United States High School Sophomores: A Twenty-Two Year Comparison, 1980–2002

Statistical Analysis Report

September 2006

U.S. Department of Education
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Executive Summary

This report presents information on similarities and differences between U.S. high school sophomores as studied at three points in time over the past 22 years, with a focus on cohort demographics, academic programs and performance, extracurricular activities, life values, and educational/occupational aspirations. It provides an update to the National Center for Education Statistics (NCES) report published in 1993, *America's High School Sophomores: A Ten Year Comparison* (Rasinski et al. 1993). This report uses data from the following NCES studies:

- sophomores in 1980, as studied in High School and Beyond (HS&B);
- sophomores in 1990, as studied in the National Education Longitudinal Study of 1988 (NELS:88); and
- sophomores in 2002, as studied in the Education Longitudinal Study of 2002 (ELS:2002).

The report is descriptive, serving to update published information on the HS&B and NELS:88 sophomore surveys with additional information from ELS:2002 for selected comparable questionnaire items. Secondary purposes are to note qualifications and limitations to the survey-based data comparisons and also to note related additional information from other data sources, such as the Current Population Survey (CPS), over the same period. With a few additions, the topics selected for the report are based on those selected for inclusion in the previous report comparing the 1980 and 1990 sophomores (Rasinski et al. 1993).

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. Except where noted, differences and changes discussed in the text of this report had to meet both statistical significance and substantive importance criteria. For establishing statistical significance, t-tests taking into account the effects of sampling error were done and the .05 level of significance was used as a criteria. For chapters 2-3 and 5-7, the substantive importance criterion was a change of at least 5 percentage points, except where noted. For chapter 4, substantive importance was measured in terms of effect sizes. The effect size is a measure of change or difference represented in standard deviation units. For comparisons drawn in this report, effect sizes were calculated as the change in mean test scores divided by their pooled standard deviation. A criterion of one-fifth (0.20) of a standard deviation was set as the minimum effect size for substantive importance.

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

Chapter 2. Changing Context: Cohort, Family, and School Profile

Using data from the three NCES longitudinal surveys and other government surveys, chapter 2 gives an overview of changes in cohort demographic, family, and school profiles:

- After declining from 3.8 million students in 1980 to 2.8 million in 1990, the size of the sophomore cohort increased to 3.4 million in 2002. Only the western region of the

United States experienced an increase in cohort size over the period of 1980 to 2002, growing by 20 percent.

- Among all high school sophomores in the 22-year period, the percentage of minority students went from 25 percent in 1980 to 40 percent in 2002.[1] Hispanics increased from 8 percent to 16 percent of the total from 1980 to 2002. Whites, as a percentage of the total, declined from 75 percent to 60 percent, and Blacks were 14 percent in both 1980 and 2002. Four percent of the ELS:2002 sophomores identified themselves as more than one race, an option that was not available in HS&B or NELS:88.
- Between 1980 and 2002, the percentage of students who identified English as their native language declined from 95 percent to 86 percent, with a large decline among Hispanic high school sophomores (from 65 to 48 percent).
- The percentage of sophomores living with a biological or adoptive mother and father declined from 70 percent in 1980 to 57 percent in 2002.
- Education among the parents of the high school sophomores increased over the period. Between 1980 and 2002, the percentage of fathers without a high school diploma decreased from 23 percent to 14 percent, and among mothers the decline was from 18 percent to 13 percent.
- Each of the three NCES sophomore cohort studies (HS&B, NELS:88; ELS:2002) have constructed a standardized socioeconomic status (SES) variable based on a composite of education, income, occupation and, in HS&B, household items (such as number of books, electric dishwasher, number of cars, own room, etc.). An important change between 1980 and 2002 was that the percentage of Black sophomores in the middle two quarters of the SES distribution increased from 44 percent in 1980 to 52 percent in 2002, and the percentage in the lowest quarter declined from 46 percent to 35 percent. The proportion of Asian sophomores in the lowest quarter increased between 1990 and 2002, going from 18 percent to 28 percent. Throughout the period, about 32 percent of Asian sophomores and 29 percent to 32 percent of White sophomores were in the highest quarter.
- Overall in 1980, 91 percent of sophomores were enrolled in public schools, and in 2002, 92 percent were so enrolled. Catholic school enrollment as a percentage of the total sophomore class was 6 percent in 1980 and 4 percent in 2002, and other private school sophomore enrollment was 3 percent in 1980 and 4 percent in 2002.
- In both 1980 and 2002, about 62–63 percent of sophomores were enrolled in schools of 1,000 or more pupils in size.
- Between 1980 and 2002, the percentage of sophomores who were in urban schools increased from 22 percent to 30 percent, and the percentage in rural schools decreased from 30 percent to 20 percent. Suburban schools enrolled 48 percent of sophomores in 1980 and 50 percent in 2002.

[1] In this report, Black includes African American, Hispanic includes Latino, Asian includes Native Hawaiian or Other Pacific Islander, and American Indian includes Alaska Native. Respondents who identified themselves as being of Hispanic origin are classified as Hispanic, regardless of race. Choosing more than one race was not permitted in HS&B and NELS:88.

Chapter 3. School Experiences

Chapter 3 focuses on the school experiences of high school sophomores. It poses the question of how the school experience may have changed in terms of academic program, student preparedness, motivation, homework, student views of school including school safety, and computer use. Since 1980, when the students in the HS&B cohort were high school sophomores, a series of commissions has recommended reforms and improvements in education largely aimed at increasing student achievement. The recommendations from the often-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 Education Goals Report* (National Education Goals Panel 1995) and the No Child Left Behind Act of 2001 (NCLB) have emphasized similar strategies and recommendations for reform:

- Consistent with the increased focus on college preparation in high schools, between 1980 and 2002 the percentage of high school sophomores who reported that they were in a college preparatory or academic program increased from 33 percent to 51 percent. In the same time frame, the percentage enrolled in a vocational program declined from 21 percent to 11 percent.
- All three of the sophomore studies have asked students if they have ever taken certain types of courses, including remedial courses, bilingual or bicultural education courses, and honors or Advanced Placement courses. Between 1980 and 2002, there was an increase in the number of sophomores who reported that they took bilingual or bicultural education, going from 12 percent in 1980 to 17 percent in 1990 and 28 percent in 2002. Variations in the question wording warrant caution in comparing results across the three studies, however.
- Although questionnaire changes may have contributed to increased reporting of time spent on homework (such as using an open-ended format in 2002 rather than closed categories in 1980 and 1990), the percentage of students reporting larger numbers of hours spent on homework increased:
  - The percentage who reported spending more than 10 hours per week on homework was 7 percent in 1980 and 37 percent in 2002.
  - The percentage who reported spending more than 3 hours per week on homework increased from 54 percent in 1980 to 77 percent in 2002.
- In both 1980 and 2002, female students reported spending more hours on homework than males. For example, in 1980, 59 percent of females and 48 percent of males reported spending 3 or more hours per week on homework; in 2002, 81 percent of females and 74 percent of males so reported.

As an indicator of student motivation and preparedness for class, high school sophomores were asked how often they came to school without books; without paper, pen, or pencil; and without their homework. Students were also asked a few questions designed to measure school climate and safety:

- Comparing 1980 and 2002, the percentage of students reporting that they "usually" or "often" came to school without books was higher in 2002 than in 1980 (17 percent versus 9 percent), but the percentage in 1990 (6 percent) was lower than in both 2002 and 1980.
- When asked whether they agreed with the statement "I don't feel safe at this school," 12 percent of high school sophomores agreed or strongly agreed with the statement in both 1980 and 2002.

Chapter 4. Tested Achievement

The ELS:2002 data, used in conjunction with the HS&B and NELS:88 datasets, provide a unique opportunity to examine sophomore academic performance over time in both mathematics and reading. Test equating provides two kinds of linkages between ELS:2002 and prior studies. First, using Item Response Theory (IRT) *number-right scores*, the mathematics performance of 1980, 1990, and 2002 high school sophomores can be compared over a 22-year span. Second, using *probability of proficiency scores*, changes in reading and mathematics achievement between 1990 and 2002 can be examined. The IRT-estimated number-right scores provide a measure (on a scale of 0 to 58) of how sophomore mathematics achievement (overall and by various subgroups) changed between 1980, 1990, and 2002. The probability of proficiency scores are based on clusters of items that mark different mastery (proficiency) levels on the reading and mathematics scales. There are five clusters for mathematics and three clusters for reading. The probability of proficiency scores provide further information about differences (e.g., at what mastery level changes are taking place for a given subgroup) between 1990 and 2002. The three mastery levels in reading are:

1. Simple reading comprehension, including reproduction of detail, and/or the author's main thought, such as identifying the objective of a character's action.
2. Simple inferences beyond the author's main thought and/or understanding and evaluating abstract concepts, such as identifying the author's state of mind, or inferring the meaning of a metaphor from context.
3. Complex inferences or evaluative judgments requiring multiple sources of information.

The five mastery levels in mathematics are:

1. Simple arithmetical operations on whole numbers, such as simple arithmetic expressions involving multiplication or division of integers;
2. Simple operations with decimals, fractions, powers, and roots, such as comparing expressions, given information about exponents;
3. Simple problem solving, requiring the understanding of low-level mathematical concepts, such as simplifying an algebraic expression or comparing the length of line segments illustrated in a diagram;
4. Understanding of intermediate-level mathematical concepts and/or multistep solutions to word problems such as drawing an inference based on an algebraic expression or inequality; and

5. Complex multistep word problems and/or advanced mathematics material such as a two-step problem requiring evaluation of functions.

The primary questions discussed in chapter 4 are as follows: "Did sophomore tested achievement at each new time point increase, decrease, or stay the same?" and "Did a given subgroup (males, females, Blacks, Whites, and so on) show score increases or decreases, when compared to itself over time?" Principal findings are as follows.

First, concerning mathematics achievement scores between 1980 and 2002:

- Overall, ELS:2002 sophomores scored about 0.40 of a standard deviation higher than sophomores in 1980 on the mathematics assessment (mean increase of 4.8 points on the 58-point scale).
- In the 22-year period, the largest increases (all in the medium range of effect sizes) were seen for three racial/ethnic groups—Black (0.60 standard deviations), American Indian (0.56), and Hispanic (0.53) sophomores—and for sophomores in the South (0.64), in vocational programs (self-reported) (0.59), and in Catholic schools (0.51).

Second, concerning increases in sophomore mathematics scores between 1990 and 2002:

- The greatest increases by racial/ethnic group in the 12-year period (1990–2002) were made by American Indians (0.51 standard deviations) and Whites (0.21 standard deviations). This finding differs from the period 1980 through 1990, for which Rasinski et al. (1993) reported that the largest increases were for Blacks (0.35 standard deviations) and Hispanics (0.34 standard deviations).
- Other groups with notable increases in mathematics scores in the period from 1990 to 2002 were sophomores in the South (0.23 standard deviations), self-reported vocational program participants (0.40 standard deviations), and sophomores in the Catholic school sector (0.25 standard deviations).

Third, concerning changes in probabilities of proficiency in mathematics between 1990 and 2002:

- Overall, between 1990 and 2002, there were no measurable differences in sophomores' probabilities of proficiency at any of the five mathematics mastery levels.
- Looking at changes within particular subgroups of sophomores, students enrolled in vocational programs demonstrated higher probability of proficiency scores at the four highest mastery levels in 2002 than in 1990; sophomores in the Catholic school sector demonstrated higher probability of proficiency scores at the three highest mastery levels in 2002 than in 1990.
- In terms of other subgroup differences, White and Asian sophomores, sophomores in the South, and sophomores in non-Catholic private schools each registered increases at one of the five mastery levels. No other subgroup showed increases at any proficiency level.

Fourth and finally, concerning changes in probabilities of proficiency in reading between 1990 and 2002:

- Overall, between 1990 and 2002, there were no measurable differences in sophomores' probabilities of proficiency at any of the three reading mastery levels.
- Looking at changes within particular subgroups of sophomores, the largest decreases (an effect size of 0.30 standard deviations or higher) in reading proficiency between 1990 and 2002 were registered for sophomores in an academic/college preparatory program (at mastery levels 2 and 3), sophomores enrolled in non-Catholic private schools (at mastery level 3), and sophomores whose parents' highest educational attainment was a graduate or professional degree (at mastery level 3).

Chapter 5. Afterschool Activities

Chapter 5 focuses on how high school sophomores used their time outside of the classroom in activities other than homework, examining three types of activities: extracurricular activities, employment, and unstructured social activities:

- Among the six extracurricular activities examined (academic clubs, vocational clubs, athletics, cheerleading and drill team, music-related activities, and hobby clubs), in each survey year, high school sophomores most frequently reported participating in school-sponsored interscholastic athletics, with participation ranging from 54 percent in 1980 to 51 percent in 2002.
- Between 1980 and 2002, the proportion of sophomores who reported participation in academic clubs, vocational clubs, music-related activities, and hobby clubs dropped between 6 and 18 percentage points.
- Eighty-eight percent of sophomores in 1980 indicated (by giving the age they first worked for pay) that they had worked for pay outside of their home at some point, whereas 59 and 60 percent, respectively, reported they had ever "been employed" in 1990 and 2002.
    - In 1980, at the time they took the survey in their sophomore year, 36 percent of students reported that they were "working for pay, not counting work around the house," while in 1990 and 2002, some 27 and 26 percent, respectively, reported being employed at the time of the survey.
    - Among all sophomores in 1980, about 6 percent reported working 20 hours or more at the time of the survey. In 2002, this number was 9 percent.
- Between 1980 and 1990, the proportion of sophomores who reported that they drove around in a car with friends at least once a week increased from 47 percent to 56 percent. Between 1990 and 2002, the percentages were not substantively different (56 percent in 1990 and 58 percent in 2002).
- About two-thirds of the 1980 and 1990 cohort reported visiting with friends or meeting at a hangout at least once a week (67 percent in 1980 and 66 percent in 1990). By 2002, the proportion of sophomores who reported hanging out with peers at least once each week had increased over 1980 and 1990 to 79 percent .

- The proportion of sophomores who reported communicating with friends by phone at least once a week was 77 percent in 1980 and 80 percent in 1990. Over the next 12 years, there was a decline in the percentage reporting communicating by phone (from 80 percent to 74 percent), perhaps due to the increased use of electronic communications such as e-mail and computer "chat" programs.

Chapter 6. Life Values

Chapter 6 presents an overview of the relative importance placed by high school sophomores on various life values, including work, friendship, leisure, family, and community:

- Among 12 items included on the surveys, 80 percent or more of high school sophomores consistently rated 3 items as being very important to them. These items were being successful in work, being able to find steady work, and having strong friendships.
- Although steady and successful work experiences were very important to the majority of sophomores in each study, having a lot of money was rated as very important by less than half of each cohort.
- The percentage of sophomores indicating that giving children better opportunities was very important increased from 73 percent to 80 percent between 1980 and 2002. However, "finding the right person to marry/having a happy family life" went in the opposite direction in the same time period, decreasing from 83 percent in 1980 to 76 percent in 2002 rating this item as very important. Fewer sophomores rated "having children" as very important than rated "giving children better opportunities" or "marrying the right person/happy family life" as very important in each of the years.
- Helping others in the community was included only in 1990 and 2002 and was rated as very important by about one-third (33 percent) of students in 1990 and 36 percent in 2002. Working to correct social inequalities was included in 1980, 1990, and 2002; while it was among the least frequently ranked as very important in each of the years, 14 percent of sophomores indicated it was very important to them in 1980 and 19 percent so indicated in 1990 and 2002.

Chapter 7. Plans and Expectations

The educational and occupational expectations of high school sophomores are explored in chapter 7:

- Data on sophomore educational aspirations show that the percentage expecting a 4-year college or postgraduate degree as the highest degree went from 41 percent in 1980 to 80 percent in 2002, an increase of 39 percentage points.
- In 1980, 40 percent of males and 42 percent of females expected a 4-year college degree or higher. In 2002, 74 percent of males and 85 percent of females expected this level of education.

- Among race/ethnicity groups, Asians had the highest expectations for completing a bachelor's degree or more in 2002 (87 percent) and the smallest increase in expectations from 1980 (20 percentage points). Hispanics and American Indians had the two lowest levels of expectations (73 and 76 percent, respectively), but their expectations had increased by 40 and 44 percentage points, respectively, since 1980. Eighty-one percent of Whites expected to complete a bachelor's degree in 2002, an increase of 40 percentage points since 1980.
- Expectations have increased for each of the SES groupings, with some narrowing of the SES difference. Expectations for a 4-year degree or higher went from 22 percent to 66 percent among students in the lowest quarter of the SES distribution, from 37 percent to 79 percent among the middle two quarters, and from 70 percent to 93 percent among the highest quarter.
- Between 1980 and 2002, the percentage of sophomores who said their parents thought that going to college was the most important thing for them to do right after high school increased from 59 percent to 79 percent for fathers and from 65 percent to 85 percent for mothers.
- The percentage of sophomores expecting to attend college right after high school increased from 49 percent overall in 1980 to 60 percent in 1990 and 66 percent in 2002.
    - Blacks and Whites were not substantially different from each other (using the 5 percentage point criterion) in any of the 3 years.
    - In 1980, the percentage of sophomores who planned to enroll in college right after high school was 72 percent for the highest SES quarter and 31 percent for the lowest quarter. In 2002, the percentage planning to enroll in college had increased by 15 percent for the highest SES quarter (up to 82 percent) and by 70 percent for the lowest SES quarter (up to 53 percent).
- Some caution is needed in interpreting data on occupational expectations at age 30 due to questionnaire differences related to use of the "don't know" option and format of the question (open ended or choosing from a list). The 1980 survey displayed the occupational choices and gave several examples on the form of the occupations included in each listed category. The 1990 survey, the NELS:88 first follow-up, used the same list with the same examples but added a "don't know" option. The 2002 survey form asked the question in an open-ended format, with the only option displayed on the questionnaire being the "don't know" option.

Keeping in mind the form differences and including the "don't know" responses in the denominator for the tabulations, among females, there was a large decline in the percentage choosing "clerical" (from 17 percent to 0.4 percent) and an increase in the percentage choosing "Professional 2" (from 14 percent to 29 percent) from 1980 to 2002. As used here, the category "Professional 2" includes such occupations as lawyers, scientists, college professors, dentists, medical doctors, and clergymen. In 2002, females were more likely than males to indicate that they expected to be employed as a "Professional 1" (29 percent compared with 12 percent). Professional 1 comprises such occupations as accountant, artist, registered nurse, engineer, librarian, writer, social worker, actor, actress, athlete, and politician, but not school teacher.

Foreword

This report describes patterns of continuity and change between the spring 2002 high school sophomores from the Education Longitudinal Study of 2002 (ELS:2002) base-year study, the spring 1990 sophomores from the National Education Longitudinal Study of 1988 (NELS:88) first follow-up study, and the spring 1980 sophomores from the High School and Beyond (HS&B) base-year study. All three 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 1980, 1990, and 2002 sophomores and discusses their school experiences, achievement in mathematics and reading, 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 three datasets, as well as their longitudinal follow-ups, both now and in the future, as additional waves of ELS:2002 build on this baseline.

Jeffrey A. Owings
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[2] RTI International is a trade name of Research Triangle Institute.

Contents

Executive Summary iii

Chapter 2. Changing Context: Cohort, Family, and School Profile iii
Chapter 3. School Experiences v
Chapter 4. Tested Achievement vi
Chapter 5. Afterschool Activities viii
Chapter 6. Life Values ix
Chapter 7. Plans and Expectations ix

Foreword xiii

Acknowledgments xv

List of Tables xxi

List of Figures xxvii

Chapter 1 Introduction 1

1.1 Background, Questions Addressed, and Limitations of the Report 1
1.1.1 Selected topics of concern using HS&B and NELS:88 data 2
1.1.2 Descriptive questions 3
1.1.3 Measures of change and subgroup differences 4
1.2 Designs for Sophomore Cohorts of HS&B, NELS:88, and ELS:2002 5
1.2.1 HS&B design 5
1.2.2 NELS:88 design 5
1.2.3 ELS:2002 design 6
1.2.4 Other data sources 6
1.3 Report Organization 7

Chapter 2 Changing Context: Cohort, Family, and School Profile 9

2.1 Cohort Demographics 9
2.1.1 Size and geographic region 9
2.1.2 Cohort age 10
2.1.3 Racial/ethnic group and English language 12
2.2 Family Characteristics 14
2.2.1 Family living arrangements 14
2.2.2 Parents' education 14
2.2.3 Socioeconomic status (SES) and racial/ethnic group 16
2.3 School Characteristics 19
2.3.1 School sector 19
2.3.2 School size 19
2.3.3 School metropolitan status 25
2.3.4 School enrollment eligible for free or reduced-price lunch 26
2.4 Summary 27

Chapter 3 School Experiences 29

3.1 High School Program 29
3.2 Selected Courses or Programs 32

3.2.1 Remedial courses 32
3.2.2 Bilingual or bicultural education; English as a Second Language 32
3.3 Homework and Student Motivation 35
3.3.1 Homework 35
3.3.2 Student motivation 37
3.4 Views on School Safety, Climate, and Teaching 39
3.4.1 School safety and climate 39
3.4.2 Opinion on teaching quality 39
3.5 Computer Use 39
3.6 Summary 42

Chapter 4 Tested Achievement 45

4.1 Overview 45
4.1.1 Mathematics achievement using Item Response Theory (IRT) number-right scores 45
4.1.2 Mathematics and reading achievement using probabilities of proficiency 46
4.2 Background 47
4.2.1 Mathematics achievement in HS&B and NELS:88 (1980 and 1990) 47
4.3 Mathematics Achievement: 1980 and 2002 48
4.4 Mathematics Achievement: 1990 and 2002 50
4.5 Proficiency in Mathematics: 1990 and 2002 54
4.6 Proficiency in Reading: 1990 and 2002 61
4.7 Summary 65

Chapter 5 Afterschool Activities 67

5.1 Extracurricular Activities 67
5.2 Employment 73
5.3 Unstructured Social Activities 75
5.4 Summary 78

Chapter 6 Life Values 79

6.1 Relative Importance of the Life Values 79
6.2 Work and Money 81
6.3 Friendship and Leisure 83
6.4 Family Life and Children 85
6.5 Community and Social Values 87
6.6 Summary 87

Chapter 7 Plans and Expectations 89

7.1 Educational Expectations 89
7.1.1 Sex and educational expectations 89
7.1.2 Racial/ethnic group and educational expectations 93
7.1.3 Socioeconomic status (SES), academic test quarters, and educational expectations 95
7.2 Perceptions of Parent, Counselor, and Teacher Views on Attending College 97
7.3 Continuing Education Right After High School 100
7.4 Occupational Expectations 103
7.5 Summary 109

References 111

Appendix A Technical Notes and Glossary A-1

A.1 Overview of the Technical Appendix A-3

A.2 NCES High School Longitudinal Studies Program A-3
A.2.1 High School and Beyond (HS&B) A-5
A.2.2 National Education Longitudinal Study of 1988 (NELS:88) A-5
A.3 Education Longitudinal Study of 2002 (ELS:2002) A-8
A.3.1 ELS:2002 study objectives A-8
A.4 Measures of Survey Precision and Quality A-10
A.4.1 Survey standard errors A-10
A.4.2 Sampling, weighting, response rates, and quality of estimates A-10
A.5 Statistical Procedures A-11
A.5.1 Student *t* statistics A-11
A.5.2 Effect sizes A-12
A.6 Description of Variables Used A-13
A.7 Glossary of Key Classification Variables and Test Scores A-23

Appendix B Standard Error Tables B-1

List of Tables

Table		Page
1.	Number and percentage of high school sophomores' cohort size, by geographic region of schools: 1980, 1990, and 2002	10
2.	Mean age and percentage distribution of high school sophomores, by age and sex: 1980, 1990, and 2002	11
3.	Percentage of high school sophomores, by racial/ethnic group: 1980, 1990, and 2002	12
4.	Percentage of high school sophomores whose native language is English, by racial/ethnic group: 1980, 1990, and 2002	13
5.	Percentage of high school sophomores, by family living arrangement: 1980, 1990, and 2002	14
6.	Percentage of high school sophomores, by parents' highest level of education: 1980, 1990, and 2002	15
7.	Percentage of high school sophomores, by socioeconomic status (SES) and racial/ethnic group: 1980, 1990, and 2002	17
8.	Percentage of high school sophomores, by school type, racial/ethnic group, and socioeconomic status (SES): 1980, 1990, and 2002	19
9a.	Percentage distribution of school size for high school sophomores, by racial/ethnic group and socioeconomic status (SES): 1980, 1990, and 2002	21
9b.	Percentage distribution of sophomore class size for high school sophomores, by racial/ethnic group and socioeconomic status (SES): 1980, 1990, and 2002	24
10.	Percentage of high school sophomores, by urbanicity, racial/ethnic group, and socioeconomic status (SES): 1980, 1990, and 2002	26
11.	Percentage of high school sophomores, by percentage free or reduced-price lunch eligibility in school: 1990 and 2002	27
12.	Percentage of high school sophomores, by high school program and selected student characteristics: 1980, 1990, and 2002	31
13.	Percentage of high school sophomores who report having been in various kinds of courses or programs in high school, by selected student characteristics: 1980, 1990, and 2002	33
14.	Percentage of high school sophomores' time spent on homework per week, by sex and location completed: 1980, 1990, and 2002	36
15.	Percentage of high school sophomores saying they usually or often come to school unprepared, by selected student characteristics: 1980, 1990, and 2002	38
16.	Percentage of high school sophomores who agreed or strongly agreed with selected statements about the school's climate and teaching, by selected student characteristics: 1980, 1990, and 2002	40
17.	Percentage of high school sophomores' use of and exposure to calculators and computers, by selected student characteristics: 1990 and 2002	43

18. Item Response Theory (IRT)-estimated average number-right scores for mathematics, by selected student characteristics: 1980 and 2002 49
19. Item Response Theory (IRT)-estimated average number-right scores for mathematics, by selected student characteristics: 1990 and 2002 51
20. High school sophomore probability of proficiency in mathematics, by selected student characteristics: 1990 and 2002 57
21. High school sophomore probability of proficiency in reading, by selected student characteristics: 1990 and 2002 62
22. Percentage of high school sophomores who participate in academic and vocational clubs, by selected student characteristics: 1980, 1990, and 2002 70
23. Percentage of high school sophomores who participate in athletics and cheerleading and drill team, by selected student characteristics: 1980, 1990, and 2002 71
24. Percentage of high school sophomores who participate in music-related activities and hobby clubs, by selected student characteristics: 1980, 1990, and 2002 72
25. Percentage of high school sophomores, by employment status and selected student characteristics: 1980, 1990, and 2002 74
26. Percentage of high school sophomores who report that they engage in various activities at least once or twice a week, by selected student characteristics: 1980, 1990, and 2002 77
27. Percentage of high school sophomores who report that various life values related to work are very important to them, by selected student characteristics: 1980, 1990, and 2002 82
28. Percentage of high school sophomores who report that having strong friendships and having leisure time are very important to them, by selected student characteristics: 1980, 1990, and 2002 84
29. Percentage of high school sophomores who report that various life values related to family are very important to them, by selected student characteristics: 1980, 1990, and 2002 86
30. Percentage of high school sophomores who report that various life values related to community are very important to them, by selected student characteristics: 1980, 1990, and 2002 88
31. Percentage of high school sophomores who expect to attain various levels of postsecondary education, by selected student characteristics: 1980, 1990, and 2002 90
32. Percentage of high school sophomores who report fathers, mothers, school counselors, and teachers think college is the most important thing for them to do right after high school, by selected student characteristics: 1980, 1990, and 2002 98
33. Percentage of high school sophomores who report various intentions with regard to entering college after high school graduation, by selected student characteristics: 1980, 1990, and 2002 101
34. Percentage of high school sophomores' expected occupation at age 30, by sex: 1980, 1990, and 2002 104
35. Percentage of high school sophomores' expected occupation at age 30, by sex with "don't know" responses removed: 1980, 1990, and 2002 107
36. Number and percentage of jobs, by major occupational group: 2000 and projected 2010 108

37. Percentage of job openings and average annual earnings, by educational training category: 2000 and 2010 (projected distribution) 108

Appendix A Tables

Table Page

A-1. Variable names and explanatory notes, by year: 1980, 1990, and 2002 ..... A-15
A-2. Elements of the socioeconomic composite, HS&B and NELS:88: 1980–1992 ..... A-25
A-3. Elements of socioeconomic composite, ELS:2002: 2002 ..... A-26

Appendix B Tables

Table Page

B-1. Unweighted sample sizes for subgroups formed, by classification variables: 1980, 1990, and 2002 ..... B-3
B-2. Standard errors for table 1 estimates (number and percentage of high school sophomores' cohort size, by geographic region of schools): 1980, 1990, and 2002 ..... B-4
B-3. Standard errors for table 2 estimates (mean age and percentage distribution of high school sophomores, by age and sex): 1980, 1990, and 2002 ..... B-5
B-4. Standard errors for table 3 estimates (percentage of high school sophomores, by racial/ethnic group): 1980, 1990, and 2002 ..... B-5
B-5. Standard errors for table 4 estimates (percentage of high school sophomores whose native language is English, by racial/ethnic group): 1980, 1990, and 2002 ..... B-6
B-6. Standard errors for table 5 estimates (percentage of high school sophomores, by family living arrangement): 1980, 1990, and 2002 ..... B-6
B-7. Standard errors for table 6 estimates (percentage of high school sophomores, by parents' highest level of education): 1980, 1990, and 2002 ..... B-7
B-8. Standard errors for table 7 estimates (percentage of high school sophomores, by socioeconomic status [SES] and racial/ethnic group): 1980, 1990, and 2002 ..... B-7
B-9. Standard errors for table 8 estimates (percentage of high school sophomores, by school type, racial/ethnic group, and socioeconomic status [SES]): 1980, 1990, and 2002 ..... B-8
B-10a. Standard errors for table 9a estimates (Percentage distribution of school size for high school sophomores, by racial/ethnic group and socioeconomic status [SES]): 1980, 1990, and 2002 ..... B-9
B-10b. Standard errors for table 9b estimates (Percentage distribution of sophomore class size for high school sophomores, by racial/ethnic group and socioeconomic status [SES]): 1980, 1990, and 2002 ..... B-12
B-11. Standard errors for table 10 estimates (percentage of high school sophomores, by urbanicity, racial/ethnic group, and socioeconomic status [SES]): 1980, 1990, and 2002 ..... B-14
B-12. Standard errors for table 11 estimates (percentage of high school sophomores, by percentage free or reduced-price lunch eligibility in school): 1990 and 2002 ..... B-14

B-13. Standard errors for table 12 estimates (percentage of high school sophomores, by high school program and selected student characteristics): 1980, 1990, and 2002 ..... B-15

B-14. Standard errors for table 13 estimates (percentage of high school sophomores who report having been in various kinds of courses or programs in high school, by selected student characteristics): 1980, 1990, and 2002..... B-16

B-15. Standard errors for table 14 estimates (percentage of high school sophomores' time spent on homework per week, by sex and location completed): 1980, 1990, and 2002..... B-18

B-16. Standard errors for table 15 estimates (percentage of high school sophomores saying they usually or often come to school unprepared, by selected student characteristics): 1980, 1990, and 2002 ..... B-19

B-17. Standard errors for table 16 estimates (percentage of high school sophomores who agreed or strongly agreed with selected statements about the school's climate and teaching, by selected student characteristics): 1980, 1990, and 2002 ..... B-20

B-18. Standard errors for table 17 estimates (percentage of high school sophomores' use of and exposure to calculators and computers, by selected student characteristics): 1990 and 2002 ..... B-22

B-19. Standard errors for table 18 estimates (Item Response Theory [IRT]-estimated average number-right scores for mathematics, by selected student characteristics): 1980 and 2002 ..... B-24

B-20. Standard errors for table 19 estimates (Item Response Theory [IRT]-estimated average number-right scores for mathematics, by selected student characteristics): 1990 and 2002 ..... B-25

B-21. Standard errors for table 20 estimates (high school sophomore probability of proficiency in mathematics, by selected student characteristics): 1990 and 2002 ..... B-26

B-22. Standard errors for table 21 estimates (high school sophomore probability of proficiency in reading, by selected student characteristics): 1990 and 2002..... B-30

B-23. Standard errors for table 22 estimates (percentage of high school sophomores who participate in academic and vocational clubs, by selected student characteristics): 1980, 1990, and 2002 ..... B-33

B-24. Standard errors for table 23 estimates (percentage of high school sophomores who participate in athletics and cheerleading and drill team, by selected student characteristics): 1980, 1990, and 2002 ..... B-34

B-25. Standard errors for table 24 estimates (percentage of high school sophomores who participate in music-related activities and hobby clubs, by selected student characteristics): 1980, 1990, and 2002 ..... B-35

B-26. Standard errors for table 25 estimates (percentage of high school sophomores, by employment status and selected student characteristics): 1980, 1990, and 2002 ..... B-36

B-27. Standard errors for table 26 estimates (percentage of high school sophomores who report that they engage in various activities at least once or twice a week, by selected student characteristics): 1980, 1990, and 2002..... B-37

B-28. Standard errors for table 27 estimates (percentage of high school sophomores who report that various life values related to work are very important to them, by selected student characteristics): 1980, 1990, and 2002..... B-38

B-29. Standard errors for table 28 estimates (percentage of high school sophomores who report that having strong friendships and having leisure time are very important to them, by selected student characteristics): 1980, 1990, and 2002 ..... B-39

B-30. Standard errors for table 29 estimates (percentage of high school sophomores who report that various life values related to family are very important to them, by selected student characteristics): 1980, 1990, and 2002 ..... B-40

B-31. Standard errors for table 30 estimates (percentage of high school sophomores who report that various life values related to community are very important to them, by selected student characteristics): 1980, 1990, and 2002 ..... B-41

B-32. Standard errors for table 31 estimates (percentage of high school sophomores who expect to attain various levels of postsecondary education, by selected student characteristics): 1980, 1990, and 2002 ..... B-42

B-33. Standard errors for table 32 estimates (percentage of high school sophomores who report fathers, mothers, school counselors, and teachers think college is the most important thing for them to do right after high school, by selected student characteristics): 1980, 1990, and 2002 ..... B-44

B-34. Standard errors for table 33 estimates (percentage of high school sophomores who report various intentions with regard to entering college after high school graduation, by selected student characteristics): 1980, 1990, and 2002 ..... B-46

B-35. Standard errors for table 34 estimates (percentage of high school sophomores' expected occupation at age 30, by sex): 1980, 1990, and 2002 ..... B-48

B-36. Standard errors for table 35 estimates (percentage of high school sophomores' expected occupation at age 30, by sex with "don't know" responses removed): 1980, 1990, and 2002 ..... B-49

List of Figures

Figure		Page
1.	Percentage of high school sophomores, by age: 1980, 1990, and 2002	11
2.	Percentage of high school sophomores, by racial/ethnic group: 1980 and 2002	13
3.	Percentage of high school sophomores who were potentially first-generation 4-year college graduates, by racial/ethnic group: 1980 and 2002	16
4.	Percentage of high school sophomores in the lowest quarter of the socioeconomic distribution, by racial/ethnic group: 1980, 1990, and 2002	18
5.	Percentage of high school sophomores, by school enrollment: 1980, 1990, and 2002	20
6.	Percentage of high school sophomores, by self-reported high school program: 1980, 1990, and 2002	30
7.	Percentage of high school sophomores who reported they were in college preparatory or academic program, by racial/ethnic group: 1980 and 2002	30
8.	Item Response Theory (IRT)-estimated average number-right scores for mathematics: 1980, 1990, and 2002	52
9.	Item Response Theory (IRT)-estimated average number-right scores for mathematics, by selected race/ethnicity: 1980, 1990, and 2002	53
10.	Item Response Theory (IRT)-estimated average number-right scores for mathematics, by self-reported high school programs: 1980, 1990, and 2002	54
11.	Percentage of high school sophomores who report participating in various extracurricular activities: 1980, 1990, and 2002	69
12.	Percentage of high school sophomores, by employment status: 1990 and 2002	73
13.	Percentage of high school sophomores, by engagement in various activities at least once or twice a week: 1980, 1990, and 2002	76
14.	Percentage of high school sophomores, by various life values reported as being very important to them: 1980, 1990, and 2002	80
15.	Percentage of high school sophomores, by educational expectation level: 1980, 1990, and 2002	92
16.	Percentage of high school sophomores who expect to obtain a bachelor's, graduate, or professional degree as highest degree, by sex: 1980, 1990, and 2002	93
17.	Percentage of high school sophomores who expect to obtain a bachelor's, graduate, or professional degree as highest degree, by race/ethnicity: 1980, 1990, and 2002	94
18.	Percentage of high school sophomores who expect to obtain a bachelor's, graduate, or professional degree as highest degree, by socioeconomic status (SES): 1980, 1990, and 2002	95
19.	Percentage of high school sophomores who expect to obtain a bachelor's, graduate, or professional degree as highest degree, by standardized test composite score: 1980, 1990, and 2002	96

20. Percentage of high school sophomores who expect to enroll in college right after high school, by socioeconomic status (SES): 1980, 1990, and 2002 103
21. Percentage of high school sophomores, by occupational expectations at age 30 with "don't know" responses removed: 1980 and 2002 106

Appendix A Figures

Figure Page

A-1. Longitudinal design for the NCES high school cohorts: 1972-2008 ..... A-4

Chapter 1
Introduction

This report presents information on similarities and differences between U.S. high school sophomores as studied at three points in time over the past 22 years. Over the past three decades, the National Center for Education Statistics (NCES) has sponsored a series of studies designed to provide both longitudinal and 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. The report provides an update to the NCES report published in 1993, *America's High School Sophomores: A Ten Year Comparison* (Rasinski et al. 1993). With the completion of the Education Longitudinal Study of 2002 sophomore cohort study,[1] it became possible to observe characteristics at three points in time. The report uses data from the following NCES studies:

- sophomores in 1980, as studied in High School and Beyond (HS&B);
- sophomores in 1990, as studied in the National Education Longitudinal Study of 1988 (NELS:88); and
- sophomores in 2002, as studied in the Education Longitudinal Study of 2002 (ELS:2002).

