$) from senior cohort of 1980.

NOTE: Detail may not sum to totals because of rounding. SES = socioeconomic status.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B-So:80/82); and High School and Beyond Longitudinal Study of 1980 Seniors (HS&B-Sr:80).

Appendix B

Standard Error Tables

Table B-1. Standard errors for table 1 estimates: Percentage of high school seniors, by sex and race/ethnicity: 1972, 1980, 1992, and 2004

Characteristics	Year			
	1972	1980	1992	2004
Sex				
Male	0.6	0.5	0.6	0.6
Female	0.6	0.5	0.6	0.6
Race/ethnicity ¹				
Asian	0.1	0.2	0.3	0.3
Black	0.4	0.7	0.8	0.7
Hispanic	0.3	0.3	0.7	0.8
White	0.5	0.8	1.1	1.0
More than one race	†	†	†	0.2

† Not applicable.

¹ Due to small sample sizes for the group, the category "American Indian or Alaska Native" was omitted from the tables in this report but included for the purposes of computing percentages.

NOTE: Asian includes Native Hawaiian or Other Pacific Islander, Black includes African American, and Hispanic includes Latino. All race categories exclude Hispanic or Latino origin.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Longitudinal Study of the High School Class of 1972 (NLS:72), "Base Year"; High School and Beyond Longitudinal Study of 1980 Seniors (HS&B-Sr:80/86); National Education Longitudinal Study of 1988 (NELS:88/92), "Second Follow-up, Student Survey, 1992"; Education Longitudinal Study of 2002 (ELS:2002/2004), "First Follow-up, 2004."

Table B-2. Standard errors for table 2 estimates: Percentage of high school seniors in socioeconomic (SES) quartiles, by race/ethnicity: 1972, 1980, 1992, and 2004

Characteristics	Year			
	1972	1980	1992	2004
Asian				
Lowest SES quartile	3.8	3.2	2.4	2.0
Middle two SES quartiles	2.5	1.4	1.7	1.8
Highest SES quartile	1.2	1.0	1.4	2.3
Black				
Lowest SES quartile	1.4	1.5	2.5	1.6
Middle two SES quartiles	1.2	1.3	2.2	1.5
Highest SES quartile	0.6	0.7	1.1	1.0
Hispanic				
Lowest SES quartile	2.8	1.7	2.0	2.0
Middle two SES quartiles	2.5	1.4	1.7	1.8
Highest SES quartile	1.2	1.0	1.4	0.9
White				
Lowest SES quartile	0.4	0.6	0.7	0.7
Middle two SES quartiles	0.6	0.6	0.8	0.8
Highest SES quartile	0.6	0.8	1.0	1.0
More than one race				
Lowest SES quartile	†	†	†	2.4
Middle two SES quartiles	†	†	†	2.6
Highest SES quartile	†	†	†	2.1

† Not applicable.

NOTE: Asian includes Native Hawaiian or Other Pacific Islander, Black includes African American, and Hispanic includes Latino. All race categories exclude Hispanic or Latino origin. Due to small sample sizes for the group, the category "American Indian or Alaska Native" was omitted from the tables in this report but included for the purposes of computing percentages.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Longitudinal Study of the High School Class of 1972 (NLS:72), "Base Year"; High School and Beyond Longitudinal Study of 1980 Seniors (HS&B-Sr:80/86); National Education Longitudinal Study of 1988 (NELS:88/92), "Second Follow-up, Student Survey, 1992"; Education Longitudinal Study of 2002 (ELS:2002/2004), "First Follow-up, 2004."

Table B-3. Standard errors for table 3 estimates: Percentage of high school seniors enrolled in specific mathematics courses in their senior year: 1982, 1992, and 2004

Mathematics course	Year		
	1982	1992	2004
No math	0.62	0.99	0.84
Basic math	0.13	0.20	0.38
General math	0.25	0.32	0.36
Applied math	0.24	0.41	0.42
Pre-algebra	0.14	0.15	0.20
Algebra I	0.19	0.34	0.27
Geometry	0.24	0.48	0.35
Algebra II	0.28	0.72	0.47
Algebra III	0.23	0.34	0.31
Trigonometry	0.32	0.62	0.43
Advanced geometry	0.32	0.62	0.43
Statistics/probability	0.11	0.20	0.46
Other intermediate math	0.21	0.60	0.37
Precalculus	0.26	0.48	0.52
Calculus	0.27	0.76	0.48
Tutoring	0.03	†	0.03

† Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B-So:80/82), "High School Transcript Study"; National Education Longitudinal Study of 1988 (NELS:88/92), "Second Follow-up, Transcript Survey, 1992"; and Education Longitudinal Study of 2002 (ELS:2002/2004), "First Follow-up, High School Transcript Study, 2004."

Table B-4. Standard errors for table 4 estimates: Percentage of high school seniors enrolled in mathematics courses during their senior year, by course level, sex, race/ethnicity, and socioeconomic status (SES) quartile: 1982, 1992, and 2004

Characteristics	1982				1992				2004			
	Not enrolled	Basic math courses	Inter-mediate math courses	Advanced math courses	Not enrolled	Basic math courses	Inter-mediate math courses	Advanced math courses	Not enrolled	Basic math courses	Inter-mediate math courses	Advanced math courses
Total	0.6	0.4	0.5	0.4	1.0	0.6	1.0	0.9	0.8	0.6	0.8	0.7
Sex												
Male	0.9	0.7	0.7	0.5	1.4	0.8	1.5	1.3	1.0	0.8	0.9	0.8
Female	0.8	0.6	0.6	0.5	1.2	0.8	1.2	1.0	1.0	0.7	0.9	0.9
Race/ethnicity ¹												
Asian	3.2	3.1	2.7	3.2	3.8	1.7	2.3	3.2	1.5	1.2	1.7	2.3
Black	1.7	1.6	1.1	0.5	2.8	2.3	2.4	1.8	1.9	1.7	2.0	1.4
Hispanic	1.5	1.4	0.9	0.7	2.6	2.0	2.3	1.3	1.7	1.6	1.6	1.2
White	0.7	0.5	0.6	0.5	1.2	0.7	1.2	1.1	2.6	2.5	2.6	2.5
Multiracial	†	†	†	†	†	†	†	†	1.0	0.7	0.9	0.9
SES quartile												
Lowest	1.2	1.0	0.8	0.3	1.7	1.3	1.5	0.7	1.4	1.2	1.2	0.9
Middle two	0.9	0.6	0.7	0.5	1.2	0.8	1.3	0.8	1.0	0.8	0.9	0.7
Highest	1.2	0.8	1.0	0.9	1.7	0.9	2.2	2.3	1.1	0.7	1.2	1.3

† Not applicable.

¹ Asian includes Pacific Islander; Black includes African-American; and Hispanic can be of any race.

NOTE: "Basic math course" refers to basic, general, or applied mathematics, pre-algebra, algebra I, and geometry. "Intermediate math course" refers to algebra II, algebra III, trigonometry, advanced geometry, statistics, probability, and other intermediate courses such as linear algebra. "Advanced math course" refers to precalculus and calculus courses. SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B-So:80/82), "High School Transcript Study"; National Education Longitudinal Study of 1988 (NELS:88/92), "Second Follow-up, Transcript Survey, 1992"; and Education Longitudinal Study of 2002 (ELS:2002/2004), "First Follow-up, High School Transcript Study, 2004."

Table B-5. Standard errors for table 5 estimates: Percentage of high school seniors enrolled in specific science courses in their senior year: 1982, 1992, and 2004

Science course	Year		
	1982	1992	2004
No science	0.59	1.02	0.76
General science	0.19	0.27	0.25
General physical science	0.14	0.34	0.29
Regular earth science	0.12	0.22	0.29
Advanced earth science	0.04	0.02	0.21
Astronomy/meteorology	0.12	0.25	0.23
Basic biology	0.12	0.09	0.09
General biology	0.22	0.28	0.27
Advanced/specialized biology	0.34	0.83	0.64
Basic chemistry	0.14	0.21	0.22
General chemistry	0.25	0.38	0.44
Chemistry I	0.18	0.27	0.30
Basic physics	0.16	0.33	0.34
General physics	0.35	0.64	0.58
Physics I	0.16	0.24	0.28
Engineering	0.04	0.06	0.13
Chemistry II or AP/IB chemistry	0.17	0.26	0.28
Physics II or AP/IB physics	0.14	0.24	0.28

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B-So:80/82), "High School Transcript Study"; National Education Longitudinal Study of 1988 (NELS:88/92), "Second Follow-up, Transcript Survey, 1992"; and Education Longitudinal Study of 2002 (ELS:2002/2004), "First Follow-up, High School Transcript Study, 2004."

Table B-6. Standard errors for table 6 estimates: Percentage of high school seniors enrolled in science courses during their senior year, by course level, sex, race/ethnicity, and socioeconomic status (SES) quartile: 1982, 1992, and 2004

Characteristics	1982				1992				2004			
	Not enrolled	Basic science courses	Inter-mediate science courses	Advanced science courses	Not enrolled	Basic science courses	Inter-mediate science courses	Advanced science courses	Not enrolled	Basic science courses	Inter-mediate science courses	Advanced science courses
Total	0.6	0.3	0.4	0.4	1.0	0.6	0.6	0.9	0.8	0.5	0.6	0.7
Sex												
Male	0.9	0.5	0.7	0.5	1.4	0.9	0.8	1.3	0.9	0.7	0.8	0.8
Female	0.8	0.4	0.6	0.6	1.3	0.6	0.9	1.1	1.0	0.5	0.7	0.8
Race/ethnicity ¹												
Asian	3.3	3.0	3.2	2.6	3.7	2.1	2.5	2.3	2.1	0.8	1.9	2.3
Black	1.6	1.2	1.1	0.8	2.5	1.7	2.2	1.4	1.8	1.5	1.5	1.5
Hispanic	1.3	0.7	1.0	0.7	2.9	2.2	1.7	1.6	1.7	1.0	1.3	1.5
White	0.7	0.4	0.5	0.5	1.2	0.6	0.7	1.2	0.9	0.6	0.8	0.8
Multiracial	†	†	†	†	†	†	†	†	2.6	1.7	2.3	2.2
SES quartile												
Lowest	1.1	0.7	0.8	0.6	1.6	1.4	1.2	0.9	1.3	0.9	1.0	1.1
Middle two	0.8	0.4	0.6	0.6	1.2	0.8	0.9	0.8	0.9	0.6	0.7	0.8
Highest	1.2	0.6	1.0	0.9	2.1	0.8	1.3	2.4	1.3	0.7	1.1	1.2

† Not applicable.

¹ Asian includes Pacific Islander; Black includes African-American; and Hispanic can be of any race.

NOTE: "Basic science courses" represent general science, regular and advanced earth science, general physical science, basic biology, basic chemistry, basic physics, and astronomy/meteorology; "Intermediate science courses" represent general biology, chemistry I, and physics I; "Advanced science courses" represent chemistry II, physics II, and advanced biology; these include all AP and IB science courses.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B-So:80/82), "High School Transcript Study"; National Education Longitudinal Study of 1988 (NELS:88/92), "Second Follow-up, Transcript Survey, 1992"; and Education Longitudinal Study of 2002 (ELS:2002/2004), "First Follow-up, High School Transcript Study, 2004."

Table B-7. Standard errors for table 7 estimates: Percentage of high school seniors enrolled in foreign language courses during their senior year, by course level, sex, race/ethnicity, and socioeconomic status (SES) quartile: 1982, 1992, and 2004

Characteristics	1982			1992			2004		
	Not enrolled	First- or second- year course	Third-year or above course	Not enrolled	First- or second- year course	Third-year or above course	Not enrolled	First- or second- year course	Third-year or above course
Total	0.4	0.3	0.3	1.0	0.7	0.9	0.6	0.5	0.6
Sex									
Male	0.5	0.4	0.3	1.5	1.1	1.2	0.7	0.6	0.6
Female	0.6	0.4	0.5	1.2	0.8	1.2	0.9	0.6	0.8
Race/ethnicity¹									
Asian	3.6	3.5	2.3	3.3	2.6	2.7	1.8	1.0	1.6
Black	1.0	0.9	0.4	1.9	1.7	1.5	1.6	1.3	1.0
Hispanic	0.8	0.6	0.6	2.4	2.2	1.4	1.7	1.0	1.2
White	0.5	0.3	0.4	1.2	0.8	1.1	0.8	0.6	0.7
More than one race	†	†	†	†	†	†	2.3	1.6	1.9
SES quartile									
Lowest	0.6	0.5	0.3	1.4	1.2	0.8	1.1	0.9	0.7
Middle two	0.6	0.5	0.4	1.3	1.2	0.8	0.8	0.6	0.6
Highest	0.9	0.6	0.8	2.1	0.9	2.3	1.1	0.6	1.0

† Not applicable.