All three of these studies were designed as longitudinal; however, the overall scope and design of each one also provides nationally representative cross-sectional profiles of the nation's high school sophomores at the time of the study. As part of a historical series, the studies have repeated core items in key areas each decade. These areas include cohort demographics, academic program, academic performance, rates of participation in extracurricular activities, and changes in goals and aspirations over a 22-year period. Such cross-cohort comparisons are of particular use in measuring the nation's goals of achieving increased educational attainment for all U.S. children (U.S. Department of Education 2002).

1.1 Background, Questions Addressed, and Limitations of the Report

The purpose of this report is descriptive, serving to update published information on the HS&B and NELS:88 sophomore surveys with additional information from ELS:2002 for selected comparable student characteristics, educational performance, activities, and experiences. Secondary purposes are to note qualifications and limitations to the survey-based data comparisons and to note related information from other data sources such as the Current Population Survey (CPS) over the same period. With a few additions, the topics selected for the

[1] For the Education Longitudinal Study of 2002 (ELS:2002), initial detailed cross-sectional findings from the base year have recently been published in *A Profile of the American High School Sophomore in 2002* (Ingels, Burns et al. 2005).

report are based on those included in the report comparing the 1980 and 1990 sophomores (Rasinski et al. 1993).[2]

Although this report covers several key topics and presents subgroup information that has been of considerable interest in multivariate analyses using HS&B and NELS:88 data, it stops short of a multivariate analysis of the interrelationships among the variables or how the interrelationships may have changed over time. For example, analyses comparing reading and mathematics assessment performance across cohorts do not control for compositional changes across the three cohorts. Ideally, this report will serve as an invitation for more complex analyses on these specific topics, as well as provide cautions in making some of the comparisons over time. By way of introduction, selected topics of interest from previous analyses of HS&B and NELS:88 are identified.

1.1.1 Selected topics of concern using HS&B and NELS:88 data

HS&B and NELS:88 have served as major sources of descriptive national information on the family, academic, and extracurricular experiences of high school students, as well as the relationship of student, teacher, and school characteristics to student academic performance and the transition of high school students to college and work. This research has studied a number of factors associated with high school and postsecondary outcomes. These factors have included family structure, parent involvement, socioeconomic (SES) background, school program, coursetaking patterns, grades, peer group influences, precollege program participation, post–high school aspirations, achievement test performance, and college-board test taking, as well as school and teacher characteristics such as school size and teacher preparation (for example, Adelman 1999, 2006; Akerhielm et al. 1998; Berkner and Chavez 1997; Choy 2001; Gándara and Bial 2001; Horn and Nuñez 2000; Hossler, Schmit, and Vesper 1998; Ingels et al. 2002; Lee and Smith 1997; McDonough 1997). Using these studies, researchers have also identified what have come to be known as "risk factors" to educational success. These factors include coming from the lowest quarter of the SES distribution,[3] changing schools, living in a single-parent household, being held back in school, making low grades, having parents with low educational attainment, having one or more siblings who dropped out of school, and attending schools with a high proportion of students eligible for free or reduced-price lunch (for example, Choy 2001; Hossler, Schmit, and Vesper 1998). Controlling for these risk factors, research has also looked at factors that are associated with greater odds of high school and college success, such as coursetaking patterns, and found associations with taking more rigorous courses in high school and college success (for example, Adelman 1999, 2006). Using these data sets, researchers have examined the relationship between differential schooling experiences (including those associated with tracking or program placement) and the likelihood that students will enroll in the courses

[2] Estimates in this report may differ from those presented in Rasinski et al. (1993) because of subsequent updates that occurred to the data files. In addition, slight changes to estimates may be a product of changes in the rounding procedures. The following tables and figures contain one or more estimates that have been revised: tables 3, 7, 12, 15, 16, 18, 19, 20, 27, 28, 29, 30, 33, 34, and 35 (and appendix tables B-4, B-8, B-13, B-16, B-17, B-19, B-20, B-21, B-28, B-29, B-30, B-31, B-34, B-35, and B-36) and figures 4, 6, 7, 8, 9, 10, 20, and 21.

[3] Each of the three NCES studies (HS&B, NELS:88, and ELS:2002) have constructed a standardized SES variable. SES in NELS:88 and ELS:2002 was based on five equally weighted, standardized components consisting of father's or guardian's education, mother's or guardian's education, family income, father's or guardian's occupation, and mother's or guardian's occupation. In HS&B, the five components of SES included household items such as number of books, cars, and electrical appliances and did not include mother's occupation.

most associated with postsecondary entry and attainment (Adelman 1999; Gándara and Bial 2001; Mehan et al. 1996). Research focused on school characteristics has examined the relationship of variables such as school control and school and class size with high school achievement and college participation (for example, Akerhielm 1995; Coleman, Hoffer, and Kilgore 1982; Gándara and Bial 2001; Ingels et al. 2002; Lee 2001). Other research, controlling for parent involvement, peer association, and student preparation, found that precollege programs had a positive association with college entrance for students having one or more of the risk factors (Horn and Chen 1998). It is hoped that the data from ELS:2002 will be used as often as data from HS&B and NELS:88 were used over the past decades to contribute to our understanding of the high school experience and the transition to young adulthood.

1.1.2 Descriptive questions

Keeping in mind past analyses of HS&B (1980) and NELS:88 (1990) data and using possible comparable information from the three datasets, as well as data from the U.S. Census Bureau and U.S. Bureau of Labor Statistics over the same period, the following questions about high school sophomores are addressed in this report:

- What have been the changes in the context of U.S. education and society in terms of individual demographics, family background, and school characteristics?
- How has the school experience changed in terms of student self-reports of academic programs, time spent on homework, preparedness, and student views of school safety and teaching?
- Have there been changes in tested achievement as measured by mathematics scale scores and changes in probabilities of proficiency in reading and mathematics?
- Have there been changes in the frequency and types of afterschool extracurricular activities, work outside the home, and social activities?
- Have student values and goals changed with regard to work, marriage and children, community, and friendship?
- Have student plans and expectations for the future changed with regard to education, plans to attend college, and occupation expected at age 30?

In addition to the overall assessment of change, the report addresses change for various subgroups studied in the previous analyses of HS&B and NELS:88 (Rasinski et al. 1993):

- male and female high school sophomores;
- sophomores from different racial/ethnic groups;[4]
- sophomores from upper, middle, and lower SES levels;
- sophomores in public and private high schools;

[4] In this report, Black includes African American, Hispanic includes Latino, Asian includes Native Hawaiian or Other Pacific Islander, and American Indian includes Alaska Native. Respondents who identified themselves as being of Hispanic origin are classified as Hispanic, regardless of race.

- sophomores in urban, suburban, and rural school settings; and
- sophomores in different regions of the country.

1.1.3 Measures of change and subgroup differences

The primary focus of this report is observation of change over the periods 1980, 1990, and 2002 for national averages and for subgroupings that have been of traditional interest to education research and policy. For this report, a series of statistical *t* tests is used to establish whether estimates differ between time periods. The criteria for notation in the text of change across the time periods and subgroup differences were based on *t* tests using the .05 level of significance, taking into account the effects of sampling error. In addition, a second criterion was used to ensure a certain level of substantive importance. If a comparison does not meet these two criteria, the result may be characterized as "no measurable difference detected." One characteristic that HS&B, NELS:88, and ELS:2002 have in common is relatively large sample sizes. Large samples may result in small differences—indeed, differences so small that they largely lack substantive or practical importance—that nevertheless are statistically significant. For chapters 2–3 and 5–7, the substantive change criterion was a change of at least 5 percentage points, except where noted. For chapter 4, substantive importance was measured in terms of effect sizes represented in standard deviation units. Effect sizes provide a scale-free measure of difference that is largely independent of sample size. For comparisons drawn in this report, effect sizes were calculated as the change or difference in mean test scores divided by the pooled standard deviation across cohorts or subgroups. To say, for example, that the effect size for the cohort difference in mathematics achievement for Black sophomores between 1980 and 1990 was 0.35 is equivalent to saying that the increase in average scores for Blacks was 0.35 standard deviations.

Although "practical" or "substantive" importance (as opposed to statistical significance) must be determined in a given area of inquiry, Cohen (1988, p. 184) suggested certain general conventions of substantive importance for a given difference. For this report, any difference that is both statistically significant at $p < .05$ and has an effect size of 0.20 or higher shall be regarded as likely to have substantive importance. Findings to be reported of overall or subgroup change between two points in time are held to this double criterion. While interpretation of the size of an effect size should take into account the research context,[5] this report will follow the general convention in behavioral research that a standardized mean difference of 0.20 or less is a small effect size, 0.50 a medium effect size, and 0.80 or greater a large effect size (Cohen 1988; Murphy and Myers 2004; Seastrom 2002). The reader should use caution in instances where there appear to be differences between estimates but there is no notation indicating that the differences are statistically significant. These instances may be a product of small sample sizes or large standard errors that render such estimates unreliable. See appendix A for additional methodological discussion and identification of the specific variables used in the analyses for each of the three studies; see appendix B for standard errors for the estimates used in the report.

[5] See, for example, Wainer and Robinson (2003).

1.2 Designs for Sophomore Cohorts of HS&B, NELS:88, and ELS:2002

By way of background in this section, the major features of each of the designs, including differences in design, are noted. In addition, throughout the report, differences in questionnaire item wording or procedures that might affect comparisons over time using the data are described. Appendix A provides additional methodological information about each of the studies. One difference is that ELS:2002 imputed for item nonresponse, and the analyses included in this report use imputed data, whereas HS&B and NELS:88 did not impute data at the item level.[6]

1.2.1 HS&B design

This report uses data collected in the HS&B base year from the 10th grade cohort. 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, 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. HS&B sophomores were followed in 1982, 1984, 1986, and 1992. Postsecondary transcripts were also collected, with the most recent collection being 1992. In addition, parent, teacher, and school surveys were conducted. The unweighted response rate at the baseline school level was 70 percent and at the baseline student level was 84 percent.[7] Data weights were adjusted for nonresponse at each level.

1.2.2 NELS:88 design

NELS:88 differs from HS&B and ELS:2002 in that the first data collection phase began in the 8th grade rather than the 10th grade. The data used in this report are, therefore, from the first follow-up conducted in the spring of 1990, when most of the 8th-graders were high school sophomores. The base-year (8th-grade) cohort was drawn from a stratified national probability sample of 1,052 public and private 8th-grade schools from which about 25,000 students participated in the base-year study (Ingels et al. 1992). For the sophomore year follow-up, about 18,221 students participated in the in-school, self-administered survey from the 19,363 selected. Because the sample was freshened with 1990 sophomores who were not in the 8th-grade sample from 1988, it is a representative sample of the nation's spring term 1990 sophomores. By maintaining a degree of comparability in questionnaire and test measures employed, NELS:88 first follow-up results will support comparisons with the HS&B and ELS:2002 sophomores. Base-year 1988 study participants were followed in 1990, 1992, 1994, and 2000. In addition, parent, principal, and teacher surveys were conducted. It should be noted, however, that the original school sample reflects schools covering the 8th grade. The 10th-grade schools reflect the schools that this cross-section of 8th-graders attended. The unweighted response rate at the baseline 8th-grade school level was 70 percent for the initial school selections. Replacement

[6] Analyses were performed to compare estimates using imputed and unimputed data. The general findings presented in this report do not vary based on imputed or unimputed data for ELS:2002. For more information, the reader should consult the *ELS:2002 Base-Year to First Follow-up Data File Documentation* (NCES 2006-344) (Ingels, Pratt et al. 2005, appendix C).

[7] Weighted response rates for High School and Beyond (HS&B) are not included in published documentation.

schools were used. The weighted 8th-grade student response rate was 93.4 percent. Two years later, most students had dispersed to new schools, of which 99 percent cooperated. The unweighted sophomore response rate was 94 percent. Data weights were adjusted for nonresponse at each level.

1.2.3 ELS:2002 design

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 (Burns et al. 2003; Ingels et al. 2004). Of 17,591 eligible selected sophomores, 15,362 completed a base-year questionnaire, as did 13,486 parents, 7,135 teachers, 743 principals, and 718 librarians. Seven study components comprised the base-year design: assessments of students (in-school reading and mathematics achievement tests); a survey of students (in-school, self-administered); surveys of parents (telephone survey), teachers (self-administered), school administrators (self-administered), and librarians (self-administered); and a facilities checklist (completed by survey administrators, based on their observations at the school). The unweighted response rate was 62 percent at the school level and 87 percent at the sophomore baseline level. Replacement schools were used. Data weights were adjusted for nonresponse at each level.

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 the studies' user manuals and technical reports. For detailed reliability and validity information concerning the HS&B and NELS:88 questionnaires and cognitive tests, the various psychometric and technical reports should also be consulted (see references and consult the website for each study at http://nces.ed.gov/surveys/SurveyGroups.asp?group=1).

1.2.4 Other data sources

Current Population Survey (CPS)

The Current Population Survey (CPS), a monthly survey of approximately 50,000 households in the United States, has been conducted for more than 50 years. The U.S. Census Bureau conducts the survey for the Bureau of Labor Statistics. The CPS collects data on the social and economic characteristics of the civilian, noninstitutional population, including information on income, education, and participation in the labor force. Each month, a basic CPS questionnaire is used to collect data on the labor force participation of each member age 15 or older in every sample household. In March and October of each year, the CPS includes additional questions about education. The Annual Demographic Survey or March CPS supplement is the primary source of detailed information on income and work experience in the United States. The March CPS is used to generate the annual Population Profile of the United States, reports on geographical mobility and educational attainment, and detailed analysis of money income and poverty status. Each October, in addition to the basic questions about education, interviewers ask supplementary questions about school enrollment for all household

members age 3 or older. Further information about the CPS can be found at the Census Bureau website (http://www.bls.census.gov/cps).

1.3 Report Organization

This report is organized into seven chapters, which are designed to answer the questions discussed earlier. Chapter 1 summarizes the purposes of the report and provides information on the design of the three studies. Chapter 2 provides information on the changing context of U.S. education and society over the 22 years between the studies. In addition to the demographic data from each of the studies, selected data for statistics related to youth and education in the United States from the CPS and Bureau of Labor Statistics are included. Chapter 3 focuses on the school experiences of cohort members, including high school program, homework, perceptions of school and the quality of teaching, motivation to learn, and safety in school. Chapter 4 reports on the cohort's tested achievement in mathematics and reading. Chapter 5 examines how 10th-graders used their time in activities other than academic endeavors, including extracurricular activities, employment, and leisure activities. Chapter 6 examines the life values of the cohorts. Finally, chapter 7 looks at expectations and plans of this group, including expectations for educational attainment and their expected occupation at age 30.

Appendix A provides methodological documentation for the three studies, and appendix B provides standard errors.

Chapter 2
Changing Context: Cohort, Family, and School Profile

This chapter, using information from the three National Center for Education Statistics (NCES) studies—High School and Beyond (HS&B), Education Longitudinal Study of 2002 (ELS:2002), and the National Education Longitudinal Study of 1988 (NELS:88)—supplemented by Current Population Survey (CPS) and U.S. Bureau of Labor (BLS) data, presents a summary of key demographic and contextual-related changes for sophomores over the 1980–2002 period. Changes in each of these areas provide a framework for understanding the changes reported among high school sophomores over this period.

The chapter discusses changing demographics under the following headings:

2.1 Cohort Demographics;
2.2 Family Characteristics; and
2.3 School Characteristics.

2.1 Cohort Demographics

2.1.1 Size and geographic region

Between 1980 and 2002, the U.S. population grew from 227.7 million to 288.2 million, increasing by 27 percent (U.S. Census Bureau 2004b). In that same period, the estimated size of the sophomore cohort fluctuated. The cohort size declined by 25 percent between 1980 and 1990 and increased by 22 percent between 1990 and 2002, but in 2002 it remained lower than in 1980 (table 1). Between 1980 and 2002, the cohort size declined by 9 percent.[8]

The regional distribution of sophomores changed between 1980 and 2002. The percentage of sophomore students in the West increased from 18 percent of all sophomores in 1980 to 23 percent in 2002 (table 1). In the same period, the percentage in the Northeast decreased from 23 percent to 19 percent and in the Midwest from 28 percent to 24 percent. Only the western region experienced growth in the absolute number of sophomores over the period.

[8] Common Core of Data (CCD) and Private School Survey (PSS) data on the total in high school revealed a similar trend: 14,570 (1980), 12,488 (1990), and 15,426 (2002) in thousands (U.S. Department of Education 2005).

Table 1. Number and percentage of high school sophomores' cohort size, by geographic region of schools: 1980, 1990, and 2002

Region	1980		1990		2002		Percent change in number from 1980 to 2002
	Number	Percent	Number	Percent	Number	Percent	
U.S.	3,760,100	100.0	2,808,700	100.0	3,439,500	100.0	-8.5
Northeast[1]	853,200	22.7	539,600	19.2	637,600	18.5	-25.3
Midwest[2]	1,035,000	27.5	722,300	25.7	829,900	24.1	-19.8
South[3]	1,209,700	32.2	977,900	34.8	1,179,700	34.3	-2.5
West[4]	662,200	17.6	568,800	20.3	792,300	23.0	19.6

[1] Northeast = Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont.

[2] Midwest = Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin.

[3] South = Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia.

[4] West = Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming.

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

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

2.1.2 Cohort age

By some measures, high school sophomores in 2002 appeared to be older than their counterparts 22 years earlier (table 2 and figure 1). The percentage of students who were 15 years old in the spring of their sophomore year was 24 percent lower in 2002 than in 1980. In 1980, 51 percent were 15 years old or younger at the time of the survey, and by 2002, 38 percent were 15 or younger. Nonetheless, the mean age of sophomores was 15.6 years old in 1980 and 1990 and 15.7 in 2002.

Table 2. Mean age and percentage distribution of high school sophomores, by age and sex: 1980, 1990, and 2002

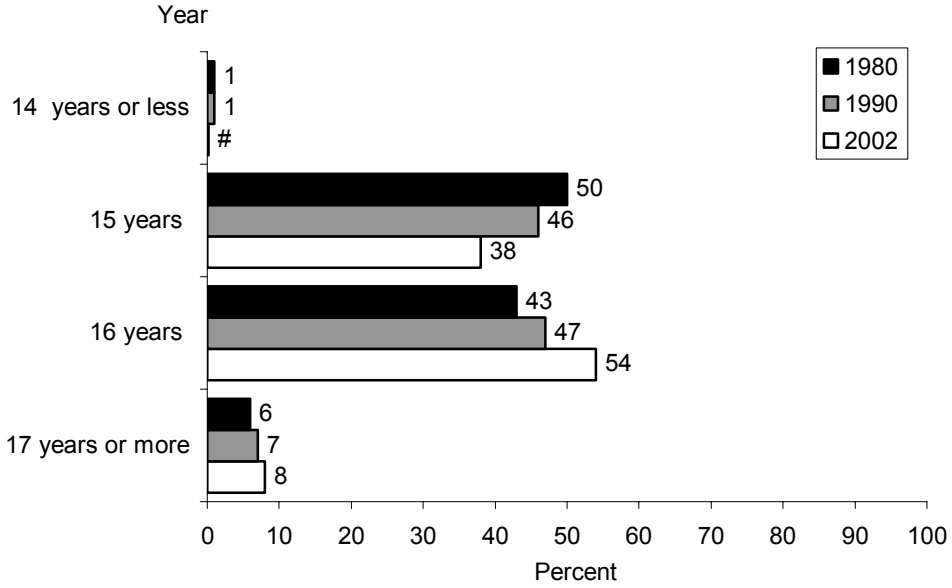
Characteristic	1980	1990	2002	Percent change from 1980 to 2002
Mean Age	15.6	15.6	15.7	0.1
Standard Deviation	0.68	0.64	0.65	†
Age Distribution				
18 years or more	0.9	0.4	1.2	33.3
17 years	5.3	7.0	6.8	28.3
16 years	43.1	46.6	53.7	24.6
15 years	50.1	45.5	37.9	-24.4
14 years or less	0.6	0.6	0.3	-50.0
Sex				
Male	48.1	49.9	50.5	5.0
Female	51.9	50.1	49.6	-4.4

† Not applicable.

NOTE: Detail may not sum to totals because of rounding. In HS&B, students recorded their age in years on survey day. The survey was conducted in the spring term and survey day for purposes of calculation of age is set at March 1. In NELS:88 and ELS:2002, students recorded their date of birth (month, day, and year). For this comparison, their age as of March 1st has been calculated and used, to maximize comparability to HS&B.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

Figure 1. Percentage of high school sophomores, by age: 1980, 1990, and 2002



Rounds to zero.

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

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

2.1.3 Racial/ethnic group and English language

Among all high school sophomores the percent minority (including those of more than one race in 2002) increased from 25 percent in 1980 to 40 percent in 2002. Hispanics increased from 8 percent to 16 percent (table 3 and figure 2). Whites, as a percentage of the total, declined from 75 percent to 60 percent, and Blacks were 14 percent in both 1980 and 2002. The "more than one race" category was available only to students in the ELS:2002 study, and 4 percent of the ELS:2002 sophomores so identified themselves. Census estimates for the nation as a whole (including all age groupings) for more than one race in 2001 were 0.2 percent (U.S. Census Bureau 2004b).

Table 3. Percentage of high school sophomores, by racial/ethnic group: 1980, 1990, and 2002

Racial/ethnic group	1980	1990	2002	Percent change from 1980 to 2002
American Indian or Alaska Native	1.0	1.2	1.0	#
Asian or Pacific Islander	1.3	3.9	4.2	223.1
Black or African American	14.2	12.5	14.4	2.1
Hispanic or Latino	8.3	10.1	15.9	91.6
More than one race	†	†	4.3	†
White	75.3	72.3	60.3	-19.9

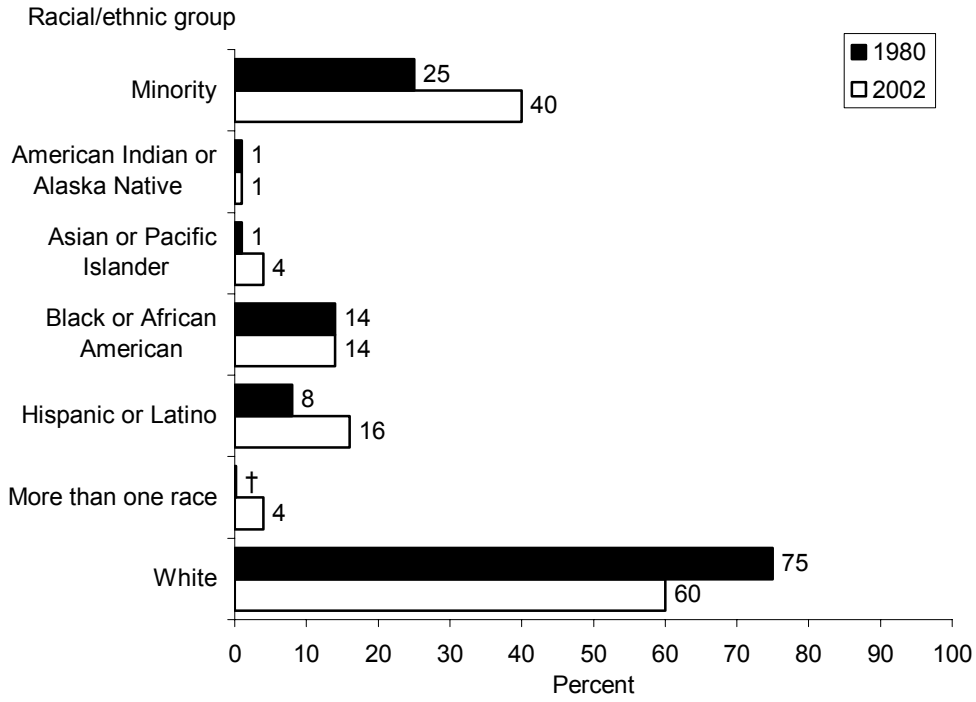
† Not applicable.

Rounds to zero.

NOTE: Estimates may differ from previously released estimates because of revisions made to the data file and/or changes in rounding procedures. The racial/ethnic groups were modified for ELS:2002 to be consistent with Office of Management and Budget (OMB) requirements allowing for multiple race choices. Choosing more than one race was not permitted in HS&B and NELS:88. Respondents who identified themselves as being of Hispanic origin are classified as Hispanic, regardless of their race.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

Figure 2. Percentage of high school sophomores, by racial/ethnic group: 1980 and 2002



† Not applicable.

NOTE: Detail may not sum to totals because of rounding. In this figure, minority includes all categories except White, non-Hispanic and includes those of more than one race. The racial/ethnic groups were modified for ELS:2002 to be consistent with Office of Management and Budget (OMB) requirements allowing for multiple race choices. Choosing more than one race was not permitted in HS&B and NELS:88. Respondents who identified themselves as being of Hispanic origin are classified as Hispanic, regardless of their race.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

Between 1980 and 2002, the percentage of students who identified English as their native language declined from 95 percent to 86 percent (table 4).

Table 4. Percentage of high school sophomores whose native language is English, by racial/ethnic group: 1980, 1990, and 2002

Racial/ethnic group	1980	1990	2002	Percent change from 1980 to 2002
All sophomores	94.6	90.2	86.0	-9.1
American Indian or Alaska Native	85.7	74.3	83.7	-2.3
Asian or Pacific Islander	42.5	44.4	36.9	-13.2
Black or African American	99.0	97.9	94.4	-4.6
Hispanic or Latino	65.1	42.9	47.7	-26.7
More than one race	†	†	92.5	†
White	98.1	98.1	97.0	-1.1

† Not applicable.

NOTE: The racial/ethnic groups were modified for ELS:2002 to be consistent with Office of Management and Budget (OMB) requirements allowing for multiple race choices. Choosing more than one race was not permitted in HS&B and NELS:88. Respondents who identified themselves as being of Hispanic origin are classified as Hispanic, regardless of their race.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

2.2 Family Characteristics

2.2.1 Family living arrangements

Data from the three sophomore studies document the rise in the percentage of students in family structures that are different from the traditional composition of living with a biological or adoptive mother and father (table 5). The percentage of sophomores living with a mother and father declined from 70 percent in 1980 to 57 percent in 2002. The percentage of sophomores living with a mother and guardian went from 7 percent to 14 percent. The percentage living with "mother only" was 16 percent in 1980 and 19 percent in 2002. The percentage living with "father only" was 3 percent in 1980 and 2002.

Table 5. Percentage of high school sophomores, by family living arrangement: 1980, 1990, and 2002

Family living arrangement	1980	1990	2002	Percent change from 1980 to 2002
Mother and father	70.2	67.2	57.3	-18.3
Mother and guardian	6.9	11.2	13.5	96.5
Father and guardian	2.1	2.7	3.3	53.5
Mother only	15.5	13.9	19.2	24.3
Father only	3.1	2.5	3.2	3.5
Other relative or nonrelative	2.2	2.5	3.4	55.2

NOTE: Detail may not sum to totals because of rounding. In the response categories "mother and guardian" and "father and guardian," the term "guardian" includes step mothers and step fathers. The category "Mother and father" refers to biological or adoptive parents.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

2.2.2 Parents' education

In the early 1970s, when the 1980 sophomores started school, Census data indicate that about one-quarter of White and over half of Black and Hispanic parents of school-age children had not completed high school (U.S. Census Bureau 2001). As revealed in table 6, education among the parents of the high school sophomores increased between 1980 and 2002.

Between 1980 and 2002, the percentage of fathers without a high school diploma decreased from 23 percent to 14 percent. The percentage of mothers without a high school diploma was 18 percent in 1980 and 13 percent in 2002. The percentage of mothers with high school or General Education Development (GED) as the highest degree also declined, going from 47 percent to 28 percent. Among fathers, the percentage was 31 percent in 1980 and 30 percent in 2002.

As noted, rates of postsecondary participation and degree attainment among sophomores' parents increased over the period. For example, among mothers, 4-year college completion as the highest degree went from 9 percent to 17 percent. The percentage of fathers having a 4-year college degree as the highest degree was 12 percent in 1980 and 17 percent in 2002. Among

mothers, 1 percent had a Ph.D., M.D., or other doctoral degree in 1980 and 1.7 percent in 2002. Among fathers, 4 percent had a Ph.D., M.D., or other advanced degree in both 1980 and 2002.