¹ Due to small sample sizes for the group, the category "American Indian or Alaska Native" was omitted from the tables in this report but included for the purposes of computing percentages.

NOTE: Asian includes Native Hawaiian or Other Pacific Islander, Black includes African American, and Hispanic includes Latino. All race categories exclude Hispanic or Latino origin. Low-level course indicates enrollment in the first year of a foreign language course with no other higher-level foreign language enrollment. Advanced course indicates enrollment in the third, fourth, or fifth year of a foreign language course. SES = socioeconomic status.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B-So:80/82), "High School Transcript Study"; National Education Longitudinal Study of 1988 (NELS:88/92), "Second Follow-up, Transcript Survey, 1992"; and Education Longitudinal Study of 2002 (ELS:2002/2004), "First Follow-up, High School Transcript Study, 2004."

Table B-8. Standard errors for table 8 estimates: Percentage of high school seniors reporting participation in various extracurricular activities, by sex, race/ethnicity, and socioeconomic status (SES): 1972, 1980, 1992, and 2004

Characteristics	Student government			Honor society			Sports/athletics					
	1972	1980	1992	2004	1972	1980	1992	2004	1972	1980	1992	2004
Total	0.4	0.4	0.5	0.3	0.4	0.4	0.5	0.5	0.6	0.5	0.7	0.6
Sex												
Male	0.5	0.5	0.6	0.4	0.4	0.4	0.6	0.6	0.7	0.6	0.9	0.8
Female	0.6	0.5	0.7	0.5	0.6	0.5	0.8	0.7	0.7	0.6	0.8	0.8
Race/ethnicity ¹												
Asian	3.5	3.4	1.5	1.5	3.8	2.6	2.1	1.9	3.8	3.6	2.3	1.9
Black	1.2	0.9	2.1	0.9	0.8	0.8	1.8	1.0	1.4	1.1	2.2	1.4
Hispanic	1.5	1.0	1.7	0.8	1.2	0.9	1.2	1.0	2.1	1.4	1.7	1.2
White	0.5	0.4	0.5	0.5	0.4	0.4	0.6	0.7	0.6	0.6	0.8	0.7
More than one race	†	†	†	2.0	†	†	†	2.1	†	†	†	2.8
SES quartile												
Lowest	0.6	0.5	0.7	0.6	0.5	0.5	0.7	0.7	0.8	0.7	1.2	1.0
Middle two	0.6	0.5	0.8	0.5	0.5	0.5	0.7	0.7	0.8	0.6	0.9	0.8
Highest	0.9	0.8	0.9	0.8	0.8	0.8	1.3	1.0	1.0	1.0	1.2	1.1

See notes at end of table.

Table B-8. Standard errors for table 8 estimates: Percentage of high school seniors reporting participation in various extracurricular activities, by sex, race/ethnicity, and socioeconomic status (SES): 1972, 1980, 1992, and 2004—Continued

Characteristics	Newspaper or yearbook				Vocational club				Academic club			
	1972	1980	1992	2004	1972	1980	1992	2004	1972	1980	1992	2004
Total	0.5	0.5	0.6	0.4	0.5	0.7	0.6	0.6	0.5	0.5	0.6	0.5
Sex												
Male	0.6	0.5	0.8	0.5	0.6	0.8	0.7	0.7	0.6	0.5	0.8	0.6
Female	0.7	0.7	0.8	0.7	0.8	0.9	0.8	0.7	0.7	0.6	0.8	0.7
Race/ethnicity ¹												
Asian	3.1	2.8	1.6	1.5	2.8	2.4	1.3	1.0	4.1	3.1	2.3	1.9
Black	1.1	0.9	1.5	1.1	1.6	1.6	1.7	1.4	1.3	1.2	1.6	1.0
Hispanic	1.5	1.1	1.5	0.9	2.5	1.6	1.4	1.0	1.9	1.2	1.5	1.2
White	0.6	0.6	0.7	0.6	0.6	0.8	0.7	0.8	0.6	0.5	0.7	0.6
More than one race	†	†	†	1.8	†	†	†	2.2	†	†	†	2.0
SES quartile												
Lowest	0.7	0.7	0.8	0.7	0.9	1.0	1.2	0.9	0.8	0.7	0.9	0.9
Middle two	0.7	0.6	0.7	0.6	0.7	0.8	0.8	0.7	0.7	0.6	0.8	0.7
Highest	0.9	1.0	1.5	0.8	0.7	0.8	0.6	0.8	0.9	0.9	1.2	1.0

† Not applicable.

¹ Due to small sample sizes for the group, the category "American Indian or Alaska Native" was omitted from the tables in this report but included for the purposes of computing percentages.

NOTE: Asian includes Native Hawaiian or Other Pacific Islander, Black includes African American, and Hispanic includes Latino. All race categories exclude Hispanic or Latino origin. SOURCE: U.S. Department of Education, National Center for Education Statistics, National Longitudinal Study of the High School Class of 1972 (NL:72), "Base Year"; High School and Beyond Longitudinal Study of 1980 Seniors (HS&B-Sr:80/86); National Education Longitudinal Study of 1988 (NELS:88/92), "Second Follow-up, Student Survey, 1992"; Education Longitudinal Study of 2002 (ELS:2002/2004), "First Follow-up, 2004."