Table 6. Percentage of high school sophomores, by parents' highest level of education: 1980, 1990, and 2002

Parents' highest level of education	1980	1990	2002	Percent change from 1980 to 2002
Fathers				
Did not finish high school	22.6	15.2	13.9	-38.5
Graduated from high school or GED	31.1	25.8	30.1	-3.1
Some postsecondary education (PSE)	23.5	33.3	27.4	16.6
Graduated from college	12.3	14.2	16.7	36.5
Completed master's or equivalent	6.2	6.5	7.4	19.1
Completed Ph.D., M.D., or other advanced degree	4.3	5.0	4.3	1.4
Mothers				
Did not finish high school	17.8	13.0	13.2	-26.0
Graduated from high school or GED	46.5	30.8	27.9	-40.0
Some postsecondary education (PSE)	21.9	39.0	34.6	58.1
Graduated from college	9.1	11.9	16.6	82.7
Completed master's or equivalent	3.4	4.5	6.0	76.5
Completed Ph.D., M.D., or other advanced degree	1.3	0.7	1.7	30.8

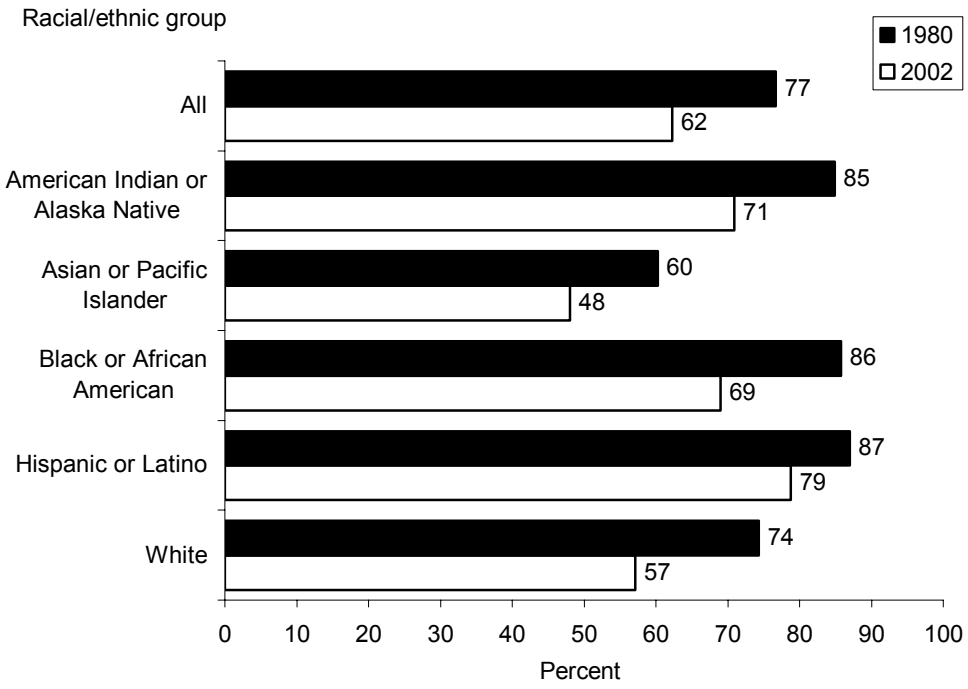
NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

Despite increases in parent education, however, in 2002, most high school sophomores remained potentially the first generation in their family to complete a 4-year college degree—that is, no parent or guardian had attained a 4-year college degree.[9] In 1980, about three-fourths (77 percent) of sophomores were potentially first-generation college graduates, and by 2002, 62 percent were potentially first-generation college graduates (figure 3). By racial/ethnic group, a smaller percentage of Asian high school sophomores compared to the national average reported being in families in which no parent or guardian had completed a 4-year college degree. For example, in 2002, 48 percent of Asian high school sophomores had no parent or guardian who had completed a 4-year degree, compared with 62 percent among all sophomores.

[9] Several federal programs for disadvantaged high school students define eligibility for participation in terms of low income and potentially first-generation 4-year college graduate, defined as no parent or guardian with a 4-year college degree.

Figure 3. Percentage of high school sophomores who were potentially first-generation 4-year college graduates, by racial/ethnic group: 1980 and 2002



NOTE: The racial/ethnic groups were modified for ELS:2002 to be consistent with Office of Management and Budget (OMB) requirements allowing for multiple race choices. Choosing more than one race was not permitted in HS&B. The multiple race category is not shown. Respondents who identified themselves as being of Hispanic origin are classified as Hispanic, regardless of their race. Potentially first-generation-college is defined as no parent or guardian with a 4-year college degree.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

2.2.3 Socioeconomic status (SES) and racial/ethnic group

Each of the three NCES studies (HS&B, NELS:88, and ELS:2002) have constructed a standardized SES variable. SES in NELS:88 and ELS:2002 was based on five equally weighted, standardized components consisting of father's or guardian's education, mother's or guardian's education, family income, father's or guardian's occupation, and mother's or guardian's occupation. In HS&B, the five components of SES included household items (such as number of books, electrical appliances, cars, own room, etc.) and did not include mother's occupation. Table 7 and figure 4 include SES by racial/ethnic group with the two middle quarters of the SES distribution combined. It should be noted that table 7 and figure 4 display SES using weighted quartiles not raw SES scores; thus, a bottom quarter of the SES distribution is always shown, regardless of whether the raw SES scores have changed over the period.

Table 7. Percentage of high school sophomores, by socioeconomic status (SES) and racial/ethnic group: 1980, 1990, and 2002

	Lowest quarter			Middle two quarters			Highest quarter		
Racial/ethnic group	1980	1990	2002	1980	1990	2002	1980	1990	2002
All sophomores	25.0	25.1	24.9	50.0	50.4	50.1	25.0	24.6	25.0
American Indian or Alaska Native	38.0	41.5	31.4	50.9	52.2	54.9	11.1	6.3	13.7
Asian or Pacific Islander	23.2	18.3	28.0	45.4	49.8	40.5	31.5	32.0	31.5
Black or African American	45.7	42.2	35.2	43.5	48.5	51.9	10.9	9.4	12.9
Hispanic or Latino	48.2	51.6	50.1	40.8	37.7	40.2	11.1	10.7	9.7
More than one race	†	†	23.6	†	†	56.0	†	†	20.4
White	18.8	18.7	15.7	52.2	52.4	52.4	29.0	28.9	32.0

† Not applicable.

NOTE: Detail may not sum to totals because of rounding. Estimates may differ from previously released estimates because of revisions made to the data file and/or changes in rounding procedures. The racial/ethnic groups were modified for ELS:2002 to be consistent with Office of Management and Budget (OMB) requirements allowing for multiple race choices. Choosing more than one race was not permitted in HS&B and NELS:88. Respondents who identified themselves as being of Hispanic origin are classified as Hispanic, regardless of their race. Each of the three studies (HS&B, NELS:88, and ELS:2002) has constructed a standardized SES variable. SES is based on five equally weighted, standardized components consisting of father's or guardian's education, mother's or guardian's education, family income, father's or guardian's occupation, and mother's or guardian's occupation. In HS&B, the five components of SES include household items and do not include mother's occupation.

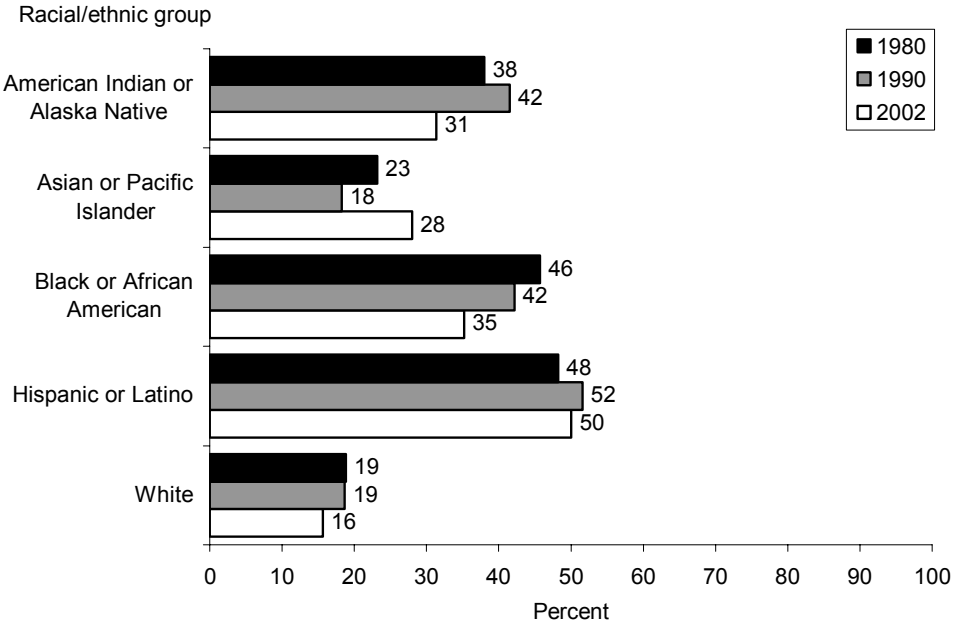
SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

In 1980, no differences were detected between Blacks and Hispanics in the percentage in the lowest quarter of the SES distribution (48 percent for Hispanics and 46 percent for Blacks) (table 7 and figure 4). However, the percentage of Blacks in the bottom quarter of the SES distribution declined from 46 percent in 1980 to 35 percent in 2002, and in this year, differences between the two groups were detected (50 percent among Hispanics compared with 35 percent among Blacks). Correspondingly, the percentage of Blacks in the middle quarters of the SES distribution increased—from 44 percent in 1980 to 52 percent in 2002.

The proportion of Asians in the lowest quarter of the SES distribution increased between 1990 and 2002, going from 18 percent to 28 percent (table 7 and figure 4). In the same period, the proportion of Asians in the middle quarters of the SES distribution decreased from 50 percent to 41 percent.

In each of the three periods, about 32 percent of Asians and 29 percent to 32 percent of Whites were in the highest quarter of the SES distribution (table 7 and figure 4). In 1980, the proportions of Hispanics, Blacks, and American Indians in the highest quarter of the SES distribution clustered around 11 percent each. In 2002, 14 percent of American Indian, 13 percent of Black, and 10 percent of Hispanic high school sophomores were in the highest quarter of the SES distribution.

Figure 4. Percentage of high school sophomores in the lowest quarter of the socioeconomic distribution, by racial/ethnic group: 1980, 1990, and 2002



NOTE: Estimates may differ from previously released estimates because of revisions made to the data file and/or changes in rounding procedures. The racial/ethnic groups were modified for ELS:2002 to be consistent with Office of Management and Budget (OMB) requirements allowing for multiple race choices. Choosing more than one race was not permitted in HS&B and NELS:88. The multiple race category is not shown. Respondents who identified themselves as being of Hispanic origin are classified as Hispanic, regardless of their race. Each of the three studies (HS&B, NELS:88, and ELS:2002) have constructed a standardized socioeconomic status (SES) variable. SES is based on five equally weighted, standardized components consisting of father's or guardian's education, mother's or guardian's education, family income, father's or guardian's occupation, and mother's or guardian's occupation. In HS&B, the five components of SES include household items and do not include mother's occupation.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

Census data on poverty rates also show some increases for minority subgroups, although the overall percentage of children in poverty does not show a clear trend (U.S. Census Bureau 2003b). In 1965, when the 1980 sophomores were born, the percentage of children aged 18 or under in poverty was 20 percent; in 1975, it was 17 percent; in 1980, it was 18 percent; in 1990, it was 21 percent; and in 2002, it was 17 percent. Poverty rates for Black children under age 18 declined from 42 percent in 1980 to 32 percent in 2002. Poverty rates for Hispanic children went from 32 percent to 28 percent in the same period. Poverty rates for Asian children were 18 percent in 1990 and 12 percent in 2002.[10]

[10] Eligibility for federal precollege programs typically is based on family income at 150 percent of poverty or enrollment in schools in which more than 50 percent of the students are eligible for free lunch programs. In 2001, about one-third of all U.S. children under 18 were living at or below 150 percent of poverty. This percentage was just under half among Hispanic and Black children—in 2001, 47 percent of Hispanic children and 46 percent of Black children were in families under 150 percent of poverty (U.S. Census Bureau 2004a).

2.3 School Characteristics

This section discusses changes in school type, school size, school urbanicity, and percentage eligible for free or reduced-price lunch within schools attended.

2.3.1 School sector

Overall in 1980, 91 percent of sophomores were enrolled in public schools, and in 2002, 92 percent were so enrolled (table 8). Catholic school enrollment as a percentage of the total was 6 percent in 1980 and 4 percent in 2002. Other private school enrollment was 3 percent in 1980 and 4 percent in 2002. Black and American Indian sophomores had higher than average public school enrollment in 1980 (97 percent). Over the 22-year period, the proportion of Hispanic students enrolled in public school was 92 percent in 1980 and 96 percent in 2002.

Among students in the highest quarter of the SES distribution, public school enrollment was 82 percent in 1980 and 83 percent in 2002. Among those in the lowest SES quarter, public school enrollment was 97 percent in 1980 and 98 percent in 2002.

Table 8. Percentage of high school sophomores, by school type, racial/ethnic group, and socioeconomic status (SES): 1980, 1990, and 2002

Characteristic	Public			Catholic			Other private		
	1980	1990	2002	1980	1990	2002	1980	1990	2002
All sophomores	90.6	90.3	92.4	6.1	6.1	4.3	3.3	3.6	4.4
Racial/ethnic group									
American Indian or Alaska Native	97.1	98.3	97.2	1.1	1.7	0.7	1.8	#	2.1
Asian or Pacific Islander	91.1	84.6	90.4	5.9	8.1	4.6	2.9	7.3	5.1
Black or African American	97.0	93.8	97.3	2.5	5.3	1.8	0.5	0.1	0.9
Hispanic or Latino	92.3	92.8	96.0	5.8	5.5	2.9	1.9	1.7	1.2
More than one race	†	†	91.7	†	†	4.0	†	†	4.4
White	89.2	89.5	90.5	6.9	6.2	5.2	4.0	4.2	4.3
Socioeconomic status									
Lowest quarter	96.6	97.2	97.6	2.5	2.3	1.1	0.8	0.5	1.6
Middle two quarters	91.6	91.1	93.9	5.8	6.4	3.7	2.6	2.5	2.5
Highest quarter	81.8	80.8	82.7	10.6	9.8	9.3	7.5	9.4	8.0

† Not applicable.

Rounds to zero.

NOTE: Detail may not sum to totals because of rounding. The racial/ethnic groups were modified for ELS:2002 to be consistent with Office of Management and Budget (OMB) requirements allowing for multiple race choices. Choosing more than one race was not permitted in HS&B and NELS:88. Respondents who identified themselves as being of Hispanic origin are classified as Hispanic, regardless of their race.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

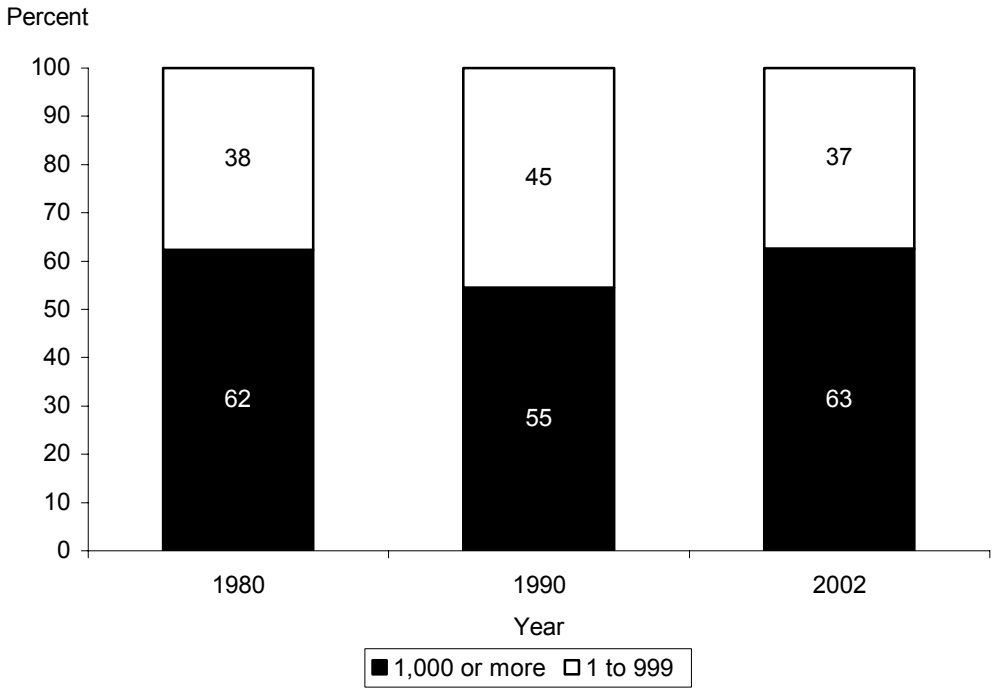
2.3.2 School size

School consolidation for economies of scale and increased curriculum offerings was once a strong social movement in the United States (Walberg 1992), especially in the period between

1940 up to 1970.[11] However, the period since the 1980s has witnessed increased reform advocacy for smaller schools (see Ayers, Bracey, and Smith 2000; Bill and Melinda Gates Foundation 2002; Duke and Trautvetter 2001; Fowler 1992; Gregory 2000; Howley and Bickel 1999; Klonsky 1995; Meier 1996; Raywid 1999; Schneider 2002; and Sergiovanni 1994). As displayed in figure 5, no differences were detected in the average school size attended by high school sophomores between 1980 and 2002. In both 1980 and 2002, about 62–63 percent of sophomores were enrolled in schools of 1,000 or more (table 9a).

Table 9a shows the percentage distribution of school size for sophomores in the three cohorts, overall and broken down by race/ethnicity and SES. Table 9b shows percentages distributions by sophomore class size. The proportion of sophomores overall in very large schools (2,500 or more enrollment) was 9 percent in both 1980 and 2002 and 6 percent in 1990. The proportion of Black students in very large (2,500 or more) schools declined from 18 percent in 1980 to 7 percent in 1990 and 1992. The proportion of Blacks in the very largest sophomore class category (700 or more students) declined from 25 percent in 1980 to 6 percent in 1990 (and 8 percent in 2002).

Figure 5. Percentage of high school sophomores, by school enrollment: 1980, 1990, and 2002



SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

[11] Gregory (2000) reported the last work advocating larger schools he found in his literature search was published in 1970.

Table 9a. Percentage distribution of school size for high school sophomores, by racial/ethnic group and socioeconomic status (SES): 1980, 1990, and 2002

Categories	1980	1990	2002
Total	100.0	100.0	100.0
All 2002 sophomores			
1 to 399 students	12.4	12.4	9.8
400 to 599 students	7.7	10.7	9.0
600 to 799 students	8.5	10.5	8.6
800 to 999 students	9.1	11.9	10.0
1,000 to 1,199 students	10.1	14.0	9.4
1,200 to 1,599 students	17.6	15.1	19.3
1,600 to 1,999 students	15.3	11.9	12.1
2,000 to 2,499 students	10.7	7.6	13.1
2,500 or more students	8.7	5.8	8.5
Race/ethnicity			
American Indian or Alaska Native			
1 to 399 students	20.3	17.7	19.3
400 to 599 students	11.5	14.7	19.6
600 to 799 students	9.0	4.8	4.0
800 to 999 students	6.4	8.4	17.2
1,000 to 1,199 students	6.5	22.9	6.2
1,200 to 1,599 students	23.5	16.2	8.5
1,600 to 1,999 students	12.7	5.8	11.7
2,000 to 2,499 students	6.5	3.4	10.0
2,500 or more students	3.6	6.0	3.4
Asian or Pacific Islander			
1 to 399 students	4.2	7.9	4.4
400 to 599 students	3.0	5.1	5.6
600 to 799 students	2.6	7.4	3.5
800 to 999 students	3.4	8.2	5.3
1,000 to 1,199 students	5.6	11.6	5.2
1,200 to 1,599 students	13.2	17.7	24.7
1,600 to 1,999 students	19.8	14.9	12.5
2,000 to 2,499 students	25.4	13.2	20.9
2,500 or more students	22.9	14.0	17.9
Black or African American			
1 to 399 students	6.5	8.3	4.8
400 to 599 students	7.3	5.3	7.6
600 to 799 students	4.7	8.8	8.9
800 to 999 students	9.2	12.2	9.6
1,000 to 1,199 students	7.5	17.8	12.1
1,200 to 1,599 students	16.2	19.3	21.6
1,600 to 1,999 students	18.2	13.2	15.9
2,000 to 2,499 students	12.0	8.0	12.7
2,500 or more students	18.3	7.0	6.9

See notes at end of table.

Table 9a. Percentage distribution of school size for high school sophomores, by racial/ethnic group and socioeconomic status (SES): 1980, 1990, and 2002—Continued

Categories	1980	1990	2002
Race/ethnicity—continued			
Hispanic or Latino			
1 to 399 students	8.7	6.7	5.4
400 to 599 students	5.5	6.8	4.7
600 to 799 students	7.7	5.1	3.7
800 to 999 students	6.9	5.7	6.1
1,000 to 1,199 students	8.2	7.6	6.1
1,200 to 1,599 students	14.8	10.9	15.9
1,600 to 1,999 students	16.1	23.8	14.0
2,000 to 2,499 students	16.9	13.7	23.4
2,500 or more students	15.2	19.9	20.7
White			
1 to 399 students	13.9	14.1	12.0
400 to 599 students	8.0	12.4	10.3
600 to 799 students	9.3	11.8	10.1
800 to 999 students	9.5	13.0	11.3
1,000 to 1,199 students	10.9	14.3	9.9
1,200 to 1,599 students	18.1	14.9	19.4
1,600 to 1,999 students	14.6	9.9	10.9
2,000 to 2,499 students	9.6	6.4	10.6
2,500 or more students	6.1	3.2	5.5
More than one race			
1 to 399 students	†	†	10.4
400 to 599 students	†	†	9.6
600 to 799 students	†	†	8.3
800 to 999 students	†	†	7.3
1,000 to 1,199 students	†	†	9.7
1,200 to 1,599 students	†	†	20.4
1,600 to 1,999 students	†	†	12.2
2,000 to 2,499 students	†	†	11.5
2,500 or more students	†	†	10.8
Socioeconomic status			
Lowest quarter			
1 to 399 students	12.9	12.4	11.1
400 to 599 students	9.8	12.4	9.6
600 to 799 students	8.7	10.5	9.2
800 to 999 students	10.3	11.0	10.2
1,000 to 1,199 students	8.7	12.6	9.2
1,200 to 1,599 students	15.6	14.5	17.2
1,600 to 1,999 students	14.6	11.9	10.3
2,000 to 2,499 students	9.5	6.6	13.5
2,500 or more students	10.1	8.1	9.8

See notes at end of table.

Table 9a. Percentage distribution of school size for high school sophomores, by racial/ethnic group and socioeconomic status (SES): 1980, 1990, and 2002—Continued

Categories	1980	1990	2002
Socioeconomic status—continued			
Middle two quarters			
1 to 399 students	12.3	13.0	10.7
400 to 599 students	8.3	10.7	9.4
600 to 799 students	8.6	10.5	8.3
800 to 999 students	8.9	12.5	10.1
1,000 to 1,199 students	10.4	14.8	9.1
1,200 to 1,599 students	18.2	15.8	19.4
1,600 to 1,999 students	15.2	10.8	12.3
2,000 to 2,499 students	10.3	6.7	12.6
2,500 or more students	7.8	5.1	8.0
Highest quarter			
1 to 399 students	12.6	11.3	6.8
400 to 599 students	4.8	10.0	7.5
600 to 799 students	8.4	11.0	8.7
800 to 999 students	8.8	12.1	9.6
1,000 to 1,199 students	11.2	14.0	10.3
1,200 to 1,599 students	18.2	14.3	21.3
1,600 to 1,999 students	15.6	13.2	13.5
2,000 to 2,499 students	12.1	9.3	13.7
2,500 or more students	8.3	4.8	8.5

† Not applicable.

NOTE: Detail may not sum to totals because of rounding. The racial/ethnic groups were modified for ELS:2002 to be consistent with Office of Management and Budget (OMB) requirements allowing for multiple race choices. Choosing more than one race was not permitted in HS&B and NELS:88. Respondents who identified themselves as being of Hispanic origin are classified as Hispanic, regardless of their race.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

Table 9b. Percentage distribution of sophomore class size for high school sophomores, by racial/ethnic group and socioeconomic status (SES): 1980, 1990, and 2002

Categories	1980	1990	2002
Total	100.0	100.0	100.0
All 2002 sophomores			
1 to 99 students	11.0	15.9	12.4
100 to 199 students	13.7	18.6	13.6
200 to 299 students	15.0	18.9	16.1
300 to 399 students	16.7	15.4	16.4
400 to 549 students	16.6	15.5	20.5
550 to 699 students	14.4	9.0	11.7
700 or more students	12.6	6.7	9.2
Race/ethnicity			
American Indian or Alaska Native			
1 to 99 students	16.5	27.8	21.2
100 to 199 students	11.3	18.0	19.9
200 to 299 students	26.0	18.0	20.2
300 to 399 students	9.8	13.3	7.8
400 to 549 students	20.6	11.9	17.6
550 to 699 students	8.5	4.1	9.4
700 or more students	7.2	6.9	3.9
Asian or Pacific Islander			
1 to 99 students	4.1	10.5	5.4
100 to 199 students	5.0	10.4	6.7
200 to 299 students	6.0	15.5	11.8
300 to 399 students	8.7	15.0	18.3
400 to 549 students	18.8	17.2	23.7
550 to 699 students	28.6	14.6	19.3
700 or more students	28.7	16.9	14.8
Black or African American			
1 to 99 students	5.1	7.1	5.4
100 to 199 students	9.7	15.9	14.8
200 to 299 students	12.4	22.0	16.6
300 to 399 students	16.4	18.8	21.2
400 to 549 students	16.2	18.6	23.0
550 to 699 students	15.2	11.4	11.4
700 or more students	25.0	6.3	7.7
Hispanic or Latino			
1 to 99 students	8.7	8.1	5.7
100 to 199 students	11.3	10.3	5.9
200 to 299 students	11.0	9.6	9.9
300 to 399 students	14.7	11.5	11.8
400 to 549 students	15.6	23.5	19.4
550 to 699 students	16.4	16.1	22.6
700 or more students	22.2	21.0	24.8
White			
1 to 99 students	12.3	18.6	16.1
100 to 199 students	14.9	20.6	15.7
200 to 299 students	15.9	19.9	18.0
300 to 399 students	17.2	15.4	16.6
400 to 549 students	16.7	13.8	19.8
550 to 699 students	13.8	7.4	8.5
700 or more students	9.2	4.3	5.3

See notes at end of table.

Table 9b. Percentage distribution of sophomore class size for high school sophomores, by racial/ethnic group and socioeconomic status (SES): 1980, 1990, and 2002—Continued

Categories	1980	1990	2002
Race/ethnicity—Continued			
More than one race			
1 to 99 students	†	†	14.2
100 to 199 students	†	†	14.7
200 to 299 students	†	†	15.0
300 to 399 students	†	†	14.8
400 to 549 students	†	†	22.8
550 to 699 students	†	†	9.9
700 or more students	†	†	8.6
Socioeconomic status			
Lowest quarter			
1 to 99 students	11.5	16.3	12.2
100 to 199 students	15.2	19.2	14.2
200 to 299 students	15.6	18.3	16.5
300 to 399 students	15.0	13.8	14.7
400 to 549 students	15.0	15.0	17.3
550 to 699 students	13.3	8.6	13.1
700 or more students	14.4	8.7	12.1
Middle two quarters			
1 to 99 students	11.0	16.1	12.8
100 to 199 students	14.2	18.8	14.2
200 to 299 students	15.3	20.8	16.0
300 to 399 students	16.4	15.3	16.2
400 to 549 students	17.3	15.1	21.3
550 to 699 students	14.2	8.3	11.0
700 or more students	11.6	5.7	8.5
Highest quarter			
1 to 99 students	10.9	15.7	12.0
100 to 199 students	12.0	18.5	12.1
200 to 299 students	14.3	16.2	16.1
300 to 399 students	19.2	17.1	18.5
400 to 549 students	16.5	15.8	21.9
550 to 699 students	15.3	10.1	11.5
700 or more students	11.7	6.5	7.9

† Not applicable.

NOTE: Detail may not sum to totals because of rounding. The racial/ethnic groups were modified for ELS:2002 to be consistent with Office of Management and Budget (OMB) requirements allowing for multiple race choices. Choosing more than one race was not permitted in HS&B and NELS:88. Respondents who identified themselves as being of Hispanic origin are classified as Hispanic, regardless of their race.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

2.3.3 School metropolitan status

Between 1980 and 2002, the percentage of sophomores who were in urban schools increased from 22 percent to 30 percent, and the percentage in rural schools decreased from 30 percent to 20 percent (table 10). Suburban schools enrolled 48 percent of sophomores in 1980 and 50 percent in 2002.

Between 1980 and 2002, the percentage of White sophomores in urban areas increased from 15 percent to 21 percent, and the percentage of sophomores from high SES households increased from 17 percent to 30 percent. Among Blacks, the percentage from rural areas declined from 19 percent to 10 percent, and the percentage in suburban areas increased from 32 percent to 41 percent. The percentage of Blacks in urban areas was 49 percent in both 1980 and 2002. Among Hispanic students, the percentage in rural areas declined from 22 percent to 9 percent, and the percentage in urban areas increased from 37 percent to 47 percent.

Table 10. Percentage of high school sophomores, by urbanicity, racial/ethnic group, and socioeconomic status (SES): 1980, 1990, and 2002

Characteristic	Urban			Suburban			Rural		
	1980	1990	2002	1980	1990	2002	1980	1990	2002
All sophomores	22.4	28.6	30.2	47.6	40.8	50.3	30.0	30.6	19.6
Racial/ethnic group									
American Indian or Alaska Native	14.2	18.4	22.3	36.0	22.9	47.9	49.9	58.7	29.8
Asian or Pacific Islander	37.9	46.6	43.7	54.5	42.9	49.5	7.6	10.5	6.8
Black or African American	49.1	54.2	49.3	31.6	25.0	40.6	19.3	20.8	10.1
Hispanic or Latino	37.4	48.7	46.6	41.1	30.3	44.9	21.5	21.0	8.5
More than one race	†	†	28.5	†	†	53.9	†	†	17.6
White	15.2	20.7	20.6	51.6	44.4	53.8	33.3	34.9	25.6
Socioeconomic status									
Lowest quarter	28.4	29.8	34.8	35.5	28.4	44.9	36.1	41.8	20.4
Middle two quarters	20.6	27.7	28.0	47.4	40.9	51.0	32.0	31.4	21.0
Highest quarter	16.6	29.9	29.8	61.8	49.8	54.2	21.6	20.3	16.0

† Not applicable.

NOTE: Detail may not sum to totals because of rounding. The racial/ethnic groups were modified for ELS:2002 to be consistent with Office of Management and Budget (OMB) requirements allowing for multiple race choices. Choosing more than one race was not permitted in HS&B and NELS:88. Respondents who identified themselves as being of Hispanic origin are classified as Hispanic, regardless of their race.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

2.3.4 School enrollment eligible for free or reduced-price lunch

While reports using data from the 2000 decennial Census document some declines in the percentage of U.S. children in poverty from the 1990 Census, they also note that the percentage of children living in severely distressed neighborhoods (defined in terms of poverty rates, families headed by a female, percentage of high school dropouts, and percentage of males detached from the workforce) increased between 1990 and 2000 (O'Hare and Mather 2003).[12] Related data from NELS:88 and ELS:2002 on the percentage of students in schools with various levels of students eligible for free or reduced-price lunches (data are not available for HS&B for

[12] In this regard, O'Hare and Mather (2003) note in *The Growing Number of Kids in Severely Distressed Neighborhoods: Evidence from the 2000 Census* that "between 1990 and 2000 there was a decrease in the number of children living in high-poverty neighborhoods, but the picture provided by the decrease in poverty levels alone is incomplete and potentially misleading. Using a more comprehensive measure of neighborhood quality we found that the number in severely distressed neighborhoods increases significantly between 1990 and 2000."

this item) indicate that the percentage of high school sophomores enrolled in schools with higher levels of free-lunch-eligible students was higher in 2002 than in 1990 (table 11).[13]

Table 11. Percentage of high school sophomores, by percentage free or reduced-price lunch eligibility in school: 1990 and 2002

Percentage of students eligible for free lunch in school	1990	2002
0 to 10	48.1	34.5
11 to 30	30.5	35.0
31 to 100	21.5	30.6

NOTE: Detail may not sum to totals because of rounding. Estimates of percentage eligible for free lunch based on information provided by school principals.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

2.4 Summary

Between 1980 and 2002, a number of changes occurred in the demographic makeup, family life, and schools attended by high school sophomores. Mirroring sociodemographic trends at the national level, there was increasing racial/ethnic diversity among high school sophomores: the percentage of Hispanic and Asian sophomores grew, while the percentage of White sophomores declined. Along similar lines, high school sophomores in 2002 were less likely than their peers in 1980 to speak English as their native language. The families of high school sophomores are also changing. Compared with their counterparts in 1980, high school sophomores in 2002 were less likely to live in traditional family structures but more likely to have college-educated parents. Lastly, there were small changes in the types of schools attended by sophomores. Over the 22-year period, the proportion of sophomores attending Catholic schools and schools in rural areas declined. Despite these changes, the size of the schools attended by sophomores remained relatively constant between 1980 and 2002.

[13] Some word of caution is needed in interpreting this finding due to free or reduced-price lunch eligibility reporting practices that may have changed over time.