Table B-9. Standard errors for figure 2 estimates: Percentage of high school seniors planning to work full-time, attend school, or engage in other activities immediately after high school: 1972, 1980, 1992, and 2004

Activity	1972	1980	1992	2004
Work	0.5	0.5	0.5	0.5
School	0.5	0.6	0.6	0.5
Other	0.3	0.2	0.3	0.1

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Longitudinal Study of the High School Class of 1972 (NLS:72), "Base Year"; High School and Beyond Longitudinal Study of 1980 Seniors (HS&B-Sr:80/86); National Education Longitudinal Study of 1988 (NELS:88/92), "Second Follow-up, Student Survey, 1992"; Education Longitudinal Study of 2002 (ELS:2002/2004), "First Follow-up, 2004."

Table B-10. Standard errors for table 9 estimates: Percentage of high school seniors planning to work full-time immediately after high school, by sex, race/ethnicity, and socioeconomic status (SES): 1972, 1980, 1992, and 2004

Characteristics	Year			
	1972	1980	1992	2004
Total	0.5	0.6	0.5	0.5
Sex				
Male	0.7	0.8	0.7	0.7
Female	0.6	0.6	0.6	0.6
Race/ethnicity ¹				
Asian	3.9	2.1	2.2	1.3
Black	1.4	1.2	1.2	1.1
Hispanic	2.0	1.5	1.3	1.4
White	0.5	0.6	0.6	0.6
More than one race	†	†	†	2.4
SES quartile				
Lowest	0.9	0.8	1.1	1.0
Middle two	0.6	0.6	0.6	0.6
Highest	0.6	0.7	0.5	0.6

† Not applicable.

¹ Due to small sample sizes for the group, the category "American Indian or Alaska Native" was omitted from the tables in this report but included for the purposes of computing percentages.

NOTE: Asian includes Native Hawaiian or Other Pacific Islander, Black includes African American, and Hispanic includes Latino. All race categories exclude Hispanic or Latino origin.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Longitudinal Study of the High School Class of 1972 (NLS:72), "Base Year"; High School and Beyond Longitudinal Study of 1980 Seniors (HS&B-Sr:80/86); National Education Longitudinal Study of 1988 (NELS:88/92), "Second Follow-up, Student Survey, 1992"; Education Longitudinal Study of 2002 (ELS:2002/2004), "First Follow-up, 2004."

Table B-11. Standard errors for figure 3 estimates: Percentage of high school seniors with postsecondary education plans: 1972, 1980, 1992, and 2004

Postsecondary education plans	1972	1980	1992	2004
4-year program	0.6	0.6	0.8	0.7
2-year academic	0.4	0.4	0.5	0.5
2-year vocational, trade, or technical	0.4	0.5	0.4	0.2
Did not plan to continue education	0.5	0.7	0.6	0.5

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Longitudinal Study of the High School Class of 1972 (NLS:72), "Base Year"; High School and Beyond Longitudinal Study of 1980 Seniors (HS&B-Sr:80/86); National Education Longitudinal Study of 1988 (NELS:88/92), "Second Follow-up, Student Survey, 1992"; Education Longitudinal Study of 2002 (ELS:2002/2004), "First Follow-up, 2004."

Table B-12. Standard errors for table 10 estimates: Percentage of high school seniors with postsecondary education plans, by sex, race/ethnicity, and socioeconomic status (SES): 1972, 1980, 1992, and 2004

Characteristics	4-year program				2-year academic			
	1972	1980	1992	2004	1972	1980	1992	2004
Total	0.6	0.6	0.8	0.7	0.4	0.4	0.5	0.5
Sex								
Male	0.7	0.9	1.0	0.9	0.5	0.5	0.6	0.7
Female	0.7	0.9	1.0	0.8	0.5	0.6	0.7	0.7
Race/ethnicity ¹								
Asian	4.5	3.3	2.5	2.1	2.9	1.9	1.5	1.5
Black	1.2	1.1	2.2	1.6	0.6	0.5	1.7	1.2
Hispanic	1.9	1.3	1.9	1.5	1.3	0.8	1.7	1.4
White	0.6	0.8	0.9	0.9	0.4	0.5	0.5	0.6
More than one race	†	†	†	2.7	†	†	†	2.0
SES quartile								
Lowest	0.7	0.9	1.3	1.2	0.5	0.6	1.1	1.0
Middle two	0.6	0.9	0.9	0.8	0.6	0.6	0.6	0.8
Highest	1.0	1.4	1.2	0.9	0.7	0.8	0.8	0.7
Characteristics	2-year vocational, trade, or technical				Did not plan to continue education			
	1972	1980	1992	2004 ¹	1972	1980	1992	2004
Total	0.4	0.5	0.4	0.2	0.5	0.7	0.6	0.5
Sex								
Male	0.5	0.7	0.6	0.4	0.7	1.0	0.9	0.7
Female	0.5	0.7	0.5	0.3	0.7	0.9	0.7	0.5
Race/ethnicity ¹								
Asian	2.4	2.2	1.3	0.9	4.2	2.7	2.3	1.2
Black	1.1	0.7	1.5	0.6	1.3	1.1	1.9	1.0
Hispanic	1.6	1.1	1.2	0.8	2.1	1.5	1.5	1.4
White	0.4	0.6	0.5	0.3	0.6	0.8	0.7	0.5
More than one race	†	†	†	1.2	†	†	†	2.3
SES quartile								
Lowest	0.7	0.9	0.9	0.7	0.9	1.2	1.4	1.1
Middle two	0.5	0.7	0.6	0.3	0.6	1.0	0.7	0.6
Highest	0.6	0.8	0.4	0.3	0.7	1.2	0.9	0.6

† Not applicable.

¹ Due to small sample sizes for the group, the category "American Indian or Alaska Native" was omitted from the tables in this report but included for the purposes of computing percentages.

NOTE: Asian includes Native Hawaiian or Other Pacific Islander, Black includes African American, and Hispanic includes Latino. All race categories exclude Hispanic or Latino origin.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Longitudinal Study of the High School Class of 1972 (NLS:72), "Base Year"; High School and Beyond Longitudinal Study of 1980 Seniors (HS&B-Sr:80/86); National Education Longitudinal Study of 1988 (NELS:88/92), "Second Follow-up, Student Survey, 1992"; Education Longitudinal Study of 2002 (ELS:2002/2004), "First Follow-up, 2004."