Chapter 3
School Experiences

This chapter focuses on the school experiences of high school sophomores. It poses the question of how the school experience may have changed in terms of academic program, student preparedness, motivation, homework, student views of school including school safety, and computer use. These topics are discussed in turn under the headings listed below:

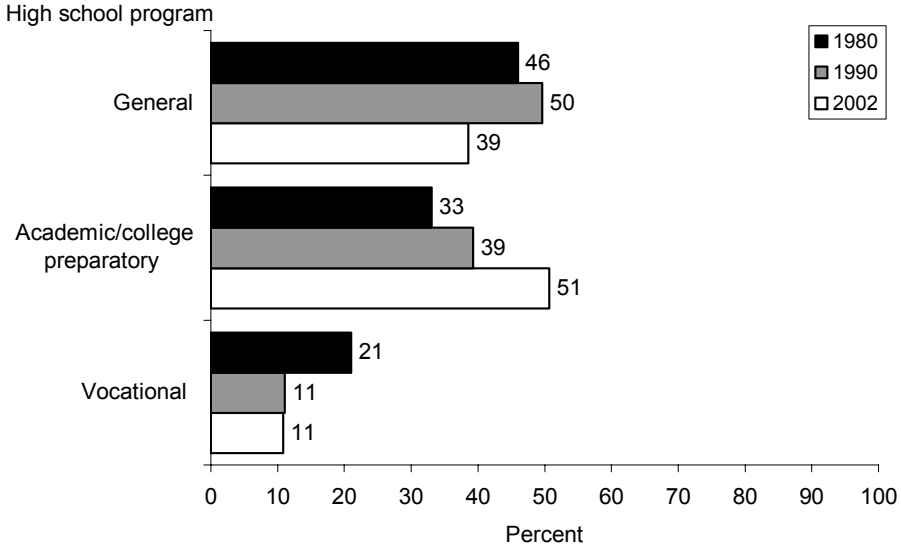
3.1 High School Program;
3.2 Selected Courses or Programs;
3.3 Homework and Student Motivation;
3.4 Views on School Safety, Climate, and Teaching; and
3.5 Computer Use.

3.1 High School Program

The period since 1980 when the High School and Beyond (HS&B) cohort were high school sophomores has been one of emphasis by government commissions on increasing both the quality and quantity of education. The recommendations from the often-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, and 47 states had mandated testing standards. A *Condition of Education* report on high school students written in the mid-1990s that used data from a number of sources, including HS&B, the National Education Longitudinal Study of 1988 (NELS:88), and National Assessment of Educational Progress (NAEP) transcripts, noted the increase in high school credits earned overall (21 to 24), with academic course units earned increasing from 14 to 17 between 1982 and 1992 (U.S. Department of Education 1994, 1995). However, there was a decrease in vocational course credits earned (5 to 4).

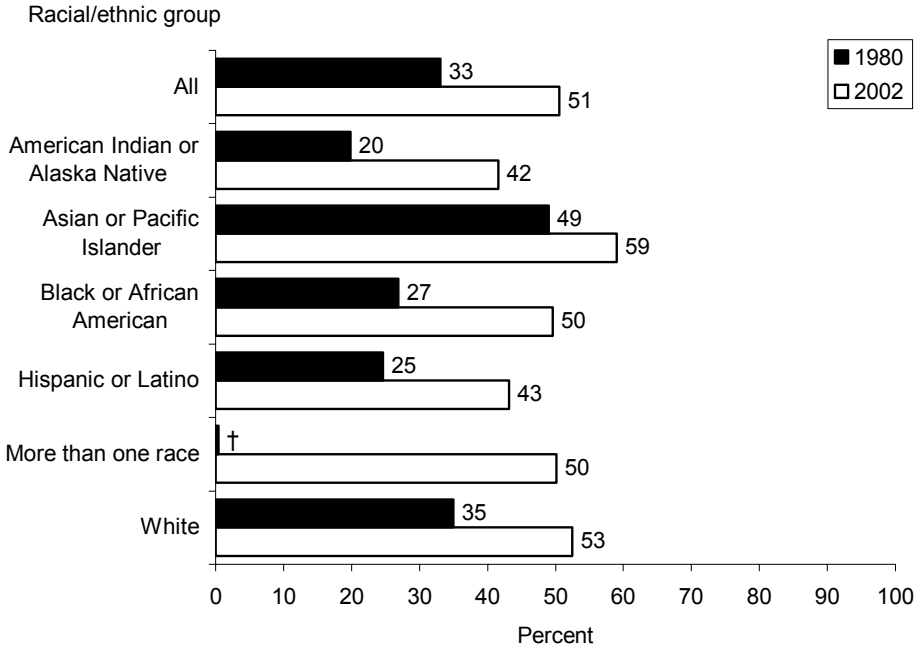
Between 1980 and 2002 the percentage of high school sophomores who reported that they were in a college preparatory or academic program increased from 33 percent to 51 percent (figure 6 and table 12). In the same time frame, the percentage enrolled in a vocational program declined from 21 percent to 11 percent. As demonstrated in figure 7, participation in college preparatory programs for Black sophomores increased from 27 percent to 50 percent. Among Hispanic sophomores, rates also increased, going from 25 percent to 43 percent. Participation in a college preparatory program climbed from 19 percent to 42 percent among those in the lowest quarter of the socioeconomic status (SES) distribution and from 13 percent to 35 percent among those whose composite (combined mathematics and reading) test scores place them in the lowest quarter of the achievement distribution (table 12). In 2002, students in Catholic (79 percent) and other private schools (74 percent) had higher rates of reporting they were in a college preparatory program than did public school students (49 percent).

Figure 6. Percentage of high school sophomores, by self-reported high school program: 1980, 1990, and 2002



NOTE: Detail may not sum to totals because of rounding. Estimates may differ from previously released estimates because of revisions made to the data file and/or changes in rounding procedures.
SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

Figure 7. Percentage of high school sophomores who reported they were in college preparatory or academic program, by racial/ethnic group: 1980 and 2002



† Not applicable.
NOTE: Estimates may differ from previously released estimates because of revisions made to the data file and/or changes in rounding procedures. The racial/ethnic groups were modified for ELS:2002 to be consistent with Office of Management and Budget (OMB) requirements allowing for multiple race choices. Choosing more than one race was not permitted in HS&B and NELS:88. Respondents who identified themselves as being of Hispanic origin are classified as Hispanic, regardless of their race.
SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

Table 12. Percentage of high school sophomores, by high school program and selected student characteristics: 1980, 1990, and 2002

Characteristic	General			College preparatory or academic			Vocational/technical/ business		
	1980	1990	2002	1980	1990	2002	1980	1990	2002
All sophomores	46.0	49.6	38.6	33.1	39.3	50.7	21.0	11.1	10.8
Sex									
Male	46.4	49.0	39.3	32.4	37.9	47.9	21.2	13.1	12.8
Female	45.1	50.1	37.8	35.8	40.7	53.5	19.1	9.2	8.7
Racial/ethnic group									
American Indian or Alaska Native	51.6	54.9	44.6	19.8	21.1	41.6	28.7	24.0	13.8
Asian or Pacific Islander	37.1	42.2	29.6	48.8	46.3	58.7	14.1	11.5	11.7
Black or African American	39.0	41.0	34.0	26.9	36.7	49.6	34.1	22.3	16.4
Hispanic or Latino	46.1	52.6	44.1	24.6	31.9	43.2	29.2	15.5	12.7
More than one race	†	†	40.5	†	†	50.1	†	†	9.4
White	47.4	50.8	38.6	35.0	40.6	52.5	17.6	8.6	8.9
Socioeconomic status									
Lowest quarter	51.5	53.4	42.8	19.0	25.1	41.6	29.5	21.5	15.7
Middle quarters	47.8	50.3	40.8	31.0	38.8	48.3	22.2	10.9	10.9
Highest quarter	36.8	43.8	29.9	53.8	53.1	64.5	9.4	3.1	5.5
Composite achievement test score									
Lowest quarter	50.1	56.7	48.0	12.8	17.0	35.0	37.0	26.3	17.0
Second quarter	54.1	57.5	44.5	22.4	29.0	42.4	23.5	13.5	13.1
Third quarter	48.1	49.9	36.8	37.0	42.5	55.3	14.9	7.6	7.9
Highest quarter	32.4	35.6	24.9	60.9	62.1	69.9	6.7	2.3	5.1
School sector									
Public	47.3	50.2	40.1	30.2	37.7	48.5	22.6	12.1	11.4
Catholic	32.3	35.3	18.4	61.9	62.5	79.0	5.8	2.2	2.7
Other private	36.9	48.4	22.5	57.6	50.5	74.4	5.5	1.2	3.2
Region									
Northeast	33.2	40.2	33.8	44.7	47.5	53.2	22.1	12.4	13.0
Midwest	44.8	55.2	44.0	31.8	35.7	46.9	23.4	9.0	9.1
South	51.5	46.7	33.1	27.1	39.9	55.3	21.4	13.4	11.5
West	52.2	54.9	44.8	32.3	36.8	45.6	15.5	8.3	9.6

† Not applicable.

NOTE: Detail may not sum to totals because of rounding. Estimates may differ from previously released estimates because of revisions made to the data file and/or changes in rounding procedures. The racial/ethnic groups were modified for ELS:2002 to be consistent with Office of Management and Budget (OMB) requirements allowing for multiple race choices. Choosing more than one race was not permitted in HS&B and NELS:88. Respondents who identified themselves as being of Hispanic origin are classified as Hispanic, regardless of their race.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

3.2 Selected Courses or Programs

Each of the sophomore student surveys has asked students a few questions about specific kinds of courses they may have taken in high school. *America's High School Sophomores: A Ten Year Comparison* (Rasinski et al. 1993) reported on four types of courses or programs (remedial English, remedial math, bilingual or bicultural education, and advanced or honors courses and Advanced Placement) (table 13). Similar but not identical questions were asked in each of the studies, and the reader is cautioned that these changes may have resulted in changes in self-reported survey response.

3.2.1 Remedial courses

The percentage of sophomores reporting taking remedial courses declined over the period—for remedial English, going from 35 percent in 1980 to 19 percent in 1990 to 9 percent in 2002 and, for remedial math, going from 35 percent to 20 percent to 10 percent in the same years (table 13). There were some differences in the way questions about remediation were asked across the studies that may conceivably have affected responses. The 1980 and 1990 items read "Remedial English (sometimes called basic or essential)" and "Remedial Math (sometimes called basic or essential)." For 2002, the corresponding item simply read "Remedial English" or "Remedial Math," and the phrase "sometimes called basic or essential" was omitted. It may be that the omission of the phrase was related to some of the decline between 1990 and 2002; however, a decline was also observed between 1980 and 1990 when the wording was the same.

3.2.2 Bilingual or bicultural education; English as a Second Language

Between 1980 and 2002, there was an increase in the number of sophomores who reported that they took bilingual or bicultural education,[14] going from 12 percent in 1980 to 17 percent in 1990 to 28 percent in 2002 (table 13). At each point in time, participation in these courses was higher among those in the highest SES and achievement (composite test score combining reading and mathematics) quarters. For example, in 2002, participation in bilingual or bicultural education was 36 percent in the highest and 20 percent in the lowest SES quarter and 44 percent in the highest and 13 percent in the lowest achievement quarter. In 2002, 27 percent of Hispanic sophomores and 28 percent of Asian sophomores participated in bilingual or bicultural education. English as a Second Language (ESL) was a separate item in the same series of questions in 1990 and 2002 but not in 1980. In 1990, about 12 percent of sophomores reported being in ESL programs, and in 2002 about 8 percent so reported. For Catholic school sophomores, ESL declined (from 11 percent to 6 percent between 1990 and 2002) while at the same time bilingual education participation increased (from 25 percent to 46 percent). Likewise for White students, between 1990 and 2002 ESL declined (from 11 percent in 1990 to 6 percent in 2002) while bilingual education participation increased (from 17 percent in 1990 to 31 percent in 2002).

[14] Bilingual/bicultural education emphasizes the use of two languages in the educational setting and program.

Table 13. Percentage of high school sophomores who report having been in various kinds of courses or programs in high school, by selected student characteristics: 1980, 1990, and 2002

Characteristic	Remedial English			Remedial math			Bilingual or bicultural education			English as a second language (ESL)			Advanced or honors programs (1980), AP (1990), AP and IB (2002)		
	1980	1990	2002	1980	1990	2002	1980	1990	2002	1980	1990	2002	1980	1990	2002
All sophomores	34.5	19.0	8.5	34.7	19.9	9.9	11.8	17.0	28.2	—	12.2	8.1	31.6	27.6	18.7
Sex															
Male	36.7	22.0	10.1	35.8	21.3	11.5	11.9	16.9	26.9	—	12.7	7.9	31.2	27.0	18.2
Female	31.7	16.1	6.9	32.7	18.6	8.4	12.3	17.0	29.5	—	11.7	8.3	33.1	28.2	19.2
Racial/ethnic group															
American Indian or Alaska Native	44.1	21.9	4.6	45.2	27.0	9.9	10.2	14.6	16.6	—	34.0	7.0	25.0	22.5	8.2
Asian or Pacific Islander	31.8	18.2	8.0	30.4	17.5	9.6	13.5	19.8	27.9	—	19.4	16.9	45.3	33.3	23.0
Black or African American	32.7	18.6	8.8	37.3	21.1	11.3	7.9	10.5	18.7	—	11.7	8.3	29.8	28.3	16.9
Hispanic or Latino	36.1	24.8	10.2	39.3	27.8	11.2	15.5	21.0	26.9	—	18.3	16.6	27.0	25.7	19.0
More than one race	†	†	9.3	†	†	11.8	†	†	28.1	—	†	6.7	†	†	18.9
White	34.5	18.1	8.0	33.6	18.6	9.2	12.2	17.4	30.9	—	10.5	5.5	32.2	27.5	19.0
Socioeconomic status															
Lowest quarter	39.5	25.9	10.1	41.0	28.6	12.0	8.2	12.1	20.0	—	16.8	13.1	23.2	19.1	14.3
Middle quarters	36.0	18.6	8.4	35.6	19.6	9.7	11.0	17.3	28.3	—	11.3	7.3	30.7	26.0	17.2
Highest quarter	25.7	11.0	7.2	25.1	10.4	8.4	17.6	20.0	36.0	—	8.0	4.9	43.5	38.2	26.1
Composite achievement test score															
Lowest quarter	42.3	35.9	14.6	46.1	40.2	16.0	6.7	7.6	12.8	—	20.1	16.6	18.9	12.4	11.1
Second quarter	41.8	21.8	7.4	44.1	24.4	9.6	6.3	13.1	20.9	—	14.3	8.8	20.2	18.2	12.1
Third quarter	34.7	12.8	6.7	31.8	12.0	8.5	11.7	19.9	34.3	—	10.7	5.2	31.6	27.2	18.5
Highest quarter	18.7	5.7	5.4	15.3	4.0	5.7	22.7	24.8	44.1	—	4.8	2.3	56.1	51.5	32.6
School sector															
Public	34.6	18.5	8.3	34.6	19.4	9.8	11.1	16.1	27.0	—	12.1	8.3	31.3	27.3	18.7
Catholic	31.8	17.2	12.4	33.7	19.5	13.5	22.0	25.2	45.6	—	11.0	5.0	37.0	35.3	19.3
Other private	37.1	20.1	8.0	37.6	20.9	8.2	12.0	20.3	37.1	—	9.1	6.8	30.0	29.7	17.3

See notes at end of table.

Table 13. Percentage of high school sophomores who report having been in various kinds of courses or programs in high school, by selected student characteristics: 1980, 1990, and 2002—Continued

Characteristic	Remedial English			Remedial math			Bilingual or bicultural education			English as a second language (ESL)			Advanced or honors programs (1980), AP (1990), AP and IB (2002)		
	1980	1990	2002	1980	1990	2002	1980	1990	2002	1980	1990	2002	1980	1990	2002
Region															
Northeast	29.5	13.1	9.0	31.4	16.0	10.8	15.3	19.0	33.1	—	9.4	8.7	33.2	28.5	15.4
Midwest	40.0	22.1	9.1	37.8	22.1	9.6	11.7	18.5	28.7	—	12.8	7.8	31.1	24.7	17.6
South	32.5	16.5	7.8	33.4	17.9	9.6	8.7	13.0	25.1	—	11.8	7.5	29.5	28.9	21.8
West	35.8	22.5	8.6	36.4	22.2	10.1	13.2	19.2	28.1	—	13.3	9.1	34.0	29.4	18.0

— Not available.

† Not applicable.

NOTE: The racial/ethnic groups were modified for ELS:2002 to be consistent with Office of Management and Budget (OMB) requirements allowing for multiple race choices. Choosing more than one race was not permitted in HS&B and NELS:88. Respondents who identified themselves as being of Hispanic origin are classified as Hispanic, regardless of their race. There were some important differences in questionnaire wording that may have influenced the responses for the questions on remedial courses and Advanced Placement courses, and caution is needed in interpreting the changes between 1980, 1990, and 2002. For remedial English and math, the 1980 and 1990 items read "Remedial English (sometimes called basic or essential)" and "Remedial Math (sometimes called basic or essential)." For 2002, the corresponding item simply read "Remedial English" or "Remedial Math," and the phrase "sometimes called basic or essential" was omitted. The advanced programs items in 1980 read "Advanced or honors program in English/Math." In 1990, the corresponding item read "Advanced placement program." In 2002, two separate but more specific items were included: "Advanced Placement (AP)" and "International Baccalaureate (IB)." These two (AP and IB) were combined for the 2002 tabulation.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

3.3 Homework and Student Motivation

3.3.1 Homework

The period between 1980 and 2002 has been one in which several reports on achieving excellence in education have called for teachers to increase homework and for school administrators to establish demanding homework requirements, especially in the upper grades (see, for example, Cooper 1989a, 1989b, 1999; Hofferth 1998; Hofferth and Sandberg 2000; Keith 1982). The recommendations for additional homework addressed two aspects of school reform: (1) providing increased time for learning and increased "time on task," and (2) providing increased home and parent involvement in education (see, for example, Black 1996; Cotton and Savard 1981; Green 1995; Hossler, Stage, and Gallagher 1988; Paschal, Weinstein, and Walberg 1984; U.S. Department of Education 1997).

With the emphasis on increased "time on task" as fostering increased educational achievement, the question can be asked if the three studies provide evidence that high school students report spending more time on homework as they earn more credits on average by graduation. A secondary question is whether there is evidence of students being provided with increased seatwork time during the school day to work on "homework" assignments.

The homework questions were asked in a somewhat different manner in each of the three surveys, and these differences are reflected in the type of statistics that can be used to answer the above posed questions. The survey items in the three studies differed in two ways: whether the questions distinguished between homework done in and out of school, and whether the response categories were specified or students entered an estimated amount directly. In 1980, using the predefined response categories listed in table 14, students were asked, "What is the average time per week you spend on homework?" There was no differentiation between homework completed out of school and time spent in school on homework assignments. In 1990, students were asked to report separately on time spent on homework in school and out of school, and the time response categories were more numerous than in 1980. In 2002, students were again asked to report separately for in-school and out-of-school completed homework; however, differing from 1980 and 1990, students were asked the question in an open-ended format in which they entered the hours themselves. To allow comparisons, table 14 presents the 2002 data in the 1980 time categories for all homework and in the 1990 groupings for the separate items on in-school and out-of-school homework. Given these differences in the way the data were measured, however, caution must be used in interpreting the information. For example, reporting on in-school homework, as well as the open-ended format, may have resulted in a reporting of more time spent in 2002.[15]

[15] Survey questionnaire research and design guides suggest that using predetermined categories for knowledge questions requiring numerical answers can control extremes but may introduce social desirability bias, because they can clue respondents into the expected averages. Using open-ended questions can avoid either giving away the answer or misleading the respondent but will usually result in a larger proportion of extreme values. See Burton and Blair (1991); Schwarz and Sudman (1996); Sirken et al. (1999); Sudman and Bradburn (1983).

Table 14. Percentage of high school sophomores' time spent on homework per week, by sex and location completed: 1980, 1990, and 2002

Time spent per week	All			Male			Female		
	1980	1990	2002	1980	1990	2002	1980	1990	2002
All homework (1980 categories)									
Less than 1 hour a week	16.6	—	1.5	20.8	—	2.3	12.9	—	0.7
Between 1 and 3 hours	29.4	—	21.4	31.1	—	24.1	27.9	—	18.6
More than 3 but less than 5 hours	25.2	—	14.0	24.0	—	14.4	26.3	—	13.5
Between 5 and 10 hours	21.9	—	26.3	18.2	—	26.3	25.2	—	26.3
More than 10 hours	6.9	—	36.8	6.0	—	32.9	7.7	—	40.8
Out-of-school homework (1990 categories)									
None	—	7.2	7.3	—	9.8	10.8	—	4.6	3.9
1 hour or less a week	—	24.8	16.1	—	28.4	18.6	—	21.2	13.5
2–3 hours	—	28.4	25.5	—	26.5	24.6	—	30.3	26.5
4–6 hours	—	16.9	20.0	—	16.3	18.9	—	17.5	21.1
7–9 hours	—	8.8	7.9	—	8.0	7.7	—	9.6	8.2
10–12 hours	—	6.9	11.8	—	5.7	10.4	—	8.0	13.2
13–15 hours	—	3.7	4.8	—	2.6	3.7	—	4.7	6.0
More than 15 hours	—	3.4	6.5	—	2.6	5.4	—	4.1	7.6
In-school homework (1990 categories)									
None	—	9.7	7.0	—	10.3	7.6	—	9.1	6.4
1 hour or less a week	—	37.0	21.6	—	37.2	22.8	—	36.9	20.4
2–3 hours	—	24.0	27.7	—	24.1	28.0	—	23.9	27.4
4–6 hours	—	16.3	21.6	—	15.4	20.8	—	17.1	22.4
7–9 hours	—	6.0	7.4	—	5.9	7.0	—	6.1	7.8
10–12 hours	—	2.6	6.5	—	2.7	6.5	—	2.5	6.4
13–15 hours	—	1.5	2.2	—	1.6	2.0	—	1.4	2.4

— Not available.

NOTE: Detail may not sum to totals because of rounding. Time on homework per week was asked in a different manner in each of the three surveys, and comparisons must be made with caution. HS&B did not differentiate between homework completed in school and out of school and used the predefined response categories listed above. NELS:88 asked separate questions on in-school and out-of-school homework using the predefined categories listed above. ELS:2002 asked separate questions on in-school and out-of-school homework using an open format without predefined response choices. In this table, ELS:2002 responses have been grouped into the HS&B and NELS:88 categories.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

With these qualifications, the percentage of students reporting spending more than 10 hours per week on all homework was 7 percent in 1980 and 37 percent in 2002, and the percentage spending more than 3 hours per week went from 54 percent in 1980 to 77 percent in 2002 (table 14). In both years, female students reported spending more hours than males. For example, in 1980, 59 percent of females and 48 percent of males reported spending 3 or more hours on homework; in 2002, 81 percent of females and 74 percent of males so reported.

As noted above, information on "out-of-school" and "in-school" homework hours was asked in separate questions in 1990 and 2002, with 1990 using a closed-category response option and 2002 asking for students to write in hours. In this format, 7 percent of sophomores reported spending no time on afterschool homework in both 1990 and 2002. However, the percentages of students reporting that they spent large numbers of hours increased between 1990 and 2002. For example, the percentage who reported spending 10 or more hours on out-of-school homework increased from 14 percent to 23 percent. The percentage spending 3 hours or less per week on out-of-school homework decreased from 60 percent to 49 percent. It is not clear, however, whether these apparent increases are due to an increase in actual time spent or to the difference between a closed format and an open-ended format for reporting homework.

3.3.2 Student motivation

As an indicator of student motivation and preparedness for class, on each of the three surveys, high school sophomores were also asked how often they came to school without books; without paper, pen, or pencil; and without their homework. Table 15 displays the percentage saying they "usually" or "often" came to school without these things. Comparing 1980 and 2002, the percentage reporting coming to school without books increased from 9 percent in 1980 to 17 percent in 2002. No clear pattern is shown, however, as percentages were lower in 1990 than in 1980 or 2002 for each of these items.

In both 1980 and 2002, 17 percent of Catholic and 18 percent of other private school sophomores reported usually or often coming to school without homework (table 15). Males were more likely to report usually or often coming to school without homework than females in both 1980 and 2002 (for example, 31 percent of males and 21 percent of females in 2002).

Among racial/ethnic groups, the percentages reporting usually or often coming to school without homework ranged from 23 percent among Whites to 35 percent among Hispanics in 2002. By SES status, the range was from 20 percent among the highest SES group to 32 percent among the lowest SES group in 2002. By composite achievement test score, the percentages usually or often coming to school without homework ranged from 18 percent among the highest scoring group to 38 percent among the lowest scoring group in 2002.

Table 15. Percentage of high school sophomores saying they usually or often come to school unprepared, by selected student characteristics: 1980, 1990, and 2002

Characteristic	Come to school without books			Come to school without paper, pen, or pencil			Come to school without homework		
	1980	1990	2002	1980	1990	2002	1980	1990	2002
All sophomores	8.5	6.4	16.8	15.1	10.5	17.5	22.1	18.0	25.9
Sex									
Male	10.4	7.8	18.5	19.6	15.3	22.0	27.0	22.3	30.5
Female	6.0	5.0	15.1	10.2	5.8	13.1	16.8	13.8	21.3
Racial/ethnic group									
American Indian or Alaska Native	17.5	10.9	26.5	25.9	11.6	24.5	30.9	21.5	25.7
Asian or Pacific Islander	12.9	9.4	18.9	14.6	10.9	18.4	17.0	17.3	26.3
Black or African American	13.6	8.1	23.4	17.5	9.8	22.5	22.9	16.0	28.6
Hispanic or Latino	13.7	11.1	25.7	20.1	14.2	25.5	27.7	20.5	34.5
More than one race	†	†	18.9	†	†	21.8	†	†	29.5
White	6.7	5.1	12.5	14.0	10.1	13.8	21.2	18.0	22.7
Socioeconomic status									
Lowest quarter	11.3	7.9	21.8	16.9	10.4	21.1	25.0	20.0	31.8
Middle two quarters	7.7	6.6	16.1	14.2	10.0	17.1	21.5	18.4	25.8
Highest quarter	5.4	4.1	13.4	13.7	10.7	14.9	18.4	15.0	20.2
Composite achievement test score									
Lowest quarter	17.1	12.9	29.5	21.9	15.4	29.6	28.5	23.8	37.8
Second quarter	7.9	6.5	15.9	14.2	9.9	16.4	22.7	19.1	26.1
Third quarter	4.9	4.1	12.2	12.1	8.1	13.0	19.7	16.2	22.1
Highest quarter	3.0	2.5	9.7	10.8	8.1	11.1	16.2	14.3	17.7
School sector									
Public	8.9	6.6	17.4	15.2	10.3	17.9	22.6	18.5	26.6
Catholic	4.6	3.3	10.2	14.7	10.4	14.1	17.2	12.5	16.9
Other private	5.4	6.0	10.2	13.6	17.3	12.2	17.7	18.2	17.6
Region									
Northeast	9.1	5.3	17.1	14.6	9.9	16.4	21.3	17.1	24.2
Midwest	6.8	4.9	13.2	14.4	8.1	15.7	21.4	17.9	23.1
South	9.2	6.7	17.0	15.8	11.5	17.9	21.9	17.3	25.5
West	9.2	8.6	20.2	15.7	12.6	19.8	24.6	20.7	30.8

† Not applicable.

NOTE: Estimates may differ from previously released estimates because of revisions made to the data file and/or changes in rounding procedures. The racial/ethnic groups were modified for ELS:2002 to be consistent with Office of Management and Budget (OMB) requirements allowing for multiple race choices. Choosing more than one race was not permitted in HS&B and NELS:88. Respondents who identified themselves as being of Hispanic origin are classified as Hispanic, regardless of their race.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

3.4 Views on School Safety, Climate, and Teaching

3.4.1 School safety and climate

When asked whether they agreed with the statement "I don't feel safe at this school," 12 percent of high school sophomores agreed or strongly agreed with the statement in both 1980 and 2002 (table 16). In 1990, 8 percent agreed with the statement. In 2002, a greater percentage of Black sophomores indicated that they agreed with the statement that they did not feel safe, compared with the national average. A smaller percentage of sophomores in Catholic and other private schools agreed with the statement "I don't feel safe at this school" than sophomores in public schools in 2002 (4 percent and 13 percent, respectively).

A related question on whether the sophomores agreed or not with the statement "disruptions by other students get in the way of learning" was asked in 1990 and 2002, but not in 1980. This question showed an increase between 1990 and 2002 in the percentage reporting they agreed or strongly agreed with the statement concerning disruptions (40 and 46 percent, respectively).

3.4.2 Opinion on teaching quality

When asked whether they agreed with the statement "the teaching is good at this school," 82 percent of sophomores in 1990 and 81 percent in 2002 indicated that they agreed or strongly agreed (table 16). In 2002, the percentages agreeing that the teaching was good at the school were higher in Catholic and private schools than in public schools (91 percent, 90 percent, and 80 percent, respectively). Similar differences between public and private schools were evident in 1990.

For students having various levels of expectation for educational attainment (high school diploma or less, two years of college or vocational school, college graduate, or graduate or professional degree), differences in opinion on teaching quality were observed. A greater percentage of students having higher expectations for educational attainment agreed that teaching was good in both 1990 and 2002. For example, in 2002 and 1990, the percentage agreeing that teaching is good was 69 percent and 73 percent, respectively, among those who expected "high school or less," while in both 2002 and 1990, 85 percent of high school sophomores who expected a "graduate or professional degree" agreed that the teaching was good.

3.5 Computer Use

No discussion of the high school experience over the period of 1980 to 2002 would be complete without indication of the growth in use of computers and the Internet within the school and also generally within the homes and lives of the students. Indeed, the differences in the questionnaire items included on the surveys for HS&B, NELS:88, and ELS:2002 are indicative of changes in this area. In 1980, when HS&B was initiated, there were no questions on the baseline sophomore survey on the use of personal computers in school or at home. One question asked students if they planned to take high school courses in a number of vocational course areas, and the option "computer programming or computer operations" was included among the

response choices. In 1980, about 15 percent of HS&B sophomores indicated that they planned to take these courses in high school (data published in *High School and Beyond Data File User's Manual* [Jones et al. 1983]). There was also a question on planned postsecondary education that asked, "If you were to go to a trade or vocational school, what field would you be most likely to train?" About 7 percent (second only to secretarial or stenographic typing or other office work with 10 percent) said they would be likely to study computer programming—similar to the percentage saying automobile mechanic. "Computer programmer" was among the occupations listed as an example under the general category of "Technical Occupations" in the occupation questions on the survey. The HS&B sophomore survey did not include items on use of calculators or computers in the schools.

Table 16. Percentage of high school sophomores who agreed or strongly agreed with selected statements about the school's climate and teaching, by selected student characteristics: 1980, 1990, and 2002

Characteristic	I don't feel safe at this school			Disruptions by other students get in the way of my learning		The teaching is good	
	1980	1990	2002	1990	2002	1990	2002
All sophomores	12.1	8.2	11.9	40.0	45.7	82.0	80.6
Sex							
Male	13.4	8.9	12.7	38.8	43.6	80.6	79.0
Female	10.8	7.5	11.1	41.3	47.8	83.3	82.2
Racial/ethnic group							
American Indian or Alaska Native	13.3	11.1	17.1	55.3	52.2	80.3	77.2
Asian or Pacific Islander	13.8	10.2	11.9	46.1	54.4	85.3	84.3
Black or African American	17.6	13.0	17.4	51.4	54.7	82.9	75.6
Hispanic or Latino	16.2	11.4	16.6	44.7	50.3	85.1	81.2
More than one race	†	†	14.9	†	48.2	†	77.9
White	10.7	6.8	9.1	36.8	41.4	81.2	81.6
Socioeconomic status							
Lowest quarter	15.5	10.5	16.4	44.9	51.9	82.6	79.4
Middle two quarters	11.6	8.0	12.0	41.3	45.4	80.6	79.6
Highest quarter	8.6	5.6	7.3	31.9	40.2	84.2	83.9
Parents' education							
High school or less	13.1	9.4	15.2	43.9	50.4	82.1	79.7
Some college	10.9	8.2	12.0	40.8	45.6	80.6	79.4
College graduation	8.7	6.5	9.7	33.5	42.5	82.9	82.2
Graduate degree	8.4	5.0	9.2	32.5	42.3	84.8	82.7
Native language[1]							
English	12.0	7.7	11.1	39.3	44.3	81.7	80.1
Non-English	14.9	11.4	16.7	46.6	54.4	84.9	83.6
Student's educational expectations							
High school or less	17.5	13.5	22.8	40.1	50.7	72.5	68.6
Some college	11.6	9.8	16.7	44.1	46.6	79.4	76.2
College graduation	8.0	6.1	9.6	37.9	44.7	84.5	81.5
Graduate or professional degree	8.9	6.9	9.1	37.8	45.0	85.3	85.4
Don't know	†	11.3	16.2	43.1	46.6	80.3	74.5

See notes at end of table.