Table B-13. Standard errors for table 11 estimates: Percentage of high school seniors with postsecondary education plans who reported four postsecondary school choice factors as very important, by sex, race/ethnicity, and socioeconomic status (SES): 1972, 1980, 1992, and 2004

Characteristics	Course availability				Expenses			
	1972	1980	1992	2004	1972	1980	1992	2004
Total	0.6	0.5	0.7	0.6	0.6	0.5	0.8	0.6
Sex								
Male	0.9	0.6	1.0	0.8	0.8	0.7	1.0	0.8
Female	0.8	0.6	0.9	0.7	1.0	0.6	1.1	0.8
Race/ethnicity ¹								
Asian	4.1	2.6	2.4	1.9	4.6	3.6	2.2	1.9
Black	2.0	1.2	2.7	1.2	1.9	1.3	2.8	1.6
Hispanic	2.6	1.6	2.0	1.5	2.8	1.7	2.2	1.4
White	0.7	0.5	0.8	0.7	0.7	0.5	0.8	0.8
More than one race	†	†	†	2.9	†	†	†	2.9
SES quartile								
Lowest	1.5	0.9	1.4	1.1	1.6	0.9	1.4	1.2
Middle two	0.9	0.6	1.0	0.7	1.0	0.7	1.0	0.9
Highest	1.0	0.8	1.4	1.1	0.9	0.8	1.2	0.9
Characteristics	Financial aid				Reputation of institution			
	1972	1980	1992	2004	1972	1980	1992	2004
Total	0.6	0.6	0.8	0.7	0.7	0.5	0.7	0.6
Sex								
Male	0.8	0.7	1.2	0.9	0.9	0.7	1.0	0.8
Female	0.9	0.7	1.0	0.9	0.9	0.7	1.0	0.8
Race/ethnicity ¹								
Asian	3.8	3.2	2.4	2.1	4.8	3.6	2.3	1.8
Black	1.8	1.1	2.8	1.4	2.0	1.2	2.6	1.5
Hispanic	3.0	1.8	2.0	1.5	2.8	1.6	2.4	1.3
White	0.6	0.6	0.9	0.8	0.7	0.5	0.8	0.8
More than one race	†	†	†	2.9	†	†	†	2.9
SES quartile								
Lowest	1.5	0.9	1.6	1.0	1.5	0.9	1.5	1.2
Middle two	0.9	0.7	1.1	0.9	0.9	0.6	1.0	0.8
Highest	0.8	0.8	1.3	1.2	1.0	0.8	1.2	1.1

† Not applicable.

¹ Due to small sample sizes for the group, the category "American Indian or Alaska Native" was omitted from the tables in this report but included for the purposes of computing percentages.

NOTE: Asian includes Native Hawaiian or Other Pacific Islander, Black includes African American, and Hispanic includes Latino. All race categories exclude Hispanic or Latino origin.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Longitudinal Study of the High School Class of 1972 (NLS:72), "Base Year"; High School and Beyond Longitudinal Study of 1980 Seniors (HS&B-Sr:80/86); National Education Longitudinal Study of 1988 (NELS:88/92), "Second Follow-up, Student Survey, 1992"; Education Longitudinal Study of 2002 (ELS:2002/2004), "First Follow-up, 2004."

Appendix B. Standard Error Tables

Table B-14. Standard errors for table 12 estimates: Percentage of high school seniors expecting to complete various educational levels, by sex, race/ethnicity, and socioeconomic status (SES): 1972, 1980, 1992, and 2004

Characteristics	High school or less				Some college			
	1972	1980	1992	2004	1972	1980	1992	2004
Total	0.4	0.5	0.3	0.3	0.5	0.5	0.6	0.5
Sex								
Male	0.5	0.6	0.4	0.4	0.8	0.6	0.8	0.7
Female	0.6	0.5	0.3	0.3	0.7	0.6	0.8	0.6
Race/ethnicity ¹								
Asian	3.2	1.1	0.8	0.5	3.8	2.4	2.4	1.4
Black	1.3	0.9	0.8	0.7	1.7	1.0	1.7	1.3
Hispanic	2.0	1.4	0.9	0.9	2.6	1.3	2.1	1.5
White	0.5	0.5	0.3	0.3	0.6	0.5	0.7	0.6
More than one race	†	†	†	1.5	†	†	†	2.0
SES quartile								
Lowest	1.0	0.8	0.7	0.7	1.0	0.7	1.1	1.1
Middle two	1.1	0.5	0.3	0.4	0.8	0.6	0.8	0.6
Highest	0.5	0.4	0.2	0.2	0.7	0.7	0.7	0.6
Characteristics	Bachelor's degree				Graduate or professional degree			
	1972	1980	1992	2004	1972	1980	1992	2004
Total	0.6	0.4	0.6	0.5	0.4	0.5	0.7	0.6
Sex								
Male	0.8	0.5	0.9	0.8	0.6	0.6	1.0	0.8
Female	0.8	0.5	0.9	0.7	0.4	0.6	0.9	0.8
Race/ethnicity ¹								
Asian	4.8	3.2	2.4	1.8	3.7	3.5	2.5	2.1
Black	1.6	0.8	2.2	1.5	1.2	1.0	2.1	1.6
Hispanic	2.6	1.1	1.6	1.4	1.6	1.0	1.8	1.4
White	0.6	0.4	0.7	0.7	0.4	0.5	0.8	0.8
More than one race	†	†	†	2.7	†	†	†	2.5
SES quartile								
Lowest	0.9	0.5	1.1	1.1	0.5	0.4	1.1	0.9
Middle two	0.8	0.5	0.9	0.7	0.4	0.5	0.8	0.7
Highest	1.0	0.4	1.2	1.1	0.9	0.5	1.3	1.2

† Not applicable.

¹ Due to small sample sizes for the group, the category "American Indian or Alaska Native" was omitted from the tables in this report but included for the purposes of computing percentages.

NOTE: Asian includes Native Hawaiian or Other Pacific Islander, Black includes African American, and Hispanic includes Latino. All race categories exclude Hispanic or Latino origin.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Longitudinal Study of the High School Class of 1972 (NLS:72), "Base Year"; High School and Beyond Longitudinal Study of 1980 Seniors (HS&B-Sr:80/86); National Education Longitudinal Study of 1988 (NELS:88/92), "Second Follow-up, Student Survey, 1992"; Education Longitudinal Study of 2002 (ELS:2002/2004), "First Follow-up, 2004."

Table B-15. Standard errors for table 13 estimates: Percentage of high school seniors expecting to hold various occupations at age 30: 1972, 1980, 1992, and 2004

Occupation	Year			
	1972	1980	1992	2004
Clerical	0.4	0.4	0.2	0.1
Craftsman	0.3	0.4	0.2	0.3
Farmer	0.1	0.2	0.1	0.1
Homemaker	0.2	0.2	0.1	#
Laborer	0.1	0.2	0.1	0.1
Manager	0.2	0.4	0.3	0.3
Military	0.2	0.2	0.3	0.2
Operative	0.2	0.2	0.1	0.1
Professional	0.6	0.7	0.7	0.7
Proprietor	0.1	0.3	0.3	0.3
Protective services	0.2	0.2	0.2	0.3
Sales	0.2	0.2	0.2	0.2
Service	0.2	0.3	0.2	0.3
Technical	0.3	0.4	0.3	0.3
Other	†	†	†	0.1

† Not applicable.

Rounds to zero.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Longitudinal Study of the High School Class of 1972 (NLS:72), "Base Year"; High School and Beyond Longitudinal Study of 1980 Seniors (HS&B-Sr:80/86); National Education Longitudinal Study of 1988 (NELS:88/92), "Second Follow-up, Student Survey, 1992"; Education Longitudinal Study of 2002 (ELS:2002/2004), "First Follow-up, 2004."

Table B-16. Standard errors for table 14 estimates: Percentage of high school seniors expecting to hold various occupations at age 30, by sex and race/ethnicity: 1972, 1980, 1992, and 2004

Characteristics	Clerical				Craftsman				Farmer			
	1972	1980	1992	2004	1972	1980	1992	2004	1972	1980	1992	2004
Sex												
Male	0.2	0.1	0.2	0.1	0.6	0.4	0.3	0.8	0.2	0.2	0.2	0.1
Female	0.7	0.4	0.4	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.0
Race/ethnicity¹												
Asian	2.5	1.4	0.6	†	1.7	1.2	0.8	0.9	†	†	†	0.0
Black	1.7	0.6	0.7	0.3	0.6	0.5	0.4	0.6	0.2	0.1	0.4	0.0
Hispanic	2.5	0.9	0.8	0.3	1.4	0.7	0.4	1.1	0.5	0.4	0.3	0.0
White	0.4	0.3	0.2	0.1	0.3	0.3	0.2	0.4	0.1	0.2	0.1	0.1
More than one race	†	†	†	†	—	—	—	1.4	†	†	†	0.0
SES quartile												
Lowest	0.9	0.9	0.6	0.3	0.7	0.8	0.4	0.7	0.3	0.5	0.3	0.1
Middle two	0.5	0.6	0.3	0.1	0.4	0.6	0.3	0.4	0.2	0.3	0.1	0.1
Highest	0.5	0.5	0.2	0.1	0.4	0.6	0.1	0.3	0.2	0.3	0.1	0.1
Characteristics												
Sex												
Male	†	0.0	0.0	†	0.3	0.2	0.2	0.2	0.3	0.3	0.5	0.4
Female	0.3	0.3	0.2	0.1	0.1	0.0	0.0	†	0.2	0.3	0.4	0.3
Race/ethnicity¹												
Asian	†	0.7	0.3	†	†	†	0.7	0.1	0.8	2.5	1.7	1.6
Black	0.5	0.2	0.2	†	0.5	0.2	0.2	0.3	0.6	0.6	1.4	0.6
Hispanic	0.8	0.4	0.2	†	0.8	0.4	0.2	0.2	0.8	0.5	0.9	0.6
White	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.3	0.3
More than one race	†	†	†	†	†	†	†	0.5	—	—	—	1.2
SES quartile												
Lowest	0.4	0.6	0.2	†	0.4	0.5	0.3	0.3	0.3	0.5	0.6	0.4
Middle two	0.3	0.4	0.2	0.1	0.2	0.3	0.1	0.1	0.2	0.5	0.4	0.3
Highest	0.3	0.3	0.3	0.1	0.2	0.3	0.1	†	0.3	0.9	0.5	0.6

See notes at end of table.

Table B-16. Standard errors for table 14 estimates: Percentage of high school seniors expecting to hold various occupations at age 30, by sex and race/ethnicity: 1972, 1980, 1992, and 2004—Continued

Characteristics	Military			Operative			Professional					
	1972	1980	1992	2004	1972	1980	1992	2004	1972	1980	1992	2004
Sex												
Male	0.3	0.2	0.6	0.3	0.3	0.2	0.3	0.2	0.9	0.7	1.1	1.0
Female	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.8	0.6	0.8	0.9
Race/ethnicity¹												
Asian	†	0.9	0.6	0.3	1.7	0.8	0.4	0.1	4.5	3.5	2.7	2.2
Black	0.8	0.4	1.8	0.4	0.5	0.3	0.6	0.4	2.0	1.1	2.3	1.7
Hispanic	0.6	0.4	0.7	0.4	0.8	0.5	0.2	0.2	2.5	1.5	2.2	1.6
White	0.2	0.1	0.3	0.2	0.2	0.1	0.2	0.2	0.7	0.6	0.8	0.9
More than one race	†	†	†	0.9	†	†	†	†	†	†	†	3.0
SES quartile												
Lowest	0.4	0.3	0.6	0.3	0.4	0.5	0.6	0.4	1.0	1.1	1.4	1.2
Middle two	0.2	0.2	0.5	0.2	0.2	0.3	0.2	0.1	0.8	1.0	0.9	0.9
Highest	0.3	0.3	0.3	0.3	0.2	0.4	0.1	0.1	0.9	1.4	1.1	1.2
Characteristics												
Sex												
Male	0.2	0.2	0.5	0.4	0.3	0.2	0.4	0.5	0.2	0.2	0.4	0.3
Female	0.1	0.2	0.4	0.3	0.1	0.1	0.2	0.3	0.3	0.2	0.2	0.2
Race/ethnicity¹												
Asian	†	0.8	1.6	0.8	†	0.6	0.9	0.4	†	†	0.4	0.6
Black	0.3	0.4	0.9	0.9	0.4	0.2	0.7	0.6	0.4	0.4	0.5	0.4
Hispanic	0.6	0.5	1.0	0.6	0.9	0.4	0.8	1.0	0.6	0.4	0.4	0.2
White	0.2	0.2	0.4	0.3	0.2	0.1	0.3	0.3	0.2	0.1	0.3	0.3
More than one race	†	†	†	1.3	†	†	†	0.9	†	†	†	1.0
SES quartile												
Lowest	0.2	0.4	0.7	0.6	0.3	0.3	0.7	0.5	0.4	0.3	0.2	0.3
Middle two	0.2	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.3	0.3	0.2	0.2
Highest	0.3	0.6	0.5	0.4	0.2	0.4	0.3	0.6	0.3	0.4	0.5	0.4