Table 16. Percentage of high school sophomores who agreed or strongly agreed with selected statements about the school's climate and teaching, by selected student characteristics: 1980, 1990, and 2002—Continued

Characteristic	I don't feel safe at this school			Disruptions by other students get in the way of my learning		The teaching is good	
	1980	1990	2002	1990	2002	1990	2002
Composite achievement test score							
Lowest quarter	19.3	14.0	21.1	49.9	55.3	75.7	73.9
Second quarter	12.9	8.9	12.7	45.4	49.0	80.3	78.3
Third quarter	9.8	6.4	8.6	37.3	42.5	83.9	82.5
Highest quarter	6.2	3.7	5.2	29.4	35.9	86.1	87.7
School sector							
Public	12.5	8.6	12.6	40.6	46.7	81.0	79.8
Catholic	8.2	4.4	3.1	36.5	35.3	89.5	90.9
Other private	8.8	2.5	3.8	28.3	29.8	89.3	90.4
Region							
Northeast	12.7	6.8	9.9	38.4	46.9	80.9	80.7
Midwest	10.6	6.3	10.8	35.4	44.0	81.8	81.2
South	13.6	10.2	12.6	44.7	46.9	81.9	80.2
West	11.1	7.9	13.7	38.9	44.6	82.6	80.7
Urbanicity							
Urban	14.1	10.5	14.1	42.8	47.7	85.0	79.6
Suburban	10.7	6.9	11.6	37.7	45.4	80.4	81.7
Rural	11.8	7.4	9.4	40.2	43.4	80.9	79.5

† Not applicable.

[1] The first language students learned to speak when they were children.

NOTE: Estimates may differ from previously released estimates because of revisions made to the data file and/or changes in rounding procedures. The racial/ethnic groups were modified for ELS:2002 to be consistent with Office of Management and Budget (OMB) requirements allowing for multiple race choices. Choosing more than one race was not permitted in HS&B and NELS:88. Respondents who identified themselves as being of Hispanic origin are classified as Hispanic, regardless of their race.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

By NELS:88, the 1990 high school sophomore questionnaire contained a number of questions about computer-related courses, including whether they had taken any course in computer science in 9th or 10th grade (82 percent indicated that they had not taken this course by the end of 10th grade—data published in the *NELS:88 First Follow-Up Student Component Data Files* [Ingels et al. 1992b]). Sophomores in 1990 were also asked if they had taken "computer literacy" or "computer education," and 88 percent and 72 percent, respectively, indicated that they had not taken these courses. NELS:88 sophomores were asked how often they used computers in "writing up experiments or science reports" (88 percent indicated "never or very rarely"), used computers for scientific "models and simulations" (91 percent indicated never or very rarely), and used computers in "collecting or analyzing science data" (91 percent indicated "never or very rarely") (Ingels et al. 1995). Students were also asked how often they used calculators and computers in math class. The latter two questions were repeated on ELS:2002

and give indication of the change from 1990 to 2002 (table 17). In addition, 1990 sophomores from NELS:88 were asked how often they used a computer outside of school, and 70 percent indicated that they never or rarely used a computer (estimate not shown in table).

By ELS:2002, the interest in and number of questionnaire items on computer use had increased. Students were asked not only if they used calculators and computers in math class, but how often they used computers in various ways in mathematics class and about the frequency of their use in various other subjects. In addition, new items were included on hours spent per day using computers for schoolwork and for other than schoolwork. Sophomores in 2002 were also asked how often they used a computer in various places (home, school, library, etc.). The presence of computers in schools was almost universal by 2002, with 98 percent indicating that a computer was available to them for use at school and 89 percent indicating that they had a computer at home (Ingels, Burns et al. 2005). By racial or ethnic group, the presence of a computer at home ranged from 78 percent among Hispanic and American Indian sophomores to 94 percent among Asian and White students. Students reported using the computer an average of 1.2 hours per day for schoolwork and 2.2 hours per day for nonschoolwork in 2002. For a more detailed description of the responses to these items, the reader is referred to the report of ELS:2002 cross-sectional findings, *A Profile of the American High School Sophomore in 2002* (Ingels, Burns et al. 2005).

Table 17 presents selected items that are comparable from NELS:88 and 2002. From 1990 to 2002, the percentage of sophomores reporting that they never used calculators and computers in math class decreased from 28 percent to 6 percent for calculators and from 84 percent to 61 percent for computers.

3.6 Summary

Between 1980 and 2002, the percentage of high school sophomores enrolled in a college preparatory or academic program rose. In accord with this increased academic focus, sophomores in 2002 spent more time on their homework than did sophomores in 1980. In contrast, however, sophomores in 2002 were more likely to attend class without books or supplies than their peers 22 years earlier. Along with the dramatic expansion in technology over the past 3 decades, computer use has become almost universal in the schools attended by sophomores (DeBell and Chapman 2003; Parsad and Jones 2005). Although they increasingly enroll in academic/college preparatory courses, spend more time on their homework, and have access to a computer in their school, their perceptions of school safety and teacher quality remained stable across the three cohorts: the majority of sophomores feel safe in their schools and report that the teaching is good.

Table 17. Percentage of high school sophomores' use of and exposure to calculators and computers, by selected student characteristics: 1990 and 2002

Characteristic	Never used in math class			
	Calculators		Computers	
	1990	2002	1990	2002
All sophomores	27.8	6.0	84.1	60.7
Sex				
Male	27.3	7.4	82.4	58.5
Female	28.2	4.6	85.7	62.8
Racial/ethnic group				
American Indian or Alaska Native	37.1	11.6	75.6	51.1
Asian or Pacific Islander	28.6	5.1	82.9	61.0
Black or African American	35.7	7.3	82.6	51.3
Hispanic or Latino	32.2	11.0	82.5	58.2
More than one race	†	6.0	†	60.7
White	25.6	4.4	82.5	58.2
Socioeconomic status				
Lowest quarter	32.8	8.7	82.2	54.8
Middle quarters	27.9	5.8	85.4	62.1
Highest quarter	23.2	3.7	85.2	63.5
Parents' education				
High school or less	31.6	8.5	84.4	57.8
Some college	27.3	5.7	84.3	60.3
College graduation	24.9	5.0	86.4	62.6
Graduate degree	22.7	3.8	84.8	63.5
Native language[1]				
English	27.1	5.3	84.6	61.6
Non-English	32.7	10.6	82.9	54.8
Student's educational expectations				
High school or less	31.0	13.3	82.4	54.0
Some college	31.2	8.0	82.5	57.0
College graduation	26.8	4.7	85.8	61.2
Graduate or professional degree	24.0	4.0	84.3	61.7
Don't know	26.5	9.9	82.5	63.8
Composite achievement test score				
Lowest quarter	33.7	10.9	77.4	48.4
Second quarter	32.0	5.7	85.6	61.1
Third quarter	29.6	4.2	89.0	64.7
Highest quarter	18.8	3.3	85.4	68.4

See notes at end of table.

Table 17. Percentage of high school sophomores' use of and exposure to calculators and computers, by selected student characteristics: 1990 and 2002—Continued

Characteristic	Never used in math class			
	Calculators		Computers	
	1990	2002	1990	2002
School sector				
Public	27.6	5.9	84.1	60.3
Catholic	29.9	6.8	88.1	66.5
Other private	31.4	6.9	88.8	63.8
Region				
Northeast	45.4	5.6	86.0	63.9
Midwest	15.7	3.9	83.2	59.8
South	31.7	5.7	85.3	59.5
West	19.9	9.0	83.4	60.6
Urbanicity				
Urban	31.2	7.2	84.6	59.8
Suburban	27.3	5.7	85.4	61.6
Rural	25.7	5.0	83.2	59.7

† Not applicable.

[1] The first language students learned to speak when they were children.

NOTE: The racial/ethnic groups were modified for ELS:2002 to be consistent with Office of Management and Budget (OMB) requirements allowing for multiple race choices. Choosing more than one race was not permitted in NELS:88. Respondents who identified themselves as being of Hispanic origin are classified as Hispanic, regardless of their race. Response categories were somewhat different in NELS:88 and ELS:2002 on the use of calculators and computers in mathematics class. Three response categories were used in NELS:88 (never, sometimes, and often). ELS:2002 used five categories (never, rarely, less than once a week, once or twice a week, every day or almost every day).

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

Chapter 4
Tested Achievement

4.1 Overview

The three National Center for Education Statistics (NCES) high school longitudinal studies that have included a sophomore cohort (High School and Beyond [HS&B], the National Education Longitudinal Study of 1988 [NELS:88], and the Education Longitudinal Study of 2002 [ELS:2002]) each tested achievement at the sophomore level.[16] Although some differences exist between the test batteries used in the studies, there are also common items and similar specifications for the curricular contents and cognitive processes measured by each. These commonalities support psychometric linkages such that many of the specific subtests can be put on the same scale. In this chapter, equated scores are used to make comparisons between the HS&B, NELS:88, and ELS:2002 sophomore cohorts in mathematics achievement and between the NELS:88 and ELS:2002 cohorts in reading achievement. The primary foci of the analyses in this chapter are (1) comparing the achievement of the 2002 (ELS:2002) sophomore cohort to that of the sophomore cohorts of 1980 (HS&B) and 1990 (NELS:88), and (2) across the time points, comparing each subgroup to itself. The central question is whether there has been an increase, decrease, or no change in sophomore achievement (specifically, in mathematics and reading) over time.

In this chapter, mathematics achievement for 1980, 1990, and 2002 is reported using Item Response Theory (IRT) number-right scores, and reading and mathematics achievement is reported using the probabilities of proficiency. These techniques are introduced briefly below.

4.1.1 Mathematics achievement using Item Response Theory (IRT) number-right scores

As noted earlier, the exact items used for the mathematics tests differed somewhat across the three cohort studies. Nevertheless, there was enough overlap of items to perform a common item equating, in which both HS&B and ELS:2002 were put on the NELS:88 1990 58-item scale.[17] (On common item [and other] equating methods, see Kolen and Brennan 2004). The IRT-estimated number-right score reflects an estimate of the number of these 58 items that an examinee would have answered correctly if he or she had taken all of the items that appeared on the multiform 1990 NELS:88 mathematics test. The score is the probability of a correct answer on each item, summed over the total mathematics 58-item pool. Because the scores represent sums of probabilities, they are not necessarily whole numbers, but typically include a decimal. IRT scoring takes into consideration the pattern of correct answers and not just the simple number correct. IRT uses patterns of correct, incorrect, and omitted answers to obtain ability estimates that are comparable across different test forms within a domain.[18] Based on the

[16] For more detailed information on the assessment batteries of the three studies, see in particular Ingels et al. (1994), Ingels et al. (2004), Rock et al. (1985), and Rock and Pollack (1995a).

[17] The 1990 National Education Longitudinal Study of 1988 (NELS:88) 58-item mathematics scale is documented in chapter VI of Ingels et al. (1994).

[18] For an account of Item Response Theory (IRT), see Embretson and Reise (2000), Hambleton (1989), or Hambleton, Swaminathan, and Rogers (1991).

NELS:88-scaled IRT-estimated number-right scores, mathematics achievement for the 1980, 1990, and 2002 sophomore cohorts is compared in sections 4.3 and 4.4 of this report.

4.1.2 Mathematics and reading achievement using probabilities of proficiency

Another form of linkage between NELS:88 and ELS:2002 involves the continuous "probability of proficiency" scores for reading and mathematics achievement. These scores assign a probability to each individual test taker of being proficient at each of three "mastery levels" in reading and five mastery levels in mathematics; in other words, each test taker receives a total of eight probability of proficiency scores. Clusters of four items each were identified in the NELS:88 tests that marked the three hierarchical mastery levels in reading and five in mathematics:

Reading levels included:

1. simple reading comprehension, including reproduction of detail and/or the author's main thought; such as identifying the objective of a character's action;

2. simple inferences beyond the author's main thought, and/or understanding and evaluating abstract concepts, such as identifying the author's state of mind, or inferring the meaning of a metaphor from context; and

3. complex inferences or evaluative judgments requiring multiple sources of information.

Mathematics levels included;

1. simple arithmetical operations on whole numbers, such as simple arithmetic expressions involving multiplication or division of integers;

2. simple operations with decimals, fractions, powers, and roots, such as comparing expressions, given information about exponents;

3. simple problem solving requiring the understanding of low-level mathematical concepts, such as simplifying an algebraic expression or comparing the length of line segments illustrated in a diagram;

4. understanding of intermediate-level mathematical concepts and/or multi-step solutions to word problems such as drawing an inference based on an algebraic expression or inequality; and

5. complex multi-step word problems and/or advanced mathematical material, such as a two-step problem requiring evaluation of functions.

The mastery levels are hierarchical in the sense that mastery of a higher level typically implies proficiency at lower levels. The proficiency probabilities for NELS:88 and ELS:2002 were computed using IRT-estimated item parameters calibrated in NELS:88. Each proficiency

probability represents the probability that a student would be proficient in the skills represented in each mastery level.

Because relatively more complex metrics are required for cohort comparisons in this chapter than in the other chapters, section 4.2 provides additional technical background on these metrics and their use in previous analyses of HS&B and NELS:88. The remainder of the chapter includes section 4.2, Background; section 4.3, Mathematics Achievement: 1980 and 2002; section 4.4, Mathematics Achievement: 1990 and 2002; section 4.5, Proficiency in Mathematics: 1990 and 2002; and section 4.6, Proficiency in Reading: 1990 and 2002.

4.2 Background

4.2.1 Mathematics achievement in HS&B and NELS:88 (1980 and 1990)

Some context for understanding changes in sophomore achievement may be provided by summarizing key findings of earlier intercohort comparisons that used HS&B and NELS:88 mathematics results. The current report attempts to extend (to the ELS:2002 cohort) some of the findings concerning the earlier cohorts.

Rasinski et al. (1993) found that, overall, sophomores in 1990 scored at a higher level than 1980 sophomores. At the subgroup level, Rasinski et al. found no differences in the average achievement score increases between males and females between 1980 and 1990. Although sophomores in the Catholic sector had higher mathematics scores than public school sophomores in both 1980 and 1990, no differences were detected in the across-cohort differences found in the two sectors.

Some differences in the amount of change in mathematics scores were found when results were examined by race and Hispanic ethnicity. White, Hispanic, and Black sophomores all achieved higher scores in 1990 than in 1980. Mathematics scores among Asian sophomores did not increase between 1980 and 1990, yet continued to be higher than the scores of all other racial and ethnic groups. However, Hispanic and Black sophomores showed increased scores more than White sophomores. Despite higher mathematics gains that helped narrow the difference, Black and Hispanic students in 1990 on average still had lower scores than White students.

Sophomores who reported themselves to be in the general curriculum increased scores more than did students who reported that they were in a vocational track.[19] Finally, sophomores in all four regions of the nation showed increased scores in mathematics over the 10-year period.

[19] An important caveat should be noted here. While the “curriculum program type” or “track” variable is taken from a questionnaire item that is asked in a comparable way across the three surveys, it is a student self-report and subject to some level of reporting error. Vocational track students can more accurately be identified from their transcripts, to which historically accepted definitions of vocational concentrators can be applied. However, though transcripts were collected for the Education Longitudinal Study of 2002 (ELS:2002) at the end of high school, the transcript data have not yet been released.

4.3 Mathematics Achievement: 1980 and 2002

Table 18 shows changes in cohort mathematics performance when HS&B (1980) results are compared with ELS:2002 results. Results are given overall and by subgroup. This analysis parallels the earlier analysis of Rasinski et al. (1993) by using the same six subgroup categories (sex, race/ethnicity, socioeconomic status [SES], region, program, and school type or sector) employed in the earlier report.

Overall, there was a mean increase of 4.8 points on the 58-point (NELS:88) scale, with a 0.40 effect size. The interpretation of the 0.40 effect size is that, on average, sophomores in 2002 were performing 40 percent of a standard deviation higher than the comparable cohort from 1980.

Comparing subgroups in 1980 with the same subgroups in 2002, substantively meaningful increases were recorded for 19 of the 20 subgroups (i.e., the differences were statistically significant, and the effect sizes were 0.20 or higher). These ranged from 2.6 points (Asian sophomores) to 7.3 points (sophomores in the South). Of the 19 subgroups, 6 saw a medium effect size increase (0.50 or above), and 13 saw a small effect size increase (0.20–0.49). The following groups saw medium increases: Black (0.60), American Indian (0.56), and Hispanic (0.53) sophomores; sophomores in the South (0.64); sophomores in vocational programs (0.59); and sophomores in the Catholic sector (0.51).

Table 18. Item Response Theory (IRT)-estimated average number-right scores for mathematics, by selected student characteristics: 1980 and 2002

Characteristic	1980		2002		Difference 2002–1980	Effect size
	Mean	Standard deviation	Mean	Standard deviation		
All sophomores	32.8	12.3	37.6	11.4	4.8	0.40
Sex						
Male	33.0	12.8	38.0	11.6	5.0	0.41
Female	32.6	11.8	37.1	11.2	4.5	0.39
Racial/ethnic group						
American Indian or Alaska Native	27.2	11.2	33.0	9.3	5.8	0.56
Asian or Pacific Islander	38.8	12.5	41.4	11.1	2.6	0.22
Black or African American	24.5	9.6	30.3	9.8	5.8	0.60
Hispanic or Latino	26.0	10.3	31.7	11.0	5.7	0.53
More than one race	†	†	36.5	11.0	†	†
White	35.4	11.9	40.7	10.4	5.3	0.48
Socioeconomic status						
Lowest quarter	27.0	10.5	31.5	10.6	4.6	0.44
Middle two quarters	33.1	11.7	37.3	10.8	4.2	0.38
Highest quarter	39.5	11.7	44.0	9.7	4.5	0.42
Region						
Northeast	34.9	12.5	39.3	11.2	4.4	0.37
Midwest	34.5	12.2	38.1	11.3	3.6	0.30
South	29.7	11.6	37.0	11.2	7.3	0.64
West	33.7	12.3	36.5	11.6	2.8	0.24
High school program						
General	31.0	11.4	35.0	11.0	4.0	0.37
Academic/college preparatory	40.0	11.3	40.5	11.0	0.7	0.06
Vocational	26.7	10.7	33.0	10.9	6.4	0.59
School sector						
Public	32.2	12.3	37.1	11.4	4.9	0.41
Catholic	38.1	10.7	43.2	9.0	5.1	0.51
Other private	39.0	12.0	43.0	10.3	4.0	0.36

† Not applicable.

NOTE: In this table the test means are expressed in percentage form. Estimates may differ from previously released estimates because of revisions made to the data file and/or changes in rounding procedures. IRT refers to a technique to estimate math achievement based on patterns of correct, incorrect, and omitted answers across the test forms (see Hambleton 1989). Perfect score = 58. The racial/ethnic groups were modified for ELS:2002 to be consistent with Office of Management and Budget (OMB) requirements allowing for multiple race choices. Choosing more than one race was not permitted in HS&B. Respondents who identified themselves as being of Hispanic origin are classified as Hispanic, regardless of their race.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

The 13 subgroups that saw small increases (some approaching medium) were males (0.41), females (0.39), Asians (0.22), Whites (0.48), high SES (0.42), middle SES (0.38), low SES (0.44), and sophomores in the Northeast (0.37), Midwest (0.30), West (0.24), in a general program (0.37), and in the public (0.41) and other private (0.36) school sectors.

The general picture is one of overall and subgroup increases in mathematics achievement between 1980 and 2002. Earlier analyses (Rasinski et al. 1993) documented increases from 1980 to 1990. To see how much of the 1980–2002 increase occurred in the period from 1990 to 2002, the next section compares 1990 NELS:88 IRT-estimated number-right scores in mathematics with the ELS:2002 scores.

4.4 Mathematics Achievement: 1990 and 2002

Table 19 shows changes in cohort mathematics performance when NELS:88 (1990) results are compared with ELS:2002 (2002) results. The difference between sophomores in 2002 and their counterparts in 1990 is not substantively important (effect size is 0.09). In contrast, Rasinski et al. (1993) reported the effect size of the overall increase from 1980 to 1990 to be about a quarter of a standard deviation (0.26), a magnitude that meets the criterion for substantive importance set in this report.

Looked at in another way, the mean scale score was 32.8 in 1980, 36.5 in 1990, and 37.6 in 2002. In other words, the average score for sophomores increased 3.7 scale points in the initial 10-year period and 1.1 points in the subsequent 12-year period. This result suggests that the greater part of the increase occurred between 1980 and 1990 (see figure 8).[20]

At the subgroup level, there were substantively meaningful increases in mathematics achievement between 1990 and 2002 in 5 of the 20 subgroups. These 5 sophomore subgroups (shown with the effect size) are as follows: American Indians (0.51), Whites (0.21), sophomores in the South (0.23), sophomores in vocational programs (0.40), and sophomores in the Catholic sector (0.25).

In contrast, the largest increases in the 10-year period between 1980 and 1990 were made by Blacks (0.35), Hispanics (0.34), sophomores in the Northeast (0.30), sophomores in the South (0.32), and students self-reported as being in a general high school curricular program (0.35) (Rasinski et al. 1993). The analysis by Rasinski et al. suggests that between 1980 and 1990, Blacks on average increased their scores more than did Whites, thus reducing the difference between the groups found in 1990.

However, table 19 (see also figure 9) indicates that in the period from 1990 to 2002, no measurable increases were detected for Blacks or Hispanics. In this same period, there is no evidence that Black test scores increased on average to move closer to the average scores for Whites.

[20] In addition to the mean IRT-estimated number-right score across the three time points, a further datum of interest in tables 21 and 22 is the standard deviation for each mean. The standard deviation is a measure of sample dispersion in the original unit of measurement. The standard deviation for mathematics achievement is 12.3 in 1980, 12.1 in 1990, and 11.4 in 2002. This suggests that the dispersion of mathematics achievement has decreased very slightly over time.

Table 19. Item Response Theory (IRT)-estimated average number-right scores for mathematics, by selected student characteristics: 1990 and 2002

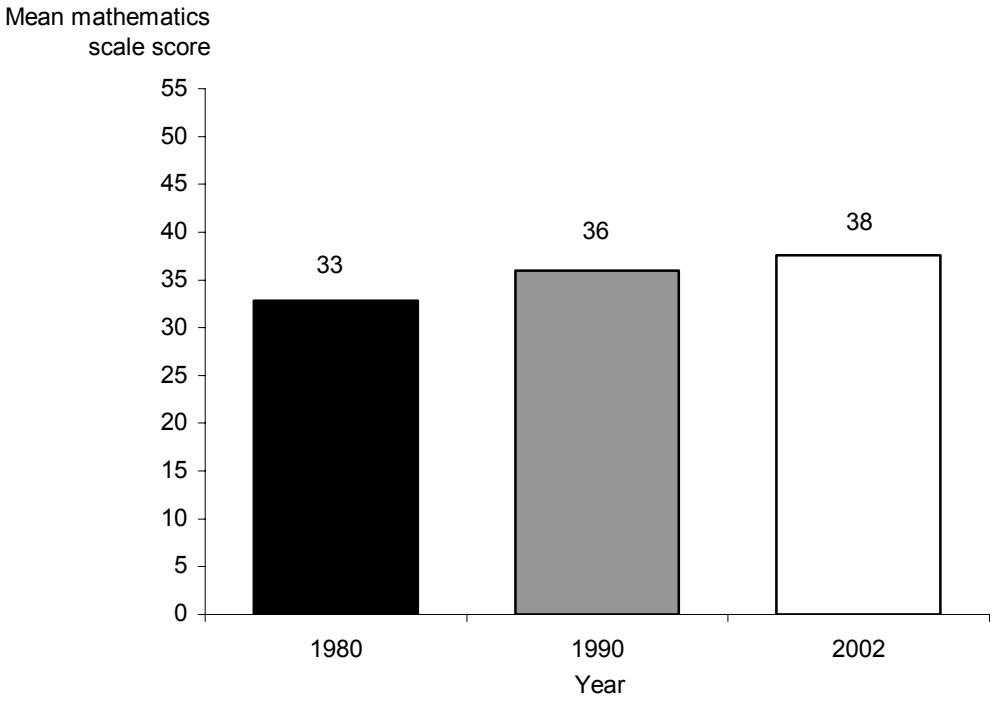
Characteristic	1990		2002		Difference 2002–1990	Effect size
	Mean	Standard deviation	Mean	Standard deviation		
All sophomores	36.5	12.1	37.6	11.4	1.1	0.09
Sex						
Male	36.6	12.5	38.0	11.6	1.5	0.12
Female	36.3	11.9	37.1	11.2	0.8	0.07
Racial/ethnic group						
American Indian or Alaska Native	27.7	11.0	33.0	9.3	5.3	0.51
Asian or Pacific Islander	40.5	12.1	41.4	11.1	0.9	0.08
Black or African American	29.2	10.7	30.3	9.8	1.1	0.12
Hispanic or Latino	31.8	11.2	31.7	11.0	0.5	0.05
More than one race	†	†	36.5	11.0	†	†
White	38.4	11.7	40.7	10.4	2.4	0.21
Socioeconomic status						
Lowest quarter	29.9	10.6	31.5	10.6	1.7	0.16
Middle two quarters	36.0	11.5	37.3	10.8	1.4	0.12
Highest quarter	43.1	10.6	44.0	9.7	0.9	0.08
Region						
Northeast	38.9	11.7	39.3	11.2	0.4	0.04
Midwest	37.7	11.9	38.1	11.3	0.4	0.04
South	34.4	12.0	37.0	11.2	2.6	0.23
West	36.3	12.3	36.5	11.6	0.2	0.02
High school program						
General	35.6	11.5	35.0	11.0	-0.6	-0.05
Academic/college preparatory	42.5	10.3	40.5	11.0	-2.0	-0.18
Vocational	28.8	10.9	33.0	10.9	4.3	0.40
School sector						
Public	36.0	12.2	37.1	11.4	1.2	0.10
Catholic	40.8	10.2	43.2	9.0	2.4	0.25
Other private	42.4	10.9	43.0	10.3	0.6	0.05

† Not applicable.

NOTE: In this table the test means are expressed in percentage form. Estimates may differ from previously released estimates because of revisions made to the data file and/or changes in rounding procedures. IRT refers to a technique to estimate math achievement based on patterns of correct, incorrect, and omitted answers across the test forms (see Hambleton 1989). Perfect score = 58. The racial/ethnic groups were modified for ELS:2002 to be consistent with Office of Management and Budget (OMB) requirements allowing for multiple race choices. Choosing more than one race was not permitted in NELS:88. Respondents who identified themselves as being of Hispanic origin are classified as Hispanic, regardless of their race.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), “First Follow-up, 1990”; and Education Longitudinal Study of 2002 (ELS:2002), “Base Year, 2002.”

Figure 8. Item Response Theory (IRT)-estimated average number-right scores for mathematics: 1980, 1990, and 2002



NOTE: Estimates may differ from previously released estimates because of revisions made to the data file and/or changes in rounding procedures. IRT refers to a technique to estimate math achievement based on patterns of correct, incorrect, and omitted answers across the test forms (see Hambleton 1989). Perfect Score = 58.

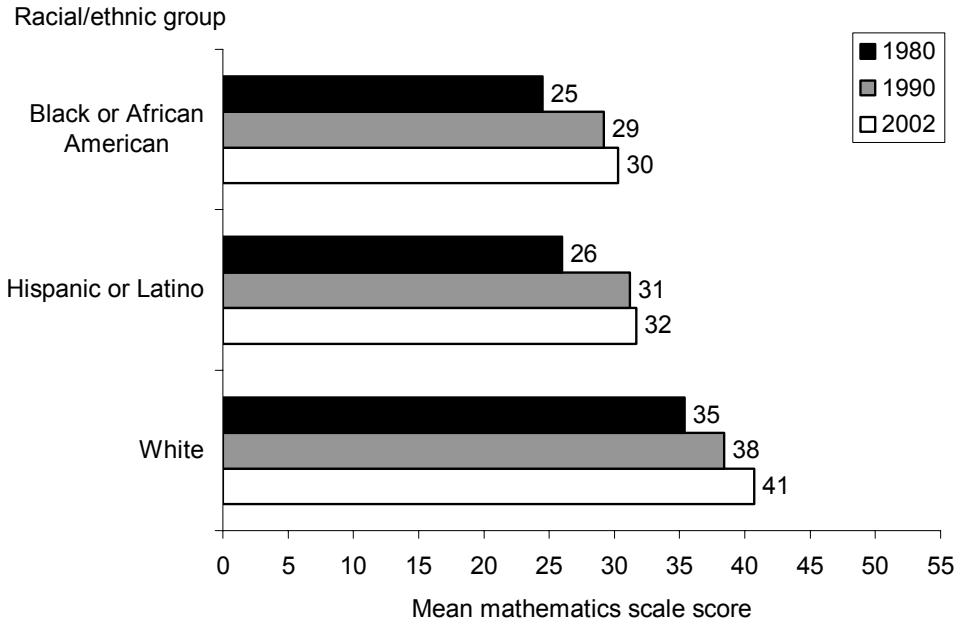
SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

Based on the 1990 NELS:88 58-item IRT number-right score scale, in 1980, there was a 10.9 point difference between Black and White sophomores (35.4 for White sophomores, 24.5 for Black). In 1990, Blacks were 9.2 points lower than Whites on average, and in 2002, Blacks were 10.4 points lower than Whites on average.

Results for vocational track sophomores should be noted. In analyzing differences between 1980 and 1990, Rasinski et al. (1993) noted that college preparatory, vocational, and general program students all showed increased scores, but vocational students showed the least increased (they cite effect sizes of 0.21, 0.35, and 0.13, respectively). However, between 1990 and 2002, vocational program sophomores showed an increase of 4.3 scale points (effect size of

0.40) (figure 10). In contrast, for both general and academic program sophomores, no differences were detected between 1990 and 2002.[21]

Figure 9. Item Response Theory (IRT)-estimated average number-right scores for mathematics, by selected race/ethnicity: 1980, 1990, and 2002



NOTE: Estimates may differ from previously released estimates because of revisions made to the data file and/or changes in rounding procedures. IRT refers to a technique to estimate math achievement based on patterns of correct, incorrect, and omitted answers across the test terms (see Hambleton 1989). Perfect Score = 58. The racial/ethnic groups were modified for ELS:2002 to be consistent with Office of Management and Budget (OMB) requirements allowing for multiple race choices. Choosing more than one race was not permitted in HS&B and NELS:88. Respondents who identified themselves as being of Hispanic origin are classified as Hispanic, regardless of their race.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

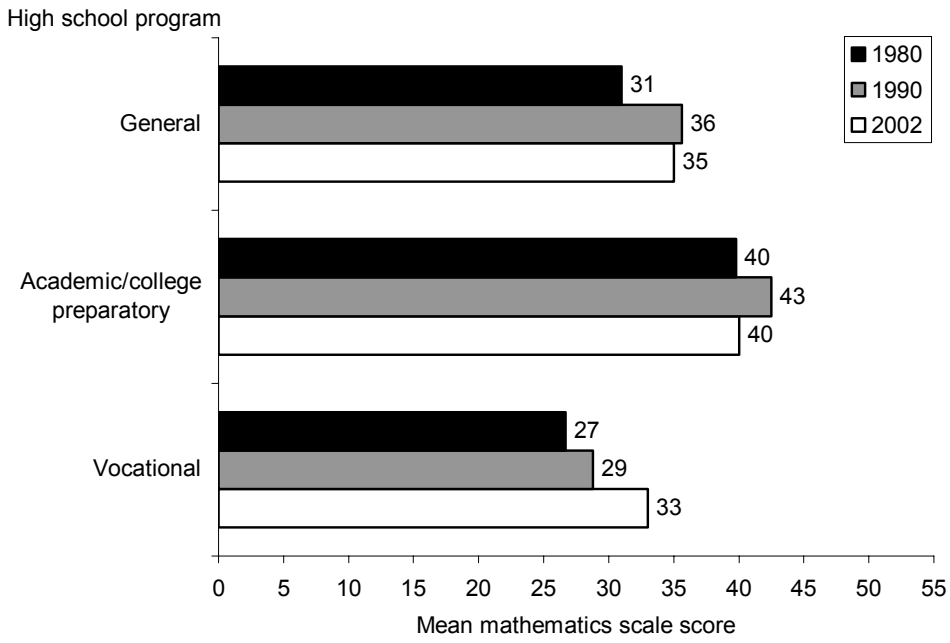
The other subgroup to show a substantial increase in mathematics scores between 1990 and 2002, high school sophomores in the South, also showed disproportionate increases compared with the Midwest and West from 1980 to 1990 (Rasinski et al. 1993, p. 26).

Although the IRT-estimated number-right scores can tell the quantitative story of cohort change, there is a more qualitative dimension that is of interest as well: At what proficiency or skill and content mastery levels are changes taking place? To address this question, 1990 and

[21] Readers are again cautioned that the high school program variable is taken from student self-reports and may differ from program definitions that are derived from analysis of transcripts. ELS:2002 first follow-up high school transcript data will provide a better reading on possible impacts of the vocational curriculum, in that those data will reflect two additional years of program exposure and will include coursetaking information. Part of the pattern seen in 1980–1990 program results is a cohort compositional shift of students away from the vocational area and into academic and general programs (Rasinski et al. 1993). Current analyses of National Assessment of Educational Progress (NAEP) data for the National Assessment of Vocational Education (NAVE) may also shed further light on this issue—that is, on the relative role of curriculum content and requirement changes, changing subgroup composition, or other factors in effecting the observed results.

2002 mathematics results are compared in the following section using probability of proficiency scores. In addition, 1990 and 2002 reading results are compared below. Since proficiency scores have not been created for HS&B, no data from 1980 are presented here.

Figure 10. Item Response Theory (IRT)-estimated average number-right scores for mathematics, by self-reported high school programs: 1980, 1990, and 2002



NOTE: Estimates may differ from previously released estimates because of revisions made to the data file and/or changes in rounding procedures. IRT refers to a technique to estimate math achievement based on patterns of correct, incorrect, and omitted answers across the test forms (see Hambleton 1989). Perfect Score = 58.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

4.5 Proficiency in Mathematics: 1990 and 2002

As earlier noted, proficiency scores were developed in NELS:88 for both reading and mathematics. The ELS:2002 assessment results have been linked to NELS:88 through score equating, so that the same mastery levels can be used (see appendix A and references for a more detailed explanation).