See notes at end of table.

Table B-16. Standard errors for table 14 estimates: Percentage of high school seniors expecting to hold various occupations at age 30, by sex and race/ethnicity: 1972, 1980, 1992, and 2004—Continued

Characteristics	Service				Technical				Other			
	1972	1980	1992	2004	1972	1980	1992	2004	1972	1980	1992	2004
Sex												
Male	0.2	0.1	0.2	0.2	0.4	0.3	0.5	0.6	†	†	†	0.2
Female	0.3	0.3	0.3	0.6	0.3	0.2	0.4	0.4	†	†	†	0.1
Race/ethnicity¹												
Asian	†	1.0	0.3	1.1	2.6	1.9	1.2	1.4	†	†	†	0.1
Black	0.5	0.4	0.5	0.9	0.8	0.6	0.8	0.9	†	†	†	0.3
Hispanic	1.1	0.5	0.8	1.0	1.4	0.7	1.0	0.9	†	†	†	0.3
White	0.2	0.2	0.2	0.4	0.3	0.2	0.3	0.4	†	†	†	0.2
More than one race	†	†	†	1.9	†	†	†	1.6	†	†	†	0.5
SES quartile												
Lowest	0.5	0.6	0.6	0.8	0.5	0.7	0.6	0.6	†	†	†	0.3
Middle two	0.3	0.4	0.2	0.4	0.4	0.6	0.5	0.5	†	†	†	0.2
Highest	0.3	0.4	0.2	0.5	0.5	0.8	0.4	0.5	†	†	†	0.2

† Not applicable.

¹ Due to small sample sizes for the group, the category "American Indian or Alaska Native" was omitted from the tables in this report but included for the purposes of computing percentages.

NOTE: Asian includes Native Hawaiian or Other Pacific Islander, Black includes African American, and Hispanic includes Latino. All race categories exclude Hispanic or Latino origin. SOURCE: U.S. Department of Education, National Center for Education Statistics, National Longitudinal Study of the High School Class of 1972 (NLS:72), "Base Year"; High School and Beyond Longitudinal Study of 1980 Seniors (HS&B-Sr:80/86); National Education Longitudinal Study of 1988 (NELS:88/92), "Second Follow-up, Student Survey, 1992"; Education Longitudinal Study of 2002 (ELS:2002/2004), "First Follow-up, 2004."

Table B-17. Standard errors for table 15 estimates: Percentage of high school seniors reporting various values as very important, by sex, race/ethnicity, and socioeconomic status (SES): 1972, 1980, 1992, and 2004

Characteristics	Good marriage				Giving children better opportunity			
	1972	1980	1992	2004	1972	1980	1992	2004
Total	0.4	0.3	0.6	0.5	0.5	0.5	0.6	0.5
Sex								
Male	0.5	0.5	0.5	0.6	0.6	0.6	0.8	0.6
Female	0.5	0.4	0.7	0.6	0.7	0.6	0.8	0.6
Race/ethnicity ¹								
Asian	4.2	2.4	1.9	1.4	3.8	2.9	1.8	1.2
Black	1.1	0.9	1.9	1.3	0.8	0.8	1.0	0.8
Hispanic	1.6	1.1	1.5	1.2	1.7	1.1	1.1	0.9
White	0.4	0.3	0.7	0.6	0.6	0.5	0.7	0.6
More than one race	†	†	†	2.1	†	†	†	2.0
SES quartile								
Lowest	0.6	0.5	1.0	0.9	0.7	0.7	0.7	0.7
Middle two	0.5	0.4	0.8	0.7	0.6	0.6	0.8	0.6
Highest	0.8	0.7	1.2	0.8	1.0	0.9	1.2	1.0
Characteristics	Living close to parents				Friendship			
	1972	1980	1992	2004	1972	1980	1992	2004
Total	0.2	0.3	0.4	0.5	0.4	0.3	0.6	0.4
Sex								
Male	0.3	0.3	0.6	0.7	0.5	0.4	0.7	0.6
Female	0.3	0.4	0.6	0.7	0.5	0.4	0.8	0.6
Race/ethnicity ¹								
Asian	2.5	2.6	2.2	1.9	3.2	2.3	1.8	1.3
Black	0.7	0.7	1.3	1.3	1.2	1.0	2.1	1.3
Hispanic	1.6	1.1	1.4	1.3	2.0	1.2	1.6	1.1
White	0.2	0.3	0.5	0.6	0.4	0.3	0.6	0.4
More than one race	†	†	†	2.2	†	†	†	1.6
SES quartile								
Lowest	0.5	0.5	0.8	1.0	0.7	0.7	1.1	0.9
Middle two	0.3	0.4	0.6	0.7	0.5	0.4	0.8	0.5
Highest	0.4	0.5	0.9	0.9	0.7	0.5	0.8	0.6

See notes at end of table.

Table B-17. Standard errors for table 15 estimates: Percentage of high school seniors reporting various values as very important, by sex, race/ethnicity, and socioeconomic status (SES): 1972, 1980, 1992, and 2004—Continued

Characteristics	Steady work				Work success			
	1972	1980	1992	2004	1972	1980	1992	2004
Total	0.4	0.3	0.4	0.4	0.4	0.2	0.4	0.3
Sex								
Male	0.5	0.4	0.6	0.6	0.5	0.4	0.5	0.5
Female	0.6	0.4	0.6	0.5	0.5	0.3	0.6	0.4
Race/ethnicity ¹								
Asian	3.4	2.5	1.5	1.4	3.0	2.1	1.1	1.0
Black	0.8	0.7	1.2	0.9	0.6	0.6	0.7	0.6
Hispanic	1.5	1.0	1.2	0.9	1.4	0.9	1.0	1.0
White	0.5	0.3	0.5	0.5	0.4	0.3	0.5	0.4
More than one race	†	†	†	1.8	†	†	†	1.6
SES quartile								
Lowest	0.6	0.5	0.7	0.7	0.6	0.5	0.6	0.6
Middle two	0.6	0.4	0.6	0.5	0.5	0.3	0.5	0.5
Highest	1.0	0.6	1.0	0.9	0.7	0.5	0.9	0.5
Characteristics	Making money				Working to correct social problems			
	1972	1980	1992	2004	1972	1980	1992	2004
Total	0.4	0.4	0.6	0.6	0.4	0.3	0.5	0.5
Sex								
Male	0.6	0.5	0.9	0.8	0.5	0.4	0.6	0.6
Female	0.4	0.5	0.9	0.7	0.6	0.4	0.8	0.7
Race/ethnicity ¹								
Asian	2.9	3.0	2.2	1.9	4.1	2.3	1.9	1.6
Black	1.0	1.1	2.5	1.4	1.4	0.9	2.1	1.3
Hispanic	1.7	1.2	1.7	1.4	2.2	1.0	1.7	1.3
White	0.4	0.4	0.7	0.7	0.4	0.3	0.5	0.5
More than one race	†	†	†	2.5	†	†	†	2.3
SES quartile								
Lowest	0.6	0.7	1.1	1.0	0.8	0.5	0.7	0.9
Middle two	0.5	0.5	0.9	0.8	0.6	0.4	0.4	0.6
Highest	0.8	0.7	1.1	1.0	0.8	0.5	0.6	0.8

† Not applicable.

¹ Due to small sample sizes for the group, the category "American Indian or Alaska Native" was omitted from the tables in this report but included for the purposes of computing percentages.

NOTE: Asian includes Native Hawaiian or Other Pacific Islander, Black includes African American, and Hispanic includes Latino. All race categories exclude Hispanic or Latino origin.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Longitudinal Study of the High School Class of 1972 (NLS:72), "Base Year"; High School and Beyond Longitudinal Study of 1980 Seniors (HS&B-Sr:80/86); National Education Longitudinal Study of 1988 (NELS:88/92), "Second Follow-up, Student Survey, 1992"; Education Longitudinal Study of 2002 (ELS:2002/2004), "First Follow-up, 2004."

Table B-18. Standard errors for appendix table A-3: Percentage distribution of selected student characteristics and mean mathematics IRT score for freshened versus unfreshened samples (transcript weight) of NELS:88 and ELS:2002 seniors: 1992 and 2004

Characteristics	NELS:88		ELS:2002	
	Seniors who were sophomores two years earlier	Full senior cohort (freshened sample)	Seniors who were sophomores two years earlier	Full senior cohort (freshened sample)
Sex				
Male	0.92	0.87	0.60	0.57
Female	0.92	0.87	0.60	0.57
Race/ethnicity				
Asian	0.34	0.33	0.28	0.30
Hispanic	0.84	0.81	0.82	0.85
Black	0.88	0.86	0.68	0.68
White	1.26	1.21	1.04	1.04
American Indian/Alaska Native	0.25	0.25	0.22	0.21
More than one race	†	†	0.26	0.26
SES quartile				
Lowest	0.78	0.78	0.68	0.67
Middle two	1.04	1.02	0.68	0.67
Highest	1.21	1.17	0.79	0.80
School control				
Public	1.02	0.92	0.36	0.35
Catholic	0.54	0.49	0.22	0.21
NAIS private	0.55	0.48	†	†
Other private	0.50	0.46	0.29	0.28
Region				
Northwest	1.20	1.15	0.83	0.82
Midwest	1.01	0.95	0.81	0.79
South	1.09	1.04	0.79	0.77
West	0.87	0.85	0.86	0.83
Math test (mean IRT score)	0.33	0.33	0.29	0.29

† Not applicable.

NOTE: IRT = item response theory. SES = socioeconomic status. NAIS = National Association of Independent Schools.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88/92), "Second Follow-up, 1992"; and Education Longitudinal Study of 2002 (ELS:2002/2004), "First Follow-up, 2004."

Table B-19. Standard errors for appendix table A-4: Percentage distribution of selected student characteristics and mean mathematics score for 1980 senior cohort and 1980 sophomore cohort two years later (in 1982) of HS&B: 1980 and 1982

Characteristics	Senior cohort of 1980	Sophomore cohort of 1980, as seniors in 1982
Sex		
Male	0.51	0.52
Female	0.51	0.52
Race/ethnicity		
Asian	0.16	0.16
Hispanic	0.27	0.34
Black	0.69	0.66
White	0.80	0.83
American Indian/Alaska Native	0.11	0.16
Other	0.13	0.04
SES quartile		
Lowest	0.62	0.60
Middle two	0.53	0.57
Highest	0.69	0.74
Census division		
New England	0.99	1.04
Mid Atlantic	1.32	1.35
South Atlantic	1.30	1.38
East South Central	0.76	0.78
West South Central	1.06	1.10
East North Central	1.41	1.43
West North Central	1.01	0.98
Mountain	0.81	0.80
Pacific	1.17	1.09
Math test (mean number right)	0.06	0.07

NOTE: SES = socioeconomic status.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B-So:80/82); and High School and Beyond Longitudinal Study of 1980 Seniors (HS&B-Sr:80).