A proficiency score indicates specific skills and knowledge students have, or, put another way, whether they have mastered a particular body of curricular material.[22] The NELS:88 mastery levels, by identifying a student's proficiency at five specific clusters of knowledge and skills that mark ascending critical points on the NELS:88-ELS:2002 mathematics scale, serve a dual function. First, they provide an interpretation, in terms of what the student can or cannot do,

[22] For further explanation of the IRT-estimated NELS:88-scaled math number-right scores, and the reading and mathematics proficiency scores, see the glossary of this report (appendix A). For additional detail, and information about test development, IRT scaling, and psychometric properties of the scores, see, for HS&B, Rock et al. (1985); for NELS:88, Ingels et al. (1994) and Rock and Pollack (1995a); and for ELS:2002, Ingels et al. (2004).

at a given behaviorally defined mastery level. Second, when data are gathered at more than one time point, they provide a basis for measuring and understanding changes in intercohort or intracohort achievement. The researcher can readily distinguish the mastery level on the scale at which the change takes place and may be able to relate specific school processes (for example, specific coursetaking sequences) to increases at a particular skill level. In mathematics, there are five mastery levels:

1. Simple arithmetical operations on whole numbers, such as simple arithmetic expressions involving multiplication or division of integers;
2. Simple operations with decimals, fractions, powers, and roots, such as comparing expressions, given information about exponents;
3. Simple problem solving, requiring the understanding of low-level mathematical concepts, such as simplifying an algebraic expression or comparing the length of line segments illustrated in a diagram;
4. Understanding of intermediate-level mathematical concepts and/or multistep solutions to word problems such as drawing an inference based on an algebraic expression or inequality; and
5. Complex multistep word problems and/or advanced mathematics material such as a two-step problem requiring evaluation of functions.

Table 20 presents comparative results, by mathematics mastery level, for the 1990 and 2002 sophomore cohorts. Proficiency probabilities represent the mean likelihood that a student would pass a given mastery level. It should be noted that while results are initially treated as means, they can also be treated as percentages.[23] For example, to say that the male mean for Level 3 mathematics mastery is 0.46 is equivalent to saying that 46.0 percent of male sophomores have mastered the skills marked by Level 3. For ease of interpretation, table 20 and subsequent tables in this chapter report the mean mastery level in percentage form (along with the standard deviation associated with the mean score).

Overall, no differences were detected in any of the five mastery levels between 1990 and 2002. In each case, the effect sizes for the increases are quite small (below 0.10 for the first four levels). Level 5 represents a level of mathematics mastery that will be better reflected by seniors in 2004 (after advanced mathematics courses more typically taken at the end of high school have been completed) than sophomores in 2002—only 1 percent of the nation's high school sophomores were proficient at Level 5 in 2002.

There are seven row variables for subgroups in table 20: sex, socioeconomic status, racial/ethnic group, high school program, school sector, region, and parents' education. When the 23 categories associated with the seven row variables are multiplied by the five mastery levels, there are 115 possible subgroup observations. Of the 115 observations, only 11 are both statistically significant and show an effect size of 0.20 or higher, and all represent increases. Of these 11 changes, one is at Level 1, four are at Level 2, two are at Level 3, two are at Level 4, and two are at Level 5. To the question—where on the skill hierarchy are increases taking place?—the answer would appear to depend on the particular subgroup of interest. One

[23] See Fleiss, Levin, and Paik (2003, p. 1).

subgroup, sophomores reporting participation in a primarily vocational curriculum, show increases at Levels 1 through 4. For this group, increases were registered between 1990 and 2002 for some lower skill levels, but substantial increases are also apparent at high skill levels. For example, between 1990 and 2002, vocational program sophomores registered increased scores at Level 3, in which fewer than half of sophomores (46 percent) are proficient, and at Level 4, where a fifth (20 percent) of sophomores are proficient.

Table 20. High school sophomore probability of proficiency in mathematics, by selected student characteristics: 1990 and 2002

Characteristic	1990		2002		Difference 2002–1990	Effect size
	Mean	Standard deviation	Mean	Standard deviation		
All sophomores						
Level 1: Simple arithmetic operations on whole numbers	90.7	19.5	91.7	19.5	1.0	0.05
Level 2: Simple operations with decimals, fractions, powers, and roots	63.0	43.3	67.1	41.6	4.1	0.09
Level 3: Simple problem solving, requiring the understanding of low-level mathematical concepts	43.5	45.7	46.4	45.8	2.9	0.06
Level 4: Understanding of intermediate-level mathematical concepts and/or having the ability to formulate multistep solutions to word problems	19.0	32.1	20.4	32.8	1.4	0.04
Level 5: Proficiency in solving complex multistep word problems and/or the ability to demonstrate knowledge of mathematics material found in advanced mathematics courses	0.4	2.3	1.0	6.6	0.6	0.12
Sex						
Level 1						
Male	90.7	19.4	91.7	19.7	1.0	0.05
Female	90.8	19.5	91.6	19.2	0.8	0.04
Level 2						
Male	62.8	43.5	68.4	41.2	5.6	0.13
Female	63.3	43.1	65.7	41.9	2.4	0.06
Level 3						
Male	44.3	45.9	48.0	46.0	3.7	0.08
Female	42.8	45.4	44.7	45.6	1.9	0.04
Level 4						
Male	20.2	33.2	22.3	34.2	2.1	0.06
Female	17.8	31.0	18.5	31.2	0.7	0.02
Level 5						
Male	0.5	2.6	1.3	8.2	0.8	0.13
Female	0.3	2.0	0.6	4.5	0.3	0.09
Socioeconomic status						
Level 1						
Lowest quarter	83.1	24.3	84.5	25.1	1.4	0.06
Middle quarters	91.1	19.0	92.5	18.2	1.4	0.08
Highest quarter	97.1	10.3	97.1	11.8	#	0.00
Level 2						
Lowest quarter	41.3	43.4	46.4	43.7	5.1	0.12
Middle quarters	62.6	42.9	67.8	40.7	5.2	0.12
Highest quarter	83.3	33.0	86.2	29.9	2.9	0.09

See notes at end of table.

Table 20. High school sophomore probability of proficiency in mathematics, by selected student characteristics: 1990 and 2002—Continued

Characteristic	1990 Mean	1990 Standard deviation	2002 Mean	2002 Standard deviation	Difference 2002–1990	Effect size
Socioeconomic status—Continued						
Level 3						
Lowest quarter	20.4	35.9	25.1	39.2	4.7	0.13
Middle quarters	41.4	45.1	44.7	45.2	3.3	0.07
Highest quarter	67.4	42.5	70.9	41.3	3.5	0.08
Level 4						
Lowest quarter	5.7	17.7	7.6	20.3	1.9	0.10
Middle quarters	15.9	29.1	17.7	30.3	1.8	0.06
Highest quarter	36.2	39.2	38.7	39.3	2.5	0.06
Level 5						
Lowest quarter	0.1	1.1	0.2	2.6	0.1	0.05
Middle quarters	0.2	1.5	0.5	4.3	0.3	0.09
Highest quarter	1.0	3.7	2.6	11.3	1.6	0.19
Racial/ethnic group[1]						
Level 1						
Asian or Pacific Islander	93.7	16.3	95.2	14.6	1.5	0.10
Black or African American	80.8	25.9	83.8	25.2	3.0	0.12
Hispanic or Latino	85.0	23.5	83.7	26.0	-1.3	-0.05
White	93.3	16.5	95.5	14.0	2.2	0.14
Level 2						
Asian or Pacific Islander	73.7	40.1	77.6	36.7	3.9	0.10
Black or African American	38.4	43.3	42.3	42.5	3.9	0.09
Hispanic or Latino	44.9	43.8	46.9	43.9	2.0	0.05
White	69.6	40.9	77.9	36.1	8.3	0.22
Level 3						
Asian or Pacific Islander	57.8	45.3	60.2	44.9	2.4	0.05
Black or African American	18.7	43.8	19.4	35.1	0.7	0.02
Hispanic or Latino	24.4	38.9	25.5	39.6	1.1	0.03
White	50.1	45.9	57.9	45.0	7.8	0.17
Level 4						
Asian or Pacific Islander	29.6	38.8	31.7	39.5	2.1	0.05
Black or African American	5.2	17.4	4.7	15.3	-0.5	-0.03
Hispanic or Latino	8.0	21.4	8.8	22.4	0.8	0.04
White	22.5	34.0	27.0	35.7	4.5	0.13
Level 5						
Asian or Pacific Islander	1.2	4.3	4.0	15.1	2.8	0.25
Black or African American	#	0.4	0.1	2.3	0.1	0.06
Hispanic or Latino	0.1	0.9	0.3	3.2	0.2	0.09
White	0.5	2.5	1.2	7.0	0.7	0.13

See notes at end of table.

Table 20. High school sophomore probability of proficiency in mathematics, by selected student characteristics: 1990 and 2002—Continued

Characteristic	1990 Mean	1990 Standard deviation	2002 Mean	2002 Standard deviation	Difference 2002–1990	Effect size
High school program						
Level 1						
General	91.3	17.9	89.5	21.4	-1.8	-0.09
Academic/college preparatory	97.0	10.7	94.3	16.6	2.7	0.19
Vocational	80.2	26.3	87.1	22.8	6.9	0.28
Level 2						
General	61.0	43.2	59.2	43.1	-1.8	-0.04
Academic/college preparatory	82.2	33.4	76.4	37.4	-5.8	-0.16
Vocational	36.6	42.5	51.2	44.0	14.6	0.34
Level 3						
General	39.5	44.5	36.3	43.8	-3.2	-0.07
Academic/college preparatory	64.5	43.5	57.5	45.3	-7.0	-0.16
Vocational	19.3	35.9	29.8	41.8	10.5	0.27
Level 4						
General	15.1	28.7	13.6	27.4	-1.5	-0.05
Academic/college preparatory	32.6	37.9	27.7	36.3	-4.9	-0.13
Vocational	5.1	16.6	10.6	24.4	5.5	0.26
Level 5						
General	0.3	2.1	0.4	3.9	0.1	0.03
Academic/college preparatory	0.8	3.1	1.5	8.5	0.7	0.11
Vocational	#	0.4	0.3	3.4	0.3	0.12
School sector						
Level 1						
Public	90.2	19.8	91.2	19.9	1.0	0.05
Catholic	96.5	10.9	97.9	8.8	1.4	0.14
Other private	95.6	15.3	96.3	14.0	0.7	0.05
Level 2						
Public	61.2	43.7	65.6	42.0	4.4	0.10
Catholic	78.7	35.9	86.4	28.9	7.7	0.24
Other private	84.4	30.9	83.1	32.9	-1.3	-0.04
Level 3						
Public	41.8	45.5	44.6	45.6	2.8	0.06
Catholic	58.2	44.4	68.4	41.6	10.2	0.24
Other private	63.6	43.0	67.2	43.1	3.6	0.08
Level 4						
Public	18.1	31.4	19.4	32.2	1.3	0.04
Catholic	24.8	34.7	31.8	36.7	7.0	0.20
Other private	32.8	38.8	35.3	38.8	2.5	0.06
Level 5						
Public	0.4	2.2	9.9	6.4	0.5	0.10
Catholic	0.5	2.6	1.3	7.5	0.8	0.14
Other private	1.0	3.4	2.6	10.9	1.6	0.20

See notes at end of table.

Table 20. High school sophomore probability of proficiency in mathematics, by selected student characteristics: 1990 and 2002—Continued

Characteristic	1990 Mean	1990 Standard deviation	2002 Mean	2002 Standard deviation	Difference 2002–1990	Effect size
Region						
Level 1						
Northeast	93.4	16.6	93.0	18.1	-0.4	-0.02
Midwest	92.5	17.4	92.5	18.1	#	0.00
South	88.5	21.4	91.4	19.8	2.9	0.14
West	90.1	20.0	90.2	21.3	0.1	0.00
Level 2						
Northeast	71.0	40.5	72.7	39.8	1.7	0.04
Midwest	67.2	42.1	68.6	41.1	1.4	0.03
South	56.3	44.3	65.5	41.8	9.2	0.21
West	62.0	43.7	63.2	42.6	1.2	0.03
Level 3						
Northeast	51.3	45.7	53.8	45.9	2.5	0.05
Midwest	48.5	46.1	48.2	45.8	-0.3	-0.01
South	35.9	44.0	43.8	45.5	7.9	0.18
West	43.4	45.7	42.2	45.4	-1.2	-0.03
Level 4						
Northeast	24.0	35.0	24.8	34.7	0.8	0.02
Midwest	20.9	32.7	21.9	33.6	1.0	0.03
South	14.5	28.9	18.2	31.2	3.7	0.12
West	19.8	32.9	18.8	32.3	-1.0	-0.03
Level 5						
Northeast	0.6	3.0	1.0	6.6	0.4	0.08
Midwest	0.4	2.2	0.9	5.8	0.5	0.11
South	0.3	1.9	0.9	6.5	0.6	0.13
West	0.4	2.4	1.1	7.5	0.7	0.13
Parents' education[2]						
Level 1						
High school or less	85.5	23.2	87.4	22.9	1.9	0.08
Some college	91.1	18.8	91.6	19.4	0.5	0.03
College graduation	96.4	11.7	94.3	16.3	-2.1	-0.15
Graduate or professional degree	97.1	10.7	95.6	15.4	-1.5	-0.11
Level 2						
High school or less	47.3	44.2	52.0	43.6	4.7	0.11
Some college	62.7	43.0	65.9	41.5	3.2	0.08
College graduation	79.4	35.4	76.1	37.5	-3.3	-0.09
Graduate or professional degree	84.9	32.0	82.9	33.6	-2.0	-0.06
Level 3						
High school or less	26.3	39.9	29.5	41.4	3.2	0.08
Some college	41.5	45.0	42.9	44.9	1.4	0.03
College graduation	60.9	44.2	56.6	45.4	-4.3	-0.10
Graduate or professional degree	71.5	41.3	68.8	42.7	-2.7	-0.06

See notes at end of table.

Table 20. High school sophomore probability of proficiency in mathematics, by selected student characteristics: 1990 and 2002—Continued

Characteristic	1990 Mean	1990 Standard deviation	2002 Mean	2002 Standard deviation	Difference 2002–1990	Effect size
Parents' education—Continued						
Level 4						
High school or less	8.2	21.3	9.8	23.1	1.6	0.07
Some college	16.2	29.3	16.4	29.3	0.2	0.01
College graduation	28.8	36.8	27.4	36.0	-1.4	-0.04
Graduate or professional degree	41.9	40.4	38.0	39.7	-3.9	-0.10
Level 5						
High school or less	0.1	1.1	0.2	2.7	0.1	0.05
Some college	0.2	1.6	0.4	3.8	0.2	0.07
College graduation	0.7	2.8	1.2	7.4	0.5	0.09
Graduate or professional degree	1.4	4.3	3.1	12.2	1.7	0.19

Rounds to zero.

[1] Estimates for American Indians are not shown due to small sample sizes.

[2] Parents' education: "Some college" is defined as attending college but not completing a 4-year degree.

NOTE: In this table the test means are expressed in percentage form. The racial/ethnic groups were modified for ELS:2002 to be consistent with Office of Management and Budget (OMB) requirements allowing for multiple race choices. Choosing more than one race was not permitted in NELS:88. Respondents who identified themselves as being of Hispanic origin are classified as Hispanic, regardless of their race.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

4.6 Proficiency in Reading: 1990 and 2002

ELS:2002 probability of proficiency scores in reading are based on the NELS:88 second follow-up (1992). An anchor or common item equating process was used to put the ELS:2002 results on the NELS:88 scale. There are three NELS:88 mastery levels in reading, each based on a cluster of test items. Sophomores proficient at Level 1 demonstrate skill in simple reading comprehension, including reproduction of detail or the author's main thought. At Level 2, sophomores can make simple inferences beyond the author's main thought and understand and evaluate relatively abstract concepts. At Level 3, sophomores are able to demonstrate the ability to make complex inferences or evaluative judgments that require piecing together multiple sources of information from the passage. As with the mathematics probabilities of proficiency, reading means can also be viewed as percentages (e.g., the statement that the overall mean at Level 1, simple comprehension, is 0.911 is equivalent to saying that 91.1 percent of sophomores are proficient at this level).

Table 21 presents comparative reading results, by mastery level, for the 1990 and 2002 sophomore cohorts. Overall, no measurable differences were detected between sophomores in 2002 and 1990. For ease of interpretation, table 21 means are presented in percentage form.

Table 21. High school sophomore probability of proficiency in reading, by selected student characteristics: 1990 and 2002

Characteristic	1990 Mean	1990 Standard deviation	2002 Mean	2002 Standard deviation	Difference 2002–1990	Effect size
All sophomores						
Level 1: Simple comprehension	91.1	22.2	89.4	25.6	-1.7	-0.07
Level 2: Simple inference	49.9	41.3	45.9	39.6	-3.7	-0.09
Level 3: Complex inference	12.7	26.1	8.2	21.0	-4.4	-0.19
Sex						
Level 1						
Male	89.0	24.7	87.5	27.7	-1.4	-0.05
Female	93.2	19.3	91.3	23.1	-1.9	-0.09
Level 2						
Male	46.0	41.6	43.5	39.8	-1.8	-0.04
Female	53.7	40.8	48.4	39.3	-5.5	-0.14
Level 3						
Male	11.8	25.4	7.9	20.8	-3.7	-0.16
Female	13.6	26.8	8.5	21.2	-5.1	-0.21
Socioeconomic status						
Level 1						
Lowest quarter	84.1	27.5	80.5	32.3	-3.4	-0.11
Middle quarters	91.4	22.1	90.4	24.5	-1.0	-0.04
Highest quarter	96.9	13.3	96.2	15.8	-0.7	-0.05
Level 2						
Lowest quarter	29.3	36.2	25.9	33.6	-3.1	-0.09
Middle quarters	48.6	40.6	44.9	38.5	-3.4	-0.09
Highest quarter	70.1	37.2	67.9	36.0	-2.1	-0.06
Level 3						
Lowest quarter	4.3	15.7	2.5	11.0	-1.8	-0.13
Middle quarters	10.8	23.8	6.3	17.6	-4.5	-0.21
Highest quarter	23.8	33.2	17.7	29.9	-6.0	-0.19
Racial/ethnic group[1]						
Level 1						
Asian or Pacific Islander	92.3	21.0	90.4	23.5	-1.7	-0.08
Black or African American	82.2	30.0	81.5	31.4	-0.6	-0.02
Hispanic or Latino	86.9	25.5	79.2	33.8	-7.7	-0.26
White	93.4	19.3	93.9	19.9	0.5	0.03
Level 2						
Asian or Pacific Islander	50.3	41.7	46.6	39.7	-3.2	-0.08
Black or African American	30.8	37.4	25.0	31.9	-5.5	-0.16
Hispanic or Latino	33.3	37.0	27.4	35.0	-5.3	-0.15
White	55.8	40.8	56.1	38.7	0.5	0.01
Level 3						
Asian or Pacific Islander	14.6	28.2	9.4	23.1	-5.2	-0.20
Black or African American	4.3	14.8	1.8	9.4	-2.6	-0.21
Hispanic or Latino	5.1	16.8	2.7	11.4	-2.3	-0.16
White	15.2	28.1	11.3	24.1	-3.8	-0.14

See notes at end of table.

Table 21. High school sophomore probability of proficiency in reading, by selected student characteristics: 1990 and 2002—Continued

Characteristic	1990 Mean	1990 Standard deviation	2002 Mean	2002 Standard deviation	Difference 2002–1990	Effect size
High school program						
Level 1						
General	92.1	20.6	87.1	27.7	-5.0	-0.20
Academic/college preparatory	96.4	14.2	92.5	22.1	-3.9	-0.21
Vocational	81.4	30.5	83.1	30.7	1.7	0.06
Level 2						
General	47.4	40.0	38.2	37.8	-8.9	-0.23
Academic/college preparatory	68.7	37.3	55.3	39.4	-13.1	-0.34
Vocational	24.9	34.2	29.0	35.0	4.3	0.13
Level 3						
General	9.8	23.0	4.7	15.2	-5.0	-0.26
Academic/college preparatory	21.9	32.1	12.0	25.3	-9.8	-0.34
Vocational	2.8	11.8	2.7	11.0	#	0.00
School sector						
Level 1						
Public	90.6	22.8	88.8	26.2	-1.7	-0.07
Catholic	96.5	13.4	97.6	11.7	1.1	0.09
Other private	95.0	17.9	94.8	19.0	-0.2	-0.01
Level 2						
Public	47.9	41.3	44.2	39.4	-3.4	-0.08
Catholic	65.7	37.6	68.1	34.6	2.6	0.07
Other private	71.9	36.2	65.2	37.5	-6.9	-0.19
Level 3						
Public	11.7	25.2	7.5	20.1	-4.1	-0.18
Catholic	17.0	28.1	15.6	27.5	-1.4	-0.05
Other private	28.3	36.3	17.3	30.0	-10.7	-0.32
Region						
Level 1						
Northeast	94.0	18.1	91.7	23.0	-2.3	-0.11
Midwest	91.4	22.3	90.6	23.9	-0.9	-0.04
South	89.3	24.3	89.3	25.8	#	0.00
West	91.5	21.4	86.5	28.5	-4.9	-0.19
Level 2						
Northeast	57.0	40.5	52.0	39.5	-4.9	-0.12
Midwest	51.7	41.0	48.3	39.7	-3.1	-0.08
South	45.2	41.3	43.8	39.3	-1.2	-0.03
West	49.1	41.4	41.6	39.4	-7.1	-0.18
Level 3						
Northeast	16.8	29.9	10.2	23.2	-6.5	-0.24
Midwest	12.7	26.0	8.9	21.8	-3.7	-0.15
South	10.5	23.8	7.5	20.2	-2.9	-0.13
West	12.5	25.8	6.8	19.3	-5.5	-0.24

See notes at end of table.

Table 21. High school sophomore probability of proficiency in reading, by selected student characteristics: 1990 and 2002—Continued

Characteristic	1990 Mean	1990 Standard deviation	2002 Mean	2002 Standard deviation	Difference 2002–1990	Effect size
Parents' education[2]						
Level 1						
High school or less	86.6	26.0	83.4	30.6	-3.1	-0.11
Some college	91.3	22.2	89.8	25.0	-1.5	-0.06
College graduation	96.2	14.4	92.5	22.3	-3.7	-0.20
Graduate or professional degree	96.8	13.7	94.4	19.0	-2.3	-0.14
Level 2						
High school or less	34.6	38.2	30.2	35.4	-4.1	-0.11
Some college	48.5	40.6	43.3	38.7	-4.9	-0.12
College graduation	65.2	38.8	56.1	39.0	-9.0	-0.23
Graduate or professional degree	74.4	35.4	64.6	37.7	-9.4	-0.26
Level 3						
High school or less	5.9	18.1	3.0	11.8	-2.9	-0.19
Some college	10.8	24.0	6.0	17.2	-4.7	-0.23
College graduation	19.0	29.8	11.4	24.3	-7.5	-0.28
Graduate or professional degree	28.3	35.4	17.5	30.3	-10.6	-0.32

Rounds to zero.

[1] Estimates for American Indians are not shown due to small sample sizes.

[2] Parent's education: "Some college" is defined as attending college but not completing a 4-year degree.

NOTE: In this table the test means are expressed in percentage form. The racial/ethnic groups were modified for ELS:2002 to be consistent with Office of Management and Budget (OMB) requirements allowing for multiple race choices. Choosing more than one race was not permitted in NELS:88. Respondents who identified themselves as being of Hispanic origin are classified as Hispanic, regardless of their race.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

Viewed at the subgroup level, there are 23 subgroup categories times three mastery levels, for a total of 69 measures of subgroup change in reading. Of the 69 subgroup comparisons for reading, 20 met the criteria for statistical and substantive meaningfulness set for this report. In all cases, these comparisons indicated decreases in probabilities of proficiency in reading between 1990 and 2002. Use of mastery levels permits achievement increases and decreases to be situated at a specific point within the skills hierarchy of the reading scale. Fully 12 of the 20 decreases are at Level 3 reading, complex inference (four are at Level 2 and four are at Level 1). For the four observations with largest effect sizes (0.30 or higher), three are at Level 3 and one at Level 2.

The largest decreases in reading proficiency between 1990 and 2002 (with effect sizes of 0.30 or more) were sophomores in an academic/college preparatory program at mastery levels 2 and 3, sophomores in non-Catholic private schools at mastery level 3, and sophomores at mastery level 3 whose parents' highest educational attainment was a graduate or professional degree (table 21).

4.7 Summary

This chapter illustrated that tested achievement in mathematics increased between 1980 and 2002. Although mathematics achievement increased overall during the 22-year period, most of the score increases were made between 1980 and 1990. The addition of proficiency scaling on the mathematics test in 1990 and 2002 allowed for a more textured look at changes in mastery of certain mathematics skills. During this time, no measurable differences were detected in sophomores' probabilities of proficiency in mathematics; however, mathematics probability of proficiency scores increased on average for some subgroups. As with mathematics, no measurable differences were detected in the reading probability of proficiency scores of high school sophomores between 1990 and 2002, although for some subgroups these probability of proficiency scores actually decreased.

Chapter 5
Afterschool Activities

This chapter focuses on how high school sophomores used their time outside of the classroom in activities other than homework at the three points in time (1980, 1990, and 2002). The chapter includes section 5.1, Extracurricular Activities; section 5.2, Employment; and section 5.3, Unstructured Social Activities.

5.1 Extracurricular Activities

Students in each of the three cohorts—High School and Beyond (HS&B), the National Education Longitudinal Study of 1988 (NELS:88), and Education Longitudinal Study of 2002 (ELS:2002) —reported on their sophomore-year participation on a range of extracurricular activities, six of which were discussed in the previous high school sophomore report (Rasinski et al. 1993) and are also discussed in this chapter: academic clubs, vocational clubs, athletics, cheerleading and drill team, music-related activities, and hobby clubs. Prior to discussion of the survey results, it is important to note some important differences in the way the questions about extracurricular activities were structured and in the response options provided to each cohort.

First, the scope of the question varied between 1980 and 1990/2002. In 1980, HS&B sophomores were asked to provide information about their activities "either in or out of school," whereas their successors in 1990 and 2002 were limited to school-sponsored extracurricular activities.[24] Some activities, such as academic clubs, are rarely found outside of the school setting. For these items, the difference in the scope of the questions may not have introduced much variability in the estimates of participation across cohorts. However, other activities such as hobby clubs are commonly organized both inside and outside of school. To the extent that each of these extracurricular activities were available outside of the school setting, the proportion of HS&B sophomores who participated in them may be biased upward relative to the proportions of NELS:88 and ELS:2002 sophomores.

A second questionnaire difference was in the response options provided. In the 1980 HS&B questionnaire, the two response options for the series of items on extracurricular involvement were "have not participated" and "have participated actively." The 1990 NELS:88 questionnaire departed from this approach by presenting respondents with four options instead of two: "School does not offer," "Did not participate," "Participated," and "Participated as an officer or a leader." ELS:2002 condensed these four responses into "Yes" to indicate participation and "No" to indicate nonparticipation. Note that HS&B did not specifically provide a response option for students who participated in an activity but did not take an active role. Although it is not certain how these less active participants responded in 1980, some may have selected "Did not participate" as their answer or skipped the item. To the extent that this is true, it would have a dampening effect on the estimates of participation in 1980 relative to the subsequent cohorts.

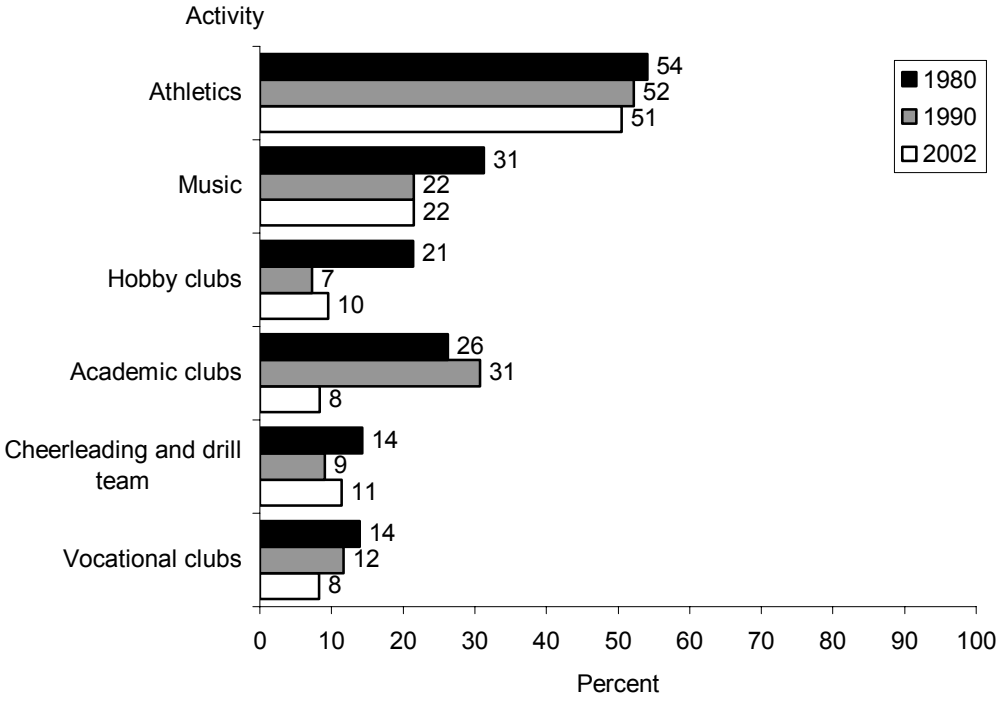
[24] The 1990 question implied that it was limited to school-sponsored activities by virtue of its "School does not offer" response option. The Education Longitudinal Study of 2002 (ELS:2002) question explicitly stated that the items referred only to "school-sponsored" activities.

A third difference relates to the use of examples to clarify what is meant by the activity listed. For the ELS:2002 sophomore questionnaire, the examples that had been present in the HS&B and NELS:88 questionnaires were dropped. For example, HS&B and NELS:88 both gave some examples of types of "academic clubs," such as National Honor Society, language clubs, and so on. Dropping the examples may have made it less clear to respondents what was meant by phrases such as "academic clubs." These differences warrant some caution in interpreting the results, as some of the observed change may be related to changes in questionnaire design.

Figure 11 displays national data on participation rates for each of the six activities in 1980, 1990, and 2002. In each period, high school sophomores most frequently reported participating in athletics, with participation ranging from 54 percent in 1980 to 51 percent in 2002. The participation rates for the rest of the activities ranged from 7 percent for hobby clubs in 1990 to 31 percent for music-related activities in 1980 and academic clubs in 1990. Between 1980 and 2002, the proportion of sophomores who reported participation in academic clubs, vocational clubs, music-related activities, and hobby clubs dropped between 6 and 18 percentage points. As noted above, these declines in membership, particularly for music-related activities and hobby clubs, may be attributable in part to changes in the scope of the question, with the 1980 questionnaire requesting inclusion of in-school and out-of-school activities, while the marked drop in reported participation in academic clubs between 1990 and 2002 may be related in part to the dropping of examples in 2002.

Tables 22, 23, and 24 present the participation rates in each of these six activities by student characteristics. With the exception of sports, females were as likely as boys, and usually more likely, to participate in all of these school-sponsored activities. In 1990 and 2002, a greater percentage of sophomores from households in the highest socioeconomic status (SES) quarter and in the highest academic achievement quarters participated in sports, academic clubs, and music activities than those in the lowest quarter. For example, 61 percent of those in the highest SES quarter were in athletics compared with 41 percent among those in the lowest SES quarter in 2002. In contrast, vocational club membership was higher among those in the lowest SES quarter than the highest quarter in both 1980 and 1990; however, vocational club participation rates for the lowest SES quarter decreased between 1980 and 2002, and no measurable change was detected for the highest SES quarter (rates were 9 percent among lowest and 7 percent among highest SES quarter in 2002, whereas they were 18 percent among the lowest and 8 percent among the highest SES quarter in 1980). Likewise, the difference in vocational club participation rates for the highest and lowest academic achievers found in the first two cohorts was not detected in the 2002 cohort.

Figure 11. Percentage of high school sophomores who report participating in various extracurricular activities: 1980, 1990, and 2002



NOTE: Caution is needed in interpreting percentages displayed in figure 11 due to questionnaire changes as follows: (1) In 1980, HS&B sophomores were asked to provide information about their activities "either in or out of school," whereas their successors in 1990 and 2002 were limited to school-sponsored extracurricular activities. The 1990 question implied that it was limited to school-sponsored activities by virtue of its "School does not offer" response option. The ELS:2002 question explicitly stated that the items referred only to "school-sponsored" activities. (2) In the HS&B questionnaire, the two response options for the series of items on extracurricular involvement were "have not participated" and "have participated actively." The 1990 NELS:88 questionnaire presented respondents with four options: "School does not offer," "Did not participate," "Participated," and "Participated as an officer or a leader." ELS:2002 condensed these four responses into "Yes" to indicate participation and "No" to indicate nonparticipation. (3) For the ELS:2002 sophomore questionnaire, the examples clarifying what was meant by the activity that had been present in the HS&B and NELS:88 questionnaires were dropped.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

Table 22. Percentage of high school sophomores who participate in academic and vocational clubs, by selected student characteristics: 1980, 1990, and 2002

Characteristic	Academic clubs			Vocational clubs		
	1980	1990	2002	1980	1990	2002
All sophomores	26.2	30.7	8.4	13.9	11.7	8.3
Sex						
Male	22.7	27.4	6.8	11.5	11.0	7.6
Female	29.1	34.0	9.9	15.7	12.3	9.1
Racial/ethnic group						
American Indian or Alaska Native	29.5	31.9	5.2	20.0	16.9	14.3
Asian or Pacific Islander	31.8	36.7	14.3	5.3	5.1	5.2
Black or African American	28.9	26.2	7.3	17.5	13.7	7.9
Hispanic or Latino	27.6	27.2	6.1	13.2	7.4	5.3
More than one race	†	†	7.7	†	†	8.9
White	25.3	31.7	8.9	13.5	12.2	9.3
Socioeconomic status						
Lowest quarter	25.2	26.3	5.6	18.0	17.1	9.2
Middle quarters	26.3	31.5	7.2	14.8	11.4	8.6
Highest quarter	26.9	34.9	13.3	7.9	6.5	7.0
Composite achievement test score						
Lowest quarter	27.5	22.5	4.3	20.6	17.3	8.8
Second quarter	25.7	29.9	5.2	16.2	13.2	9.5
Third quarter	24.4	30.3	8.2	12.6	11.4	7.7
Highest quarter	27.9	40.0	15.5	7.7	6.7	7.4
School sector						
Public	26.0	31.0	8.1	14.9	12.6	8.8
Catholic	27.7	28.6	11.3	3.6	2.8	2.2
Other private	27.3	29.1	10.5	6.5	5.5	3.8
Region						
Northeast	21.4	26.9	7.6	7.4	3.5	4.9
Midwest	28.5	33.4	6.8	19.2	11.7	8.0
South	27.6	32.6	10.8	16.9	18.6	11.4
West	26.4	27.5	7.0	9.5	7.2	7.0

† Not applicable.

NOTE: The racial/ethnic groups were modified for ELS:2002 to be consistent with Office of Management and Budget (OMB) requirements allowing for multiple race choices. Choosing more than one race was not permitted in HS&B and NELS:88. Respondents who identified themselves as being of Hispanic origin are classified as Hispanic, regardless of their race. Caution is needed in interpreting percentages displayed in table 22 due to questionnaire changes as follows: (1) In 1980, HS&B sophomores were asked to provide information about their activities "either in or out of school," whereas their successors in 1990 and 2002 were limited to school-sponsored extracurricular activities. The 1990 question implied that it was limited to school-sponsored activities by virtue of its "School does not offer" response option. The ELS:2002 question explicitly stated that the items referred only to "school-sponsored" activities. (2) In the HS&B questionnaire, the two response options for the series of items on extracurricular involvement were "have not participated" and "have participated actively." The 1990 NELS:88 questionnaire presented respondents with four options: "School does not offer," "Did not participate," "Participated," and "Participated as an officer or a leader." ELS:2002 condensed these four responses into "Yes" to indicate participation and "No" to indicate nonparticipation. (3) For the ELS:2002 sophomore questionnaire, the examples clarifying what was meant by the activity that had been present in the HS&B and NELS:88 questionnaires were dropped.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

Table 23. Percentage of high school sophomores who participate in athletics and cheerleading and drill team, by selected student characteristics: 1980, 1990, and 2002

Characteristic	Athletics			Cheerleading and drill team		
	1980	1990	2002	1980	1990	2002
All sophomores	54.1	52.2	50.5	14.3	9.1	11.4
Sex						
Male	63.4	63.0	56.9	3.3	2.1	7.3
Female	45.9	41.4	44.0	24.7	15.8	15.4
Racial/ethnic group						
American Indian or Alaska Native	56.8	44.2	49.7	12.9	11.3	7.7
Asian or Pacific Islander	46.3	54.9	41.8	7.0	5.2	8.7
Black or African American	57.1	51.4	48.8	17.1	15.7	14.2
Hispanic or Latino	48.3	43.9	41.4	13.2	8.3	10.2
More than one race	†	†	50.6	†	†	14.5
White	54.4	53.5	53.8	14.1	8.3	11.1
Socioeconomic status						
Lowest quarter	43.7	42.0	40.5	13.2	8.2	10.6
Middle quarters	55.1	52.7	50.2	15.1	9.6	11.5
Highest quarter	64.4	63.2	60.8	14.4	9.3	11.9
Composite achievement test score						
Lowest quarter	47.0	47.4	42.9	15.0	9.5	12.6
Second quarter	53.3	50.8	46.6	14.8	8.6	10.7
Third quarter	56.4	51.8	52.0	15.1	9.2	11.9
Highest quarter	60.5	59.0	59.9	13.4	9.0	10.3
School sector						
Public	53.1	50.8	48.3	14.2	9.2	10.1
Catholic	61.8	66.5	72.1	15.9	7.1	18.3
Other private	68.8	68.0	82.2	13.1	9.9	38.8
Region						
Northeast	54.5	55.7	53.9	11.8	8.0	14.4
Midwest	51.5	58.3	54.7	15.5	8.6	10.3
South	55.2	46.3	48.8	15.7	11.3	11.6
West	54.9	51.6	45.6	13.0	6.8	9.8

† Not applicable.

NOTE: The racial/ethnic groups were modified for ELS:2002 to be consistent with Office of Management and Budget (OMB) requirements allowing for multiple race choices. Choosing more than one race was not permitted in HS&B and NELS:88. Respondents who identified themselves as being of Hispanic origin are classified as Hispanic, regardless of their race. Caution is needed in interpreting percentages displayed in table 23 due to questionnaire changes as follows: (1) In 1980, HS&B sophomores were asked to provide information about their activities "either in or out of school," whereas their successors in 1990 and 2002 were limited to school-sponsored extracurricular activities. The 1990 question implied that it was limited to school-sponsored activities by virtue of its "School does not offer" response option. The ELS:2002 question explicitly stated that the items referred only to "school-sponsored" activities. (2) In the HS&B questionnaire, the two response options for the series of items on extracurricular involvement were "have not participated" and "have participated actively." The 1990 NELS:88 questionnaire presented respondents with four options: "School does not offer," "Did not participate," "Participated," and "Participated as an officer or a leader." ELS:2002 condensed these four responses into "Yes" to indicate participation and "No" to indicate nonparticipation. (3) For the ELS:2002 sophomore questionnaire, the examples clarifying what was meant by the activity that had been present in the HS&B and NELS:88 questionnaires were dropped.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

Table 24. Percentage of high school sophomores who participate in music-related activities and hobby clubs, by selected student characteristics: 1980, 1990, and 2002

Characteristic	Music			Hobby clubs		
	1980	1990	2002	1980	1990	2002
All sophomores	31.3	21.5	21.5	21.4	7.3	9.5
Sex						
Male	21.5	15.6	16.3	25.5	7.9	8.1
Female	41.0	27.3	26.8	17.6	6.7	10.9
Racial/ethnic group						
American Indian or Alaska Native	33.7	17.3	12.3	26.5	8.4	5.3
Asian or Pacific Islander	28.4	20.6	19.7	25.5	11.8	15.5
Black or African American	37.9	23.0	21.6	21.7	5.2	7.8
Hispanic or Latino	28.4	14.8	13.0	22.7	6.7	8.0
More than one race	†	†	21.3	†	†	12.7
White	30.5	22.3	23.9	21.0	7.5	9.7
Socioeconomic status						
Lowest quarter	27.6	18.3	15.6	19.6	5.8	6.7
Middle quarters	31.5	22.1	21.6	22.3	7.1	8.8
Highest quarter	35.2	24.4	27.1	21.4	9.4	13.5
Composite achievement test score						
Lowest quarter	29.6	16.0	15.4	22.9	6.5	6.4
Second quarter	29.7	20.5	18.8	22.7	6.1	7.2
Third quarter	31.2	22.1	22.7	21.1	7.6	10.8
Highest quarter	35.8	26.9	28.7	18.6	8.7	13.4
School sector						
Public	31.3	22.1	21.2	21.3	6.7	8.9
Catholic	28.4	12.6	18.1	21.2	12.3	17.1
Other private	35.9	25.7	33.9	24.4	13.1	14.8
Region						
Northeast	29.4	22.7	20.8	20.5	11.0	11.2
Midwest	30.9	26.6	27.5	21.7	5.4	8.8
South	33.8	18.8	21.4	20.3	5.9	9.8
West	28.9	18.2	15.8	24.5	8.7	8.5

† Not applicable.

NOTE: The racial/ethnic groups were modified for ELS:2002 to be consistent with Office of Management and Budget (OMB) requirements allowing for multiple race choices. Choosing more than one race was not permitted in HS&B and NELS:88. Respondents who identified themselves as being of Hispanic origin are classified as Hispanic, regardless of their race. Caution is needed in interpreting percentages displayed in table 24 due to questionnaire changes as follows: (1) In 1980, HS&B sophomores were asked to provide information about their activities "either in or out of school," whereas their successors in 1990 and 2002 were limited to school-sponsored extracurricular activities. The 1990 question implied that it was limited to school-sponsored activities by virtue of its "School does not offer" response option. The ELS:2002 question explicitly stated that the items referred only to "school-sponsored" activities. (2) In the HS&B questionnaire, the two response options for the series of items on extracurricular involvement were "have not participated" and "have participated actively." The 1990 NELS:88 questionnaire presented respondents with four options: "School does not offer," "Did not participate," "Participated," and "Participated as an officer or a leader." ELS:2002 condensed these four responses into "Yes" to indicate participation and "No" to indicate nonparticipation. (3) For the ELS:2002 sophomore questionnaire, the examples clarifying what was meant by the activity that had been present in the HS&B and NELS:88 questionnaires were dropped.

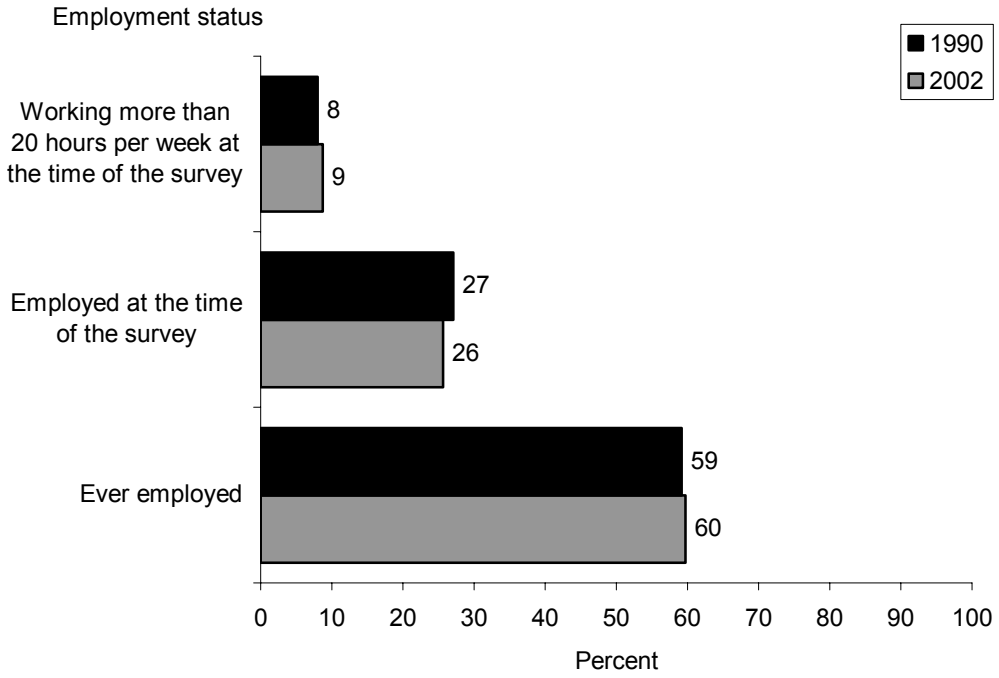
SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

Athletics membership increased for other private school sophomores between 1990 and 2002. In each of the time periods (1980, 1990, and 2002), a larger percentage of Catholic and other private school sophomores participated in school athletics than their counterparts in public schools.

5.2 Employment

Another endeavor that occupies out-of-school time of some high school students is working for pay or employment.[25] Figure 12 gives national summary information for 1990 and 2002, and table 25 summarizes responses over each of the three time periods by student characteristics concerning whether the student had ever worked for pay, had worked during the sophomore year, and had worked more than 20 hours per week.

Figure 12. Percentage of high school sophomores, by employment status: 1990 and 2002



NOTE: In 2002, the question on hours worked per week was asked in an open format in which students who were working were asked to fill in the number of hours worked per week on average. In 1990, students who were working picked from a list of ranges of hours worked on average per week. The base for calculation of percentage working more than 20 hours per week included all sophomores in both 1990 and 2002.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

[25] For different surveys, both the terms "working for pay" and "employment" were used, although the two terms, however similar, are not identical in meaning. For some respondents, "working for pay" may have extended to more ad hoc or casual working situations, whereas "employment" may have been regarded more restrictively and formally as a regular or steady job.

Table 25. Percentage of high school sophomores, by employment status and selected student characteristics: 1980, 1990, and 2002

Characteristic	Ever worked for pay or employed			Worked for pay or employed at time of the survey			Worked more than 20 hours per week at time of the survey		
	1980	1990	2002	1980	1990	2002	1980	1990	2002
All sophomores	88.4	59.2	59.7	35.7	27.1	25.6	5.9	8.0	8.7
Sex									
Male	92.0	65.2	62.9	37.1	28.8	27.7	8.2	9.9	10.9
Female	85.2	53.5	56.6	35.1	25.4	23.6	3.8	6.1	6.5
Racial/ethnic group									
American Indian or Alaska Native	89.4	54.8	55.7	32.1	25.3	22.5	8.4	14.6	7.8
Asian or Pacific Islander	70.7	50.5	37.9	20.1	23.7	15.0	3.3	5.8	2.3
Black or African American	79.3	53.3	52.3	20.5	18.5	19.7	3.8	6.9	9.5
Hispanic or Latino	82.5	50.2	47.4	25.6	20.1	19.4	6.5	6.5	8.3
More than one race	†	†	57.6	†	†	22.7	†	†	8.3
White	91.1	61.9	65.6	40.0	29.7	29.2	6.3	8.3	9.0
Socioeconomic status									
Lowest quarter	85.6	56.5	55.1	28.8	24.4	23.4	5.5	8.9	10.5
Middle quarters	89.6	60.0	61.8	37.9	28.8	27.2	6.6	8.6	9.3
Highest quarter	90.1	58.6	59.8	39.8	25.1	24.5	5.4	4.3	5.7
Composite achievement test score									
Lowest quarter	85.3	55.5	56.1	28.2	24.4	25.3	5.7	11.1	11.5
Second quarter	88.6	59.2	59.9	35.6	26.5	26.2	7.3	8.4	10.7
Third quarter	90.2	58.9	60.9	39.0	26.8	25.8	6.5	6.6	8.0
Highest quarter	90.7	60.7	61.3	41.0	27.6	25.1	4.0	4.0	4.9
School sector									
Public	88.5	58.4	59.6	35.4	26.7	25.8	6.1	8.1	9.0
Catholic	87.1	64.3	60.4	40.7	31.3	25.1	3.8	4.2	4.4
Other private	89.0	64.5	60.2	34.3	22.7	19.3	5.7	4.6	3.7
Region									
Northeast	87.5	65.5	67.8	36.0	29.8	30.0	4.8	6.6	8.7
Midwest	92.1	64.7	68.6	39.6	33.5	32.6	6.1	9.0	10.7
South	85.3	51.8	55.4	31.4	21.5	22.2	6.7	7.9	9.0
West	89.5	57.2	49.7	37.1	24.2	19.4	5.9	6.8	5.9

† Not applicable.

NOTE: The racial/ethnic groups were modified for ELS:2002 to be consistent with Office of Management and Budget (OMB) requirements allowing for multiple race choices. Choosing more than one race was not permitted in HS&B and NELS:88. Respondents who identified themselves as being of Hispanic origin are classified as Hispanic, regardless of their race. There were some changes in the structure and wording of the items over the surveys. With regard to whether the sophomore had ever worked for pay, the 1980 questionnaire wording was "How old were you when you first worked for pay, not counting work around the house?" Implicit in this question is the assumption that most students would have had some paid work experience, even if only an odd job. "Never worked for pay" was at the end of the list of age response options (ranging from age 11 or younger to 20 or older). In 1990, the question was worded "Are you currently employed or have you ever been employed?" Unlike the question in 1980, this question does not presume that these students had work experience. The word "employed" suggests a more formal and regular work arrangement that fewer sophomores would have had than casual "work for pay." In 2002, the question phraseology used phrases from both 1980 and 1990. The stem used the question "Have you ever worked for pay, not counting work around the house?" similar to 1980. However, as in 1990, the 2002 question did not assume work experience, and the response options written on the questionnaire used the word "employed" similar to 1990. The 2002 question on number of hours worked used an open format in which students were asked to enter the number of hours worked, while the 1980 and 1990 questionnaire listed hour ranges from which the student selected a response. The base for calculation of percentage working more than 20 hours per week included all sophomores in each of the 3 years.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

Changes that took place in the structure and wording of the employment items over the surveys preclude some direct comparisons between the 1980 data and the 1990 and 2002 data. With regard to whether the sophomore had ever worked for pay, the 1980 questionnaire wording was "How old were you when you first worked for pay, not counting work around the house?" Implicit in this question is the assumption that most students would have had some paid work experience, even if only an odd job. "Never worked for pay" was at the end of the list of age category response options, and the age categories listed started with age 11 or younger, thus seemingly implying the inclusion of casual work arrangements. In contrast, in 1990, the question was worded "Are you currently employed or have you ever been employed?" Unlike the question in 1980, this question does not presume that these students had work experience. Furthermore, the word "employed" suggests a more formal and regular work arrangement that fewer sophomores would have had than casual "work for pay." In 2002, the question phraseology was a hybrid between 1980 and 1990. The stem used the question "Have you ever worked for pay, not counting work around the house?" similar to 1980. However, as in 1990, the 2002 question did not assume work experience, and the response options written on the questionnaire used the word "employed" similar to 1990. Thus, cues in 1980 may have led HS&B respondents to report any paid work outside of the home such as an occasional odd job. In contrast, the cues in the questions in 1990 and 2002 may have led their counterparts to exclude such work. Not surprising, almost 9 of every 10 sophomores (88 percent) in 1980 indicated (by giving the age they first worked for pay) that they had worked for pay outside of their home at some point, whereas about 6 of every 10 sophomores reported that they had ever "been employed" in 1990 and 2002 (59 and 60 percent, respectively) (table 25).

In 1980, 36 percent of students reported "working for pay, not counting work around the house" during their sophomore year of high school, whereas in 1990 and 2002, 27 and 26 percent, respectively, reported "being employed" in the school year (table 25). The difference between the 1980 proportion and the 1990 and 2002 proportions may also be partially attributable to the definition of work that students were using.

The final columns in table 25 display the proportion of all sophomores (including those not working at all in the base for the calculation) that worked more than 20 hours per week at the time of survey completion in the spring term of 2004. Six percent worked more than 20 hours per week in 1980, 8 percent in 1990, and 9 percent in 2002.

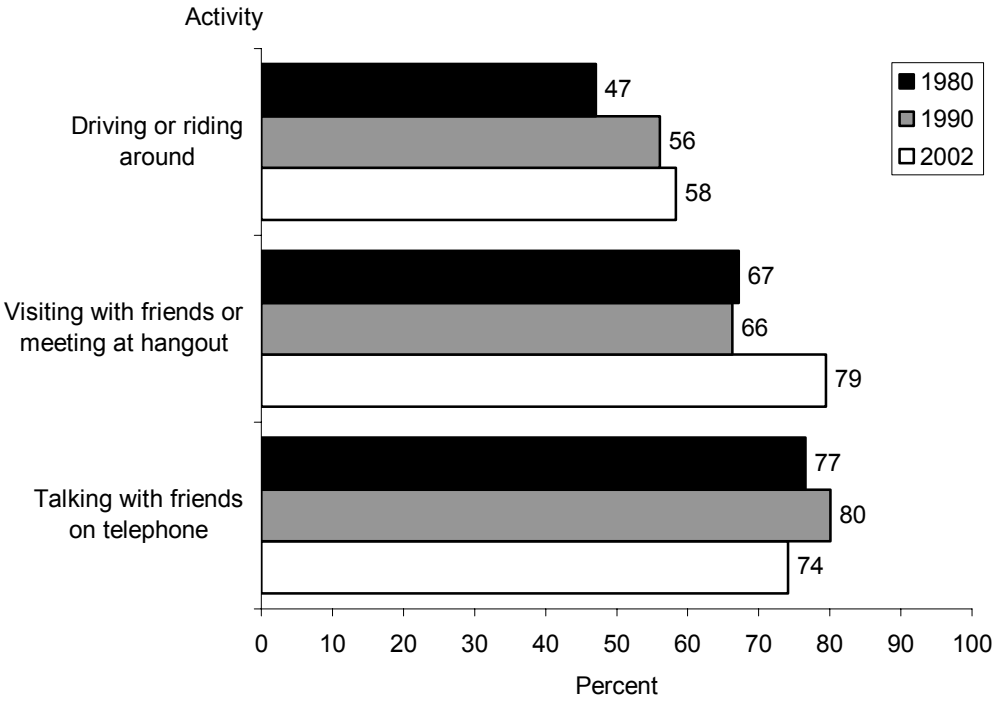
Within each cohort, a greater percentage of male sophomores than female sophomores reported to have ever worked for pay (table 25). A greater percentage of White sophomores than Black and Hispanic sophomores had some work experience and were working when surveyed in each of the time periods; however, no differences were detected in the percentage working more than 20 hours in 1990 and 2002.

5.3 Unstructured Social Activities

This section examines three unstructured social activities included in each of the surveys: driving around in a car, visiting with friends or meeting at a hangout, and talking on the telephone. These activities represent three ways in which high school students may interact with their peers.

Between 1980 and 1990, the percentage of sophomores who reported that they drove around in a car at least once a week increased from 47 percent to 56 percent (figure 13 and table 26). Between 1990 and 2002, no differences were detected. Most subgroups also experienced this increase in driving around between 1980 and 1990.[26] For example, while 43 percent of female sophomores in 1980 drove at least once a week, 54 percent of their counterparts did so 10 years later. The percentage of Black sophomores who reported driving or riding around at least once a week increased over the 22-year period and was 38 percent in 1980, 50 percent in 1990, and 59 percent in 2002.

Figure 13. Percentage of high school sophomores, by engagement in various activities at least once or twice a week: 1980, 1990, and 2002



SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

[26] No differences were detected for American Indian or Hispanic sophomores or those from high SES households, the West, or other private schools.

Table 26. Percentage of high school sophomores who report that they engage in various activities at least once or twice a week, by selected student characteristics: 1980, 1990, and 2002

Characteristic	Driving or riding around			Visiting with friends or meeting at a hangout			Talking with friends on the telephone		
	1980	1990	2002	1980	1990	2002	1980	1990	2002
All sophomores	47.1	56.1	58.3	67.2	66.3	79.4	76.6	80.1	74.1
Sex									
Male	51.0	57.9	59.5	69.4	69.5	80.3	66.5	72.5	64.9
Female	43.3	54.3	57.1	65.2	63.1	78.6	86.2	87.7	83.3
Racial/ethnic group									
American Indian or Alaska Native	51.6	53.3	75.6	62.2	70.4	78.6	59.4	65.1	64.4
Asian or Pacific Islander	31.5	44.0	39.3	55.3	57.1	69.2	67.7	78.3	65.2
Black or African American	38.0	50.1	59.1	64.8	59.1	73.8	73.3	79.6	80.0
Hispanic or Latino	46.6	47.6	46.5	60.2	59.3	71.1	68.6	72.4	67.9
More than one race	†	†	55.6	†	†	78.7	†	†	75.8
White	49.0	58.9	62.4	68.7	68.7	83.7	78.4	81.7	75.0
Socioeconomic status									
Lowest quarter	43.1	55.1	56.6	61.2	62.6	74.3	68.6	72.2	69.7
Middle quarters	49.5	58.3	60.5	68.7	68.0	80.5	78.2	81.9	75.9
Highest quarter	47.2	52.0	55.7	70.8	66.2	82.2	83.0	83.5	74.7
Composite achievement test score									
Lowest quarter	48.9	59.6	59.2	65.0	66.1	74.3	72.3	74.8	72.1
Second quarter	51.1	62.0	63.6	69.1	69.0	81.7	77.3	80.9	75.9
Third quarter	47.9	57.8	59.4	69.7	68.5	82.6	78.9	83.9	75.1
Highest quarter	39.7	45.8	51.2	64.8	61.1	79.1	78.2	80.4	73.2
School sector									
Public	47.7	57.1	58.6	66.9	65.9	79.3	76.1	79.9	73.8
Catholic	40.3	51.6	55.2	71.4	75.8	84.4	81.7	86.8	79.8
Other private	43.9	39.6	53.5	65.3	58.7	75.7	79.2	77.6	74.0
Region									
Northeast	37.8	45.3	46.7	69.6	69.2	80.9	76.7	82.9	74.1
Midwest	49.9	60.3	64.8	65.7	67.8	82.7	77.1	80.9	75.0
South	50.3	60.9	63.9	67.3	64.9	78.2	76.5	79.6	77.0
West	48.8	52.5	52.5	65.6	63.7	76.6	75.7	77.6	68.8

† Not applicable.

NOTE: The racial/ethnic groups were modified for ELS:2002 to be consistent with Office of Management and Budget (OMB) requirements allowing for multiple race choices. Choosing more than one race was not permitted in HS&B and NELS:88. Respondents who identified themselves as being of Hispanic origin are classified as Hispanic, regardless of their race.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

About two-thirds of the 1980 and 1990 cohort reported visiting with friends or meeting at a hangout at least once a week (67 percent in 1980 and 66 percent in 1990). By 2002, the proportion of sophomores who reported hanging out with peers at least once each week had increased over 1980 and 1990 to nearly 80 percent (79 percent), making this the most common of these three social activities in 2002. Virtually all subgroups more frequently reported visiting with friends at least weekly in 2002 than in 1990.[27] All but two of these increases exceeded 10 percentage points. In terms of race and ethnicity, a greater percentage of White sophomores than Blacks and Hispanics reported that they visited with friends at least once a week in both 1990 and 2002.

Of the three activities, talking on the telephone with friends was the most popular social activity in 1980 and 1990 but not in 2002. The proportion of sophomores who communicated with their friends in this way at least once a week was 77 percent in 1980 and 80 percent in 1990. Between 1990 and 2002, there was a decline in the percentage reporting that they communicated by phone (from 80 percent to 74 percent). A greater percentage of females than males at each of the three time periods talked with their friends on the telephone (for example, 83 percent of females and 65 percent of males in 2002 reported talking with friends on the phone at least once a week).

5.4 Summary

In addition to the growth and learning that takes place in the classroom, afterschool activities play an important role in adolescent development. Evidence from the three surveys indicates that high school sophomores are active in a number of domains: extracurricular activities, the workplace, and unstructured social activities. Of all extracurricular activities, athletics are the most popular among sophomores, with participation rates remaining steady across each of the three cohorts. Conversely, involvement in academic clubs declined between 1980 and 2002, although part of the apparent decline may also be attributable to changes in the questionnaire wording. In addition to school-sponsored activities, the majority of sophomores report spending some time in the paid labor force. Although there appears to be a decline in the proportion of employed sophomores over the three surveys, changes in question wording preclude a firm conclusion. Lastly, the evidence on unstructured social activities suggests that sophomores have increasingly active social lives: between 1980 and 2002, there was a rise in the proportion of sophomores reporting that they visit and drive around in cars with their friends.

[27] The one exception was American Indian students.

Chapter 6
Life Values

High school cohort data from High School and Beyond (HS&B), the National Education Longitudinal Study of 1988 (NELS:88), and the Education Longitudinal Study of 2002 (ELS:2002) provide an opportunity to characterize and contrast the 1980, 1990, and 2002 sophomores in terms of their values related to work, friendship, leisure, family, and community. All comparisons in this chapter are based on identically worded items across the three surveys.[28] Given these continuities, differences across cohorts can be interpreted as a cohort change with a relatively high degree of confidence. In this chapter, an overview of the relative value placed on various life values is noted and then the values are discussed by topic headings. The chapter includes the following sections:

6.1 Relative Importance of the Life Values;
6.2 Work and Money;
6.3 Friendship and Leisure;
6.4 Family Life and Children; and
6.5 Community and Social Values.

6.1 Relative Importance of the Life Values

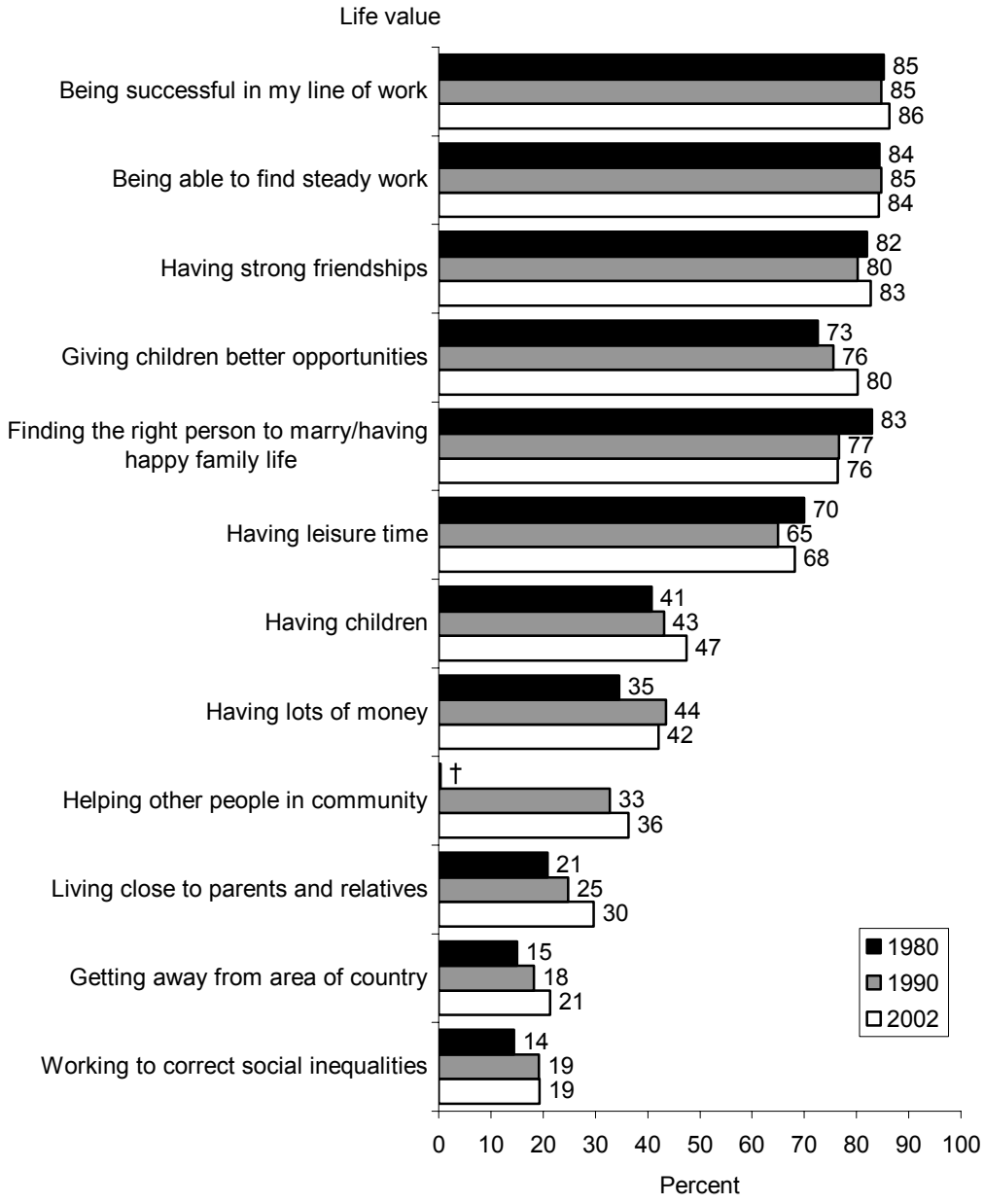
Figure 14 summarizes the national data for the life value items for the three points in time (1980, 1990, and 2002). Among 12 items included on the surveys, 80 percent or more of high school sophomores consistently rated 3 items as being very important to them. These items were being successful in work, being able to find steady work, and having strong friendships.

The percentage of sophomores indicating that giving children better opportunities was very important increased from 73 percent to 80 percent between 1980 and 2002 (figure 14). However, the value "finding the right person to marry/having a happy family life" went in the opposite direction in the same time period. The proportion rating this value as very important decreased from 83 percent in 1980 to 76 percent in 2002. Fewer sophomores rated having children as very important than rated giving children better opportunities or marrying the right person/having a happy family life in each of the years. However, a higher proportion of respondents indicated that having children was very important in 2002 than in 1980 (41 percent in 1980 and 47 percent in 2002).

Although steady and successful work experiences were very important to the majority of sophomores in each year, having lots of money was rated as very important to less than half of each cohort. When first measured in 1980, 35 percent of sophomores evaluated having a lot of money as very important. Ten years later, 44 percent of sophomores placed this much importance on having a lot of money. No difference was detected between 1990 and 2002.

[28] The items used in this chapter are identical with the exception of an additional item added in 1990 and 2002. Sophomores were asked to rate how important "Helping other people in my community" was to them.

Figure 14. Percentage of high school sophomores, by various life values reported as being very important to them: 1980, 1990, and 2002



† Not applicable.

NOTE: The value "Helping other people in the community" was included only in the 1990 and 2002 studies.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

Living close to parents and relatives and getting away from one's area of the country were each rated as very important more frequently in 2002 than in 1980. However, overall, these items were among those least frequently rated as very important at each of the three time points (ranging from 15 percent in 1980 to 21 percent in 2002 for getting away from the area and from 21 percent in 1980 to 30 percent in 2002 for living close to parents and relatives).

Helping others in the community was included only in 1990 and 2002 and was rated as very important by about one-third of students in 1990 (33 percent) and 36 percent in 2002 (figure 14). Working to correct social inequalities was included in each of the years; while it was among the least frequently ranked as very important in each year, 14 percent indicated it was very important to them in 1980 and 19 percent so indicated in 1990 and 2002.

6.2 Work and Money

As noted above, success at work and being able to find steady work were rated as very important by 80 percent or more of high school sophomores in each of the years. There were also some consistent differences across subgroups. A greater percentage of sophomores from households in the highest socioeconomic status (SES) quarter than sophomores from households in the lowest SES quarter rated success at work as very important (for example, 90 percent among the highest SES quarter and 79 percent among the lowest SES quarter in 1990) (table 27). Similarly, in each cohort, a larger percentage of 10th-graders who scored in the highest quarter on the achievement test than 10th-graders who performed in the lowest quarter rated this value as very important (for example, 91 percent in the highest achievement quarter compared with 77 percent in the lowest quarter in 2002). Even so, each year at least three-quarters of sophomores from households in the lowest SES quarter and the lowest test quarter gave success at work the highest rating.

With regard to the value placed on money, there was an increased frequency (from 35 percent to 44 percent) of rating this value as very important between 1980 and 1990 and no differences detected between 1990 and 2002 (table 27). In each cohort, a greater percentage of males than females rated having lots of money as very important to them (for example, 44 percent of males and 26 percent of females in 1980, and 51 percent of males and 33 percent of females in 2002).

In 1980, no differences were detected across the SES quarters in the percentages of sophomores that rated having lots of money as very important; however, in both 1990 and 2002, a smaller percentage of sophomores from households in the top SES quarter than sophomores from households in the lower SES groups indicated that having lots of money was very important to them (table 27). In addition, in each of the three cohorts (1980, 1990, and 2002), a smaller percentage of sophomores in the highest achievement score quarter than the lowest quarter indicated monetary success as being very important to them. For example, in 2002, approximately 3 of every 10 sophomores in the highest achievement quarter considered having lots of money to be very important compared with approximately half of all sophomores in the lowest achievement quarter.

Table 27. Percentage of high school sophomores who report that various life values related to work are very important to them, by selected student characteristics: 1980, 1990, and 2002

Characteristic	Being successful in my line of work			Being able to find steady work			Having lots of money		
	1980	1990	2002	1980	1990	2002	1980	1990	2002
All sophomores	85.2	84.7	86.3	84.4	84.8	84.3	34.6	43.5	42.1
Sex									
Male	85.3	83.9	84.1	86.4	83.2	81.9	43.7	52.3	51.0
Female	85.4	85.5	88.5	82.6	86.4	86.7	25.6	34.7	33.3
Racial/ethnic group									
American Indian or Alaska Native	81.5	68.1	83.1	77.8	81.0	87.3	32.5	51.7	47.3
Asian or Pacific Islander	82.8	86.8	84.4	81.1	83.1	80.6	35.7	49.3	47.6
Black or African American	87.1	88.2	88.2	85.1	85.6	85.1	48.4	56.3	60.4
Hispanic or Latino	81.5	82.2	83.2	82.2	83.0	80.7	37.4	45.3	45.5
More than one race	†	†	84.1	†	†	81.0	†	†	45.6
White	85.4	84.6	87.0	84.6	85.1	85.5	31.8	40.5	36.4
Socioeconomic status									
Lowest quarter	81.4	78.6	81.9	82.7	82.3	81.9	35.0	46.1	47.3
Middle quarters	85.6	85.1	86.9	85.0	85.0	84.6	33.6	44.7	42.6
Highest quarter	89.4	89.8	89.1	85.3	86.5	85.9	35.1	39.0	36.2
Composite achievement test score									
Lowest quarter	78.6	74.4	76.7	80.0	77.2	76.9	43.5	53.2	55.5
Second quarter	86.1	84.1	85.8	86.5	86.5	86.5	36.2	47.6	46.9
Third quarter	89.2	87.8	90.6	87.1	86.7	87.6	30.0	42.5	37.6
Highest quarter	88.2	91.5	91.4	84.4	87.1	85.7	27.3	34.2	29.5
School sector									
Public	85.1	84.2	86.0	84.3	84.7	84.2	35.1	44.3	42.7
Catholic	87.6	90.4	92.2	84.8	86.7	88.2	30.0	42.1	36.1
Other private	84.7	89.9	86.5	83.7	86.8	81.6	29.3	27.5	33.6
Region									
Northeast	86.5	87.5	87.5	85.6	85.4	84.9	38.1	45.3	44.9
Midwest	84.1	83.8	85.9	84.4	83.9	84.2	30.8	42.2	38.5
South	85.3	85.8	87.9	83.7	85.7	85.7	35.2	44.6	43.6
West	85.2	81.7	83.3	83.9	84.2	82.0	34.8	41.7	41.5

† Not applicable.

NOTE: Estimates may differ from previously released estimates because of revisions made to the data file and/or changes in rounding procedures. The racial/ethnic groups were modified for ELS:2002 to be consistent with Office of Management and Budget (OMB) requirements allowing for multiple race choices. Choosing more than one race was not permitted in HS&B and NELS:88. Respondents who identified themselves as being of Hispanic origin are classified as Hispanic, regardless of their race.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

6.3 Friendship and Leisure

Although most sophomores in each cohort placed a great deal of emphasis on work in their life, most also considered having strong friendships to be very important. Overall, about 80 percent of each cohort rated strong friendships as very important to them (table 28). As with the other life values discussed thus far, sophomores in differing SES and academic achievement quarters also differed in the frequency with which they rated strong friendships as very important. Similar to the importance given to work accomplishments and job stability, in general, a greater percentage of sophomores from highest SES households and those who scored the highest on academic achievement tests rated strong friendships as very important compared with their respective counterparts in the lowest quarter (table 28). For example, in 2002, about 76 percent of sophomores from households in the lowest SES quarter and sophomores who scored in the lowest achievement test score quarter rated friendships as very important compared with 88 percent of their counterparts in the highest quarter. Similar patterns were found among their predecessors in the 1980 and 1990 cohorts.

The percentage of sophomores who indicated that having leisure time was very important to them ranged between 70 percent in 1980 to 65 percent in 1990 (table 28). In each cohort, a smaller percentage of sophomores from households in the lowest SES quarter than sophomores from households in the highest quarter rated having free time to pursue their own interests as very important to them. For example, in 2002, 60 percent of sophomores from households in the lowest SES quarter rated leisure time as very important, while 74 percent of sophomores from households in the highest SES quarter so indicated. Likewise, a smaller percentage of those who were in the lowest achievement test quarter gave great weight to leisure time than those who scored in the highest quarter. These differences were consistent across cohorts.

Table 28. Percentage of high school sophomores who report that having strong friendships and having leisure time are very important to them, by selected student characteristics: 1980, 1990, and 2002

Characteristic	Having strong friendships			Having leisure time to enjoy own interests		
	1980	1990	2002	1980	1990	2002
All sophomores	81.5	80.2	82.8	70.0	65.0	68.1
Sex						
Male	79.4	76.9	79.3	70.9	65.1	68.8
Female	84.0	83.5	86.2	69.4	64.9	67.4
Racial/ethnic group						
American Indian or Alaska Native	73.6	72.8	83.1	61.1	58.0	57.1
Asian or Pacific Islander	81.7	84.9	85.5	69.7	63.6	66.8
Black or African American	64.2	66.7	71.7	68.1	60.0	67.8
Hispanic or Latino	73.4	70.4	75.7	62.5	59.2	61.1
More than one race	†	†	81.7	†	†	68.1
White	85.5	83.9	86.9	71.2	66.8	70.2
Socioeconomic status						
Lowest quarter	74.6	73.3	76.0	64.3	59.4	59.6
Middle quarters	82.5	80.4	83.5	69.7	64.9	69.0
Highest quarter	87.6	86.6	87.7	76.6	71.0	74.4
Composite achievement test score						
Lowest quarter	70.8	68.9	73.8	62.9	57.6	58.9
Second quarter	80.8	79.6	81.9	67.6	63.3	68.1
Third quarter	86.0	83.5	86.8	72.3	67.5	71.0
Highest quarter	88.9	86.9	88.0	77.1	70.7	73.8
School sector						
Public	80.8	79.8	82.2	69.8	65.5	67.8
Catholic	88.5	86.1	89.9	71.5	67.9	72.4
Other private	85.9	85.3	88.3	72.5	58.8	70.5
Region						
Northeast	81.6	80.6	81.9	73.3	68.6	69.8
Midwest	82.7	83.1	84.9	69.9	64.2	67.2
South	79.5	78.3	82.0	67.5	63.4	68.5
West	82.9	80.3	82.4	70.2	67.0	67.2

† Not applicable.

NOTE: Estimates may differ from previously released estimates because of revisions made to the data file and/or changes in rounding procedures. The racial/ethnic groups were modified for ELS:2002 to be consistent with Office of Management and Budget (OMB) requirements allowing for multiple race choices. Choosing more than one race was not permitted in HS&B and NELS:88. Respondents who identified themselves as being of Hispanic origin are classified as Hispanic, regardless of their race.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

6.4 Family Life and Children

There was a decline in the frequency with which sophomores indicated that finding the right person to marry and having a happy family life was very important between 1980 and 1990 (from 83 percent in 1980 to 77 percent in 1990 and 76 percent in 2002), with no differences detected between 1990 and 2002 (table 29). Across the three time points, a greater percentage of females than males indicated that they considered finding the right person to marry and having a happy family life to be very important (for example, in 2002, 79 percent of females and 73 percent of males so indicated). In 1980, no differences were detected between sophomores in the lowest and highest SES quarters in their rating of importance on finding the right person to marry/having a happy family life. However, in 2002, 71 percent of sophomores from households in the lowest SES quarter and 81 percent in the highest quarter so indicated. A similar pattern was found in 1990.

Not surprisingly perhaps, for all three cohorts, a greater percentage of sophomores from households in the lowest SES quarter than sophomores from households in the highest SES quarter indicated that giving children better opportunities than they had was very important to them (table 29). For example, in 1980, 79 percent of sophomores from households in the lowest SES quarter rated giving better opportunities to children as very important compared with 65 percent of sophomores from households in the highest SES quarter; in 2002, 84 percent of sophomores from households in the lowest quarter and 74 percent in the highest quarter indicated that giving children better opportunities was very important.

In contrast to the overall decline in importance of finding the right person to marry/having a happy family life, there was an increase between 1980 and 2002 in the percentage of sophomores who felt that having children was very important to them (from 41 percent to 47 percent) (table 29). This type of increase took place for both females and males between 1980 and 2002. The percentage indicating that having children was very important to them increased from 44 percent in 1980 to 50 percent in 2002 for females and from 38 percent to 45 percent for males. Across the cohorts, a greater percentage of White than Black sophomores and a greater percentage of Catholic than public school sophomores considered having children to be very important.

Table 29. Percentage of high school sophomores who report that various life values related to family are very important to them, by selected student characteristics: 1980, 1990, and 2002

Characteristic	Finding right person to marry and having a happy family life			Having children			Being able to give my children better opportunities than I've had		
	1980	1990	2002	1980	1990	2002	1980	1990	2002
All sophomores	82.9	76.7	76.4	40.8	43.2	47.4	72.6	75.6	80.3
Sex									
Male	79.8	72.8	73.4	37.8	39.6	45.1	72.4	72.9	78.9
Female	86.0	80.5	79.3	43.6	46.7	49.7	72.3	78.3	81.6
Racial/ethnic group									
American Indian or Alaska Native	70.2	58.7	71.3	28.8	41.1	36.5	73.3	76.4	87.8
Asian or Pacific Islander	81.0	75.1	76.9	36.6	38.8	42.1	78.7	80.0	79.6
Black or African American	78.4	72.4	71.9	31.4	30.8	40.7	84.3	87.1	88.3
Hispanic or Latino	80.8	74.0	71.5	40.4	43.5	42.4	80.7	85.7	85.6
More than one race	†	†	71.0	†	†	44.8	†	†	77.8
White	84.2	78.3	79.1	42.8	45.5	50.8	69.5	71.9	77.2
Socioeconomic status									
Lowest quarter	81.5	73.4	71.4	38.6	39.0	43.5	79.1	81.6	83.6
Middle quarters	83.6	76.4	76.6	41.5	42.1	47.3	72.9	76.7	81.6
Highest quarter	83.5	80.4	80.9	42.5	50.5	51.2	65.2	67.3	74.4
Composite achievement test score									
Lowest quarter	79.6	69.5	70.4	38.5	38.6	44.2	76.7	75.9	80.6
Second quarter	83.8	75.5	75.2	41.6	41.9	46.4	76.2	79.8	84.4
Third quarter	85.2	78.3	79.0	43.0	45.1	48.7	72.8	77.2	82.5
Highest quarter	84.0	81.7	80.7	40.4	47.8	50.0	64.2	67.8	73.6
School sector									
Public	82.8	76.3	75.9	40.2	42.0	46.8	73.2	75.8	80.7
Catholic	85.7	79.0	82.2	49.1	51.6	57.0	68.2	73.0	77.1
Other private	82.1	82.8	83.2	41.2	61.4	51.2	63.6	69.6	71.5
Region									
Northeast	82.5	77.2	76.5	41.7	47.9	48.1	71.5	73.5	77.6
Midwest	83.0	75.4	76.7	40.6	41.4	47.9	67.7	71.7	78.2
South	83.6	78.3	77.9	40.3	42.5	48.5	78.7	79.3	83.8
West	82.3	75.2	73.8	40.6	43.1	44.7	70.4	75.3	79.4

† Not applicable.

NOTE: Estimates may differ from previously released estimates because of revisions made to the data file and/or changes in rounding procedures. The racial/ethnic groups were modified for ELS:2002 to be consistent with Office of Management and Budget (OMB) requirements allowing for multiple race choices. Choosing more than one race was not permitted in HS&B and NELS:88. Respondents who identified themselves as being of Hispanic origin are classified as Hispanic, regardless of their race.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

6.5 Community and Social Values

The two social values measured in the studies were helping others in the community (asked in 1990 and 2002) and working to correct social inequalities (asked in 1980, 1990, and 2002). About one-third of both 1990 and 2002 cohorts indicated that it was very important to them to help other people in their community (33 percent in 1990 and 36 percent in 2002); however, a greater percentage of female sophomores than their male classmates indicated that helping others in their community was very important (for example, in 2002, 30 percent of males and 43 percent of females so indicated) (table 30). Among the racial/ethnic groups, a greater percentage of Black sophomores in each cohort (45 percent) indicated that helping others in their community was very important to them compared with between 29 percent and 38 percent of their counterparts of different racial and ethnic backgrounds.[29]

When sophomores were asked about working to correct social and economic inequalities, whether in their local community or in society at large, 14 percent in the 1980 cohort and 19 percent in both 1990 and 2002 reported that this was very important to them in their life. In each of the three time periods, a smaller percentage of Whites than Blacks or Hispanics indicated that working to correct social and economic inequalities was important to them in their life. For example, in 2002, 15 percent of Whites indicated that working to correct economic and social inequalities was important, whereas 29 percent of Blacks and Hispanics so indicated. Those in the highest quarter of the SES distribution were also less likely than those in the lowest quarter of the SES distribution to indicate that working to correct social and economic inequalities was important to their life (for example, in 2002, 16 percent of those in the highest quarter of the SES distribution compared with 25 percent so indicated).

6.6 Summary

In summary, in each of the three cohorts, 70 percent or more of high school sophomores rated being successful at work, holding a steady job, having close friends, being happily married, and providing better opportunities for their children as very important to them in their life. In contrast, having a lot of money, having children, living near parents and relatives, getting away from their area of the country, helping others in the community, and working to correct social and economic inequalities were very important to less than half of each cohort. The importance of three life values increased between 1980 and 2002: having lots of money, having children, and giving children better opportunities. Although successful jobs and family lives remain very important to high school sophomores, there was a decline in the proportion reporting that finding the right person to marry and having a happy family life was very important to them.

[29] However, no difference was detected between Black and American Indian sophomores in the 1990 cohort.

Table 30. Percentage of high school sophomores who report that various life values related to community are very important to them, by selected student characteristics: 1980, 1990, and 2002

Characteristic	Helping other people in community			Working to correct social and economic inequalities		
	1980	1990	2002	1980	1990	2002
All sophomores	—	32.8	36.3	14.4	19.2	19.3
Sex						
Male	—	26.2	29.9	13.6	17.4	18.7
Female	—	39.4	42.6	14.7	20.9	20.0
Racial/ethnic group						
American Indian or Alaska Native	—	35.4	29.4	16.1	30.3	26.6
Asian or Pacific Islander	—	33.0	38.2	21.3	22.4	21.5
Black or African American	—	44.5	45.2	25.8	29.3	28.8
Hispanic or Latino	—	35.9	37.3	20.4	26.8	28.9
More than one race	—	†	36.0	†	†	16.5
White	—	30.3	34.0	11.6	15.9	14.8
Socioeconomic status						
Lowest quarter	—	36.1	38.7	16.6	21.8	25.2
Middle quarters	—	31.2	35.0	13.5	18.3	18.2
Highest quarter	—	32.8	36.6	13.9	16.9	16.0
Composite achievement test score						
Lowest quarter	—	36.7	41.9	18.5	22.5	28.7
Second quarter	—	31.3	36.7	14.2	18.9	20.5
Third quarter	—	30.5	33.7	12.1	17.5	15.3
Highest quarter	—	29.9	33.3	12.5	15.8	13.5
School sector						
Public	—	32.0	36.1	14.6	19.0	19.6
Catholic	—	33.3	36.2	12.8	17.2	15.8
Other private	—	40.8	40.9	12.9	16.4	17.5
Region						
Northeast	—	30.4	32.3	14.6	18.4	18.3
Midwest	—	28.2	33.9	11.8	16.6	16.8
South	—	36.7	40.5	16.6	20.2	20.4
West	—	32.5	35.8	14.4	19.7	21.3

— Not available.

† Not applicable.

NOTE: Estimates may differ from previously released estimates because of revisions made to the data file and/or changes in rounding procedures. The racial/ethnic groups were modified for ELS:2002 to be consistent with Office of Management and Budget (OMB) requirements allowing for multiple race choices. Choosing more than one race was not permitted in HS&B and NELS:88. Respondents who identified themselves as being of Hispanic origin are classified as Hispanic, regardless of their race. The value “Helping other people in the community” was included only in the 1990 and 2002 studies.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), “Base Year, 1980”; National Education Longitudinal Study of 1988 (NELS:88), “First Follow-up, 1990”; and Education Longitudinal Study of 2002 (ELS:2002), “Base Year, 2002.”

Chapter 7
Plans and Expectations

This final chapter explores the educational and occupational expectations of high school sophomores, discussing overall change in the three time periods (1980, 1990, and 2002) and considering in more detail the data by student characteristics. This chapter also reports high school sophomores' plans for timing their postsecondary education and whether sophomores perceive that their parents, teachers, and counselors consider it very important that they attend college. The chapter includes the following sections:

7.1 Educational Expectations;
7.2 Perceptions of Parent, Counselor, and Teacher Views on Attending College;
7.3 Continuing Education Right After High School; and
7.4 Occupational Expectations.

7.1 Educational Expectations

Data from High School and Beyond (HS&B), the National Longitudinal Study of 1988 (NELS:88), and the Education Longitudinal Study of 2002 (ELS:2002) indicate that educational expectations of high school sophomores were higher in 2002 than in 1980 (see table 31 and figure 15). The percentage expecting a 4-year college degree increased from 23 percent in 1980 to 40 percent in 2002, and the percentage expecting a graduate or professional degree increased from 18 percent to 40 percent. Taken together, the percentage expecting a 4-year college degree or postgraduate degree was 41 percent in 1980 and 79 percent in 2002. Conversely, the percentage expecting that a high school diploma would be their highest degree declined. In 1980, about one-fourth indicated that "as things stood now" they expected a high school diploma or less to be their highest level of education. By 2002, the percentage anticipating high school or less as their highest degree had declined to 9 percent. Since 1980, the percentage of students expecting a 2-year or vocational degree also declined, going from 33 percent in 1980 to 12 percent in 2002.

7.1.1 Sex and educational expectations

Census data on educational participation by sex have documented differences between males and females in college participation. For example, Current Population Survey (CPS) data for 2000 show that 70 percent of female high school graduates aged 14 to 24 had some college participation, compared with 64 percent of male high school graduates (U.S. Census Bureau 2003a). Earlier CPS data from 1967 show a higher percentage of males than females attending college (59 percent for males and 45 percent for females in 1967), but by 1980 the percentages began to even out (51 percent for both males and females). After 1990, females consistently show higher participation. These data concerning gender differences over time in actual postsecondary participation may provide greater context for viewing gender differences in sophomores' reports of their future educational expectations.

Table 31. Percentage of high school sophomores who expect to attain various levels of postsecondary education, by selected student characteristics: 1980, 1990, and 2002

Characteristic	High school diploma or less			Two years or less of college or vocational school			College graduate			Graduate or professional		
	1980	1990	2002	1980	1990	2002	1980	1990	2002	1980	1990	2002
All sophomores	26.5	10.2	9.2	32.9	30.3	11.5	22.7	32.1	39.7	17.9	27.4	39.7
Sex												
Male	28.0	11.0	12.5	31.7	32.3	13.2	22.4	32.9	41.5	18.0	23.8	32.8
Female	23.4	9.4	5.8	34.2	28.3	9.7	23.8	31.4	37.8	18.7	30.9	46.6
Racial/ethnic group												
American Indian or Alaska Native	35.7	18.8	12.1	32.9	43.0	12.0	17.2	21.8	36.1	14.2	16.5	39.8
Asian or Pacific Islander	11.7	8.2	4.9	21.5	21.7	8.2	32.4	31.4	37.2	34.3	38.7	49.7
Black or African American	26.3	11.1	10.5	32.7	30.2	12.6	21.8	28.2	40.8	19.2	30.5	36.1
Hispanic or Latino	33.7	14.3	13.5	33.7	38.5	13.9	17.0	25.5	40.2	15.6	21.7	32.4
More than one race	†	†	9.0	†	†	9.5	†	†	38.2	†	†	43.3
White	25.9	9.4	8.0	33.1	29.5	10.9	23.4	33.9	39.6	17.7	27.3	41.4
Socioeconomic status												
Lowest quarter	45.1	21.4	16.8	32.8	42.1	17.0	12.9	21.6	38.2	9.1	15.0	28.0
Middle quarters	25.5	8.4	8.9	38.0	32.7	12.4	22.1	34.1	41.5	14.5	24.7	37.2
Highest quarter	7.4	1.5	2.5	23.3	11.9	4.6	34.6	39.1	37.6	35.7	47.5	55.2
Composite achievement test score												
Lowest quarter	47.5	21.4	24.1	33.1	46.3	20.1	11.8	19.8	35.3	7.6	12.5	20.5
Second quarter	32.3	11.8	9.1	40.5	40.7	15.3	16.7	30.5	44.9	10.5	17.0	30.8
Third quarter	18.5	5.4	3.7	37.8	26.3	8.0	26.5	38.6	43.1	17.2	29.7	45.2
Highest quarter	7.0	1.7	1.0	21.2	10.6	3.4	35.6	38.6	35.5	36.2	49.1	60.1
School sector												
Public	28.1	10.9	9.7	33.5	32.1	12.1	21.6	31.4	39.8	16.7	25.6	38.4
Catholic	9.8	3.2	1.2	27.1	12.2	3.9	33.2	42.1	41.2	29.9	42.5	53.7
Other private	12.3	4.1	3.9	27.1	13.1	4.8	32.2	35.1	35.8	28.4	47.6	55.5

See notes at end of table.

Table 31. Percentage of high school sophomores who expect to attain various levels of postsecondary education, by selected student characteristics: 1980, 1990, and 2002—Continued

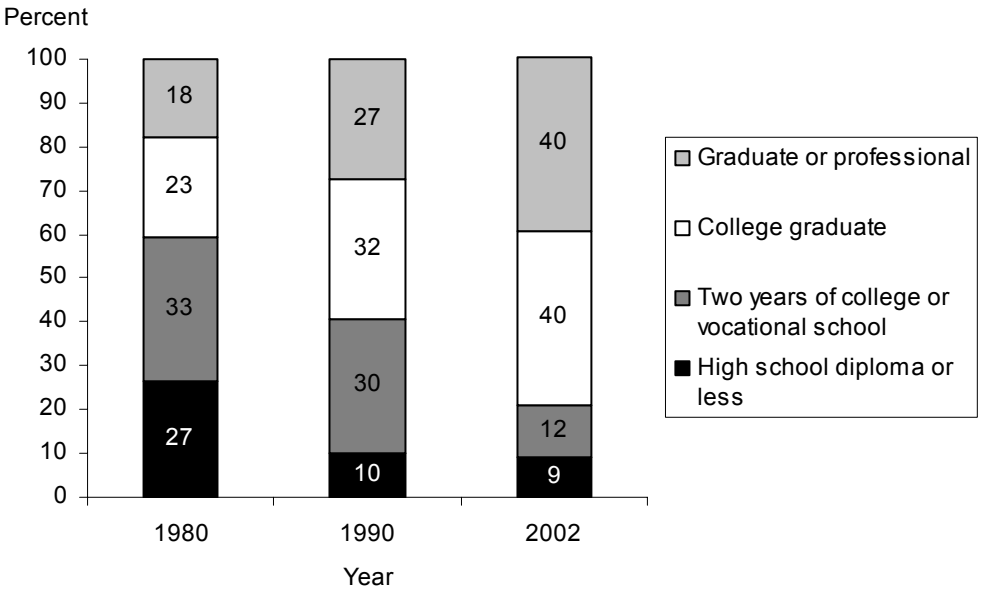
Characteristic	High school diploma or less			Two years or less of college or vocational school			College graduate			Graduate or professional		
	1980	1990	2002	1980	1990	2002	1980	1990	2002	1980	1990	2002
Region												
Northeast	25.0	9.3	7.8	30.3	24.9	9.6	24.1	35.5	41.7	20.6	30.3	40.9
Midwest	28.6	10.4	9.2	32.4	31.3	12.4	22.4	32.3	39.1	16.6	25.9	39.3
South	28.3	10.6	8.9	33.9	30.2	10.9	21.7	32.1	39.6	16.0	27.1	40.6
West	21.8	9.9	10.6	34.8	33.8	12.9	23.3	29.1	38.7	20.1	27.2	37.7

† Not applicable.

NOTE: The racial/ethnic groups were modified for ELS:2002 to be consistent with Office of Management and Budget (OMB) requirements allowing for multiple race choices. Choosing more than one race was not permitted in HS&B and NELS:88. Respondents who identified themselves as being of Hispanic origin are classified as Hispanic, regardless of their race.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

Figure 15. Percentage of high school sophomores, by educational expectation level: 1980, 1990, and 2002

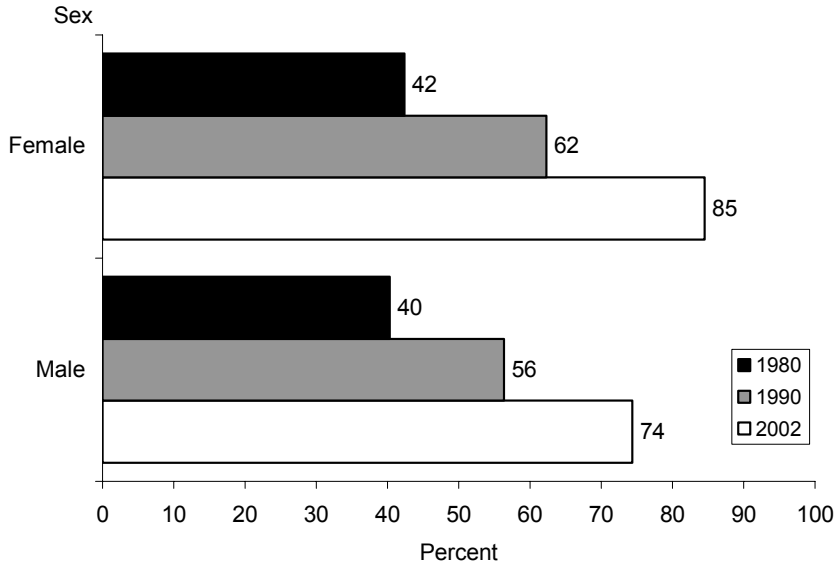


NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

HS&B, NELS:88, and ELS:2002 data on sophomore educational expectations also show increasing divergence by sex. In 1980, 40 percent of males and 42 percent of females expected a 4-year college degree or higher. In 2002, 74 percent of males and 84 percent of females expected this level of education (figure 16).

Figure 16. Percentage of high school sophomores who expect to obtain a bachelor's, graduate, or professional degree as highest degree, by sex: 1980, 1990, and 2002



SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

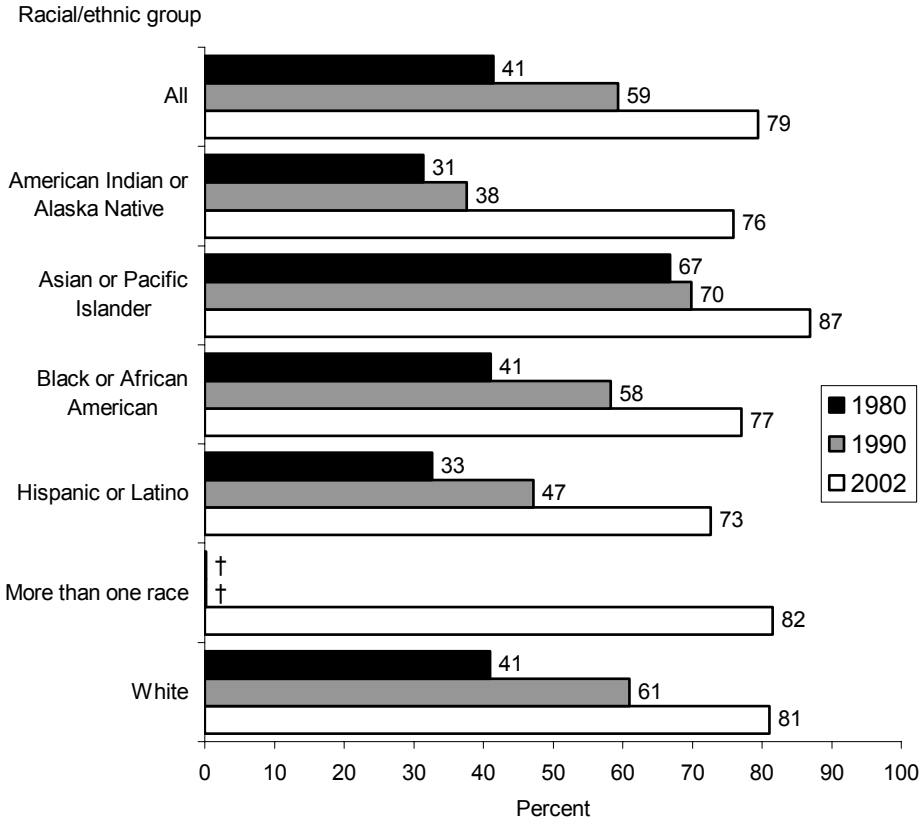
The expectations of high school sophomores in each year represent a substantial increase upward from their parents' educational attainment, and as noted above, this is especially so among female students. For example, in 1980, 5 percent of mothers of sophomores participating in HS&B held postgraduate degrees (master's, Ph.D., or other advanced degree), whereas 19 percent of female sophomore participants expected to obtain a postgraduate degree (table 6 and figure 16). In 2002, 8 percent of mothers of sophomore participants in ELS:2002 held postgraduate degrees, whereas 47 percent of the female sophomores expected to earn a postgraduate degree.

7.1.2 Racial/ethnic group and educational expectations

Figure 17 combines the two categories (4-year college degree and graduate or professional degree) and presents the data by racial/ethnic group. In 1980, expectations of a 4-year degree or higher ranged from 31 percent to 33 percent for American Indian and Hispanic sophomores to 67 percent for Asians. By 2002, the range was from 73 percent for Hispanic students to 87 percent for Asians. No measurable difference was detected between Black and White expectations for a 4-year degree. Rates for Black sophomores went from 41 percent expecting a 4-year degree or higher in 1980 to 58 percent in 1990 to 77 percent in 2002. Rates

for White sophomores went from 41 percent in 1980 to 61 percent in 1990 to 81 percent expecting a 4-year degree or higher in 2002.

Figure 17. Percentage of high school sophomores who expect to obtain a bachelor's, graduate, or professional degree as highest degree, by race/ethnicity: 1980, 1990, and 2002



† Not applicable.

NOTE: The racial/ethnic groups were modified for ELS:2002 to be consistent with Office of Management and Budget (OMB) requirements allowing for multiple race choices. Choosing more than one race was not permitted in HS&B and NELS:88. Respondents who identified themselves as being of Hispanic origin are classified as Hispanic, regardless of their race.

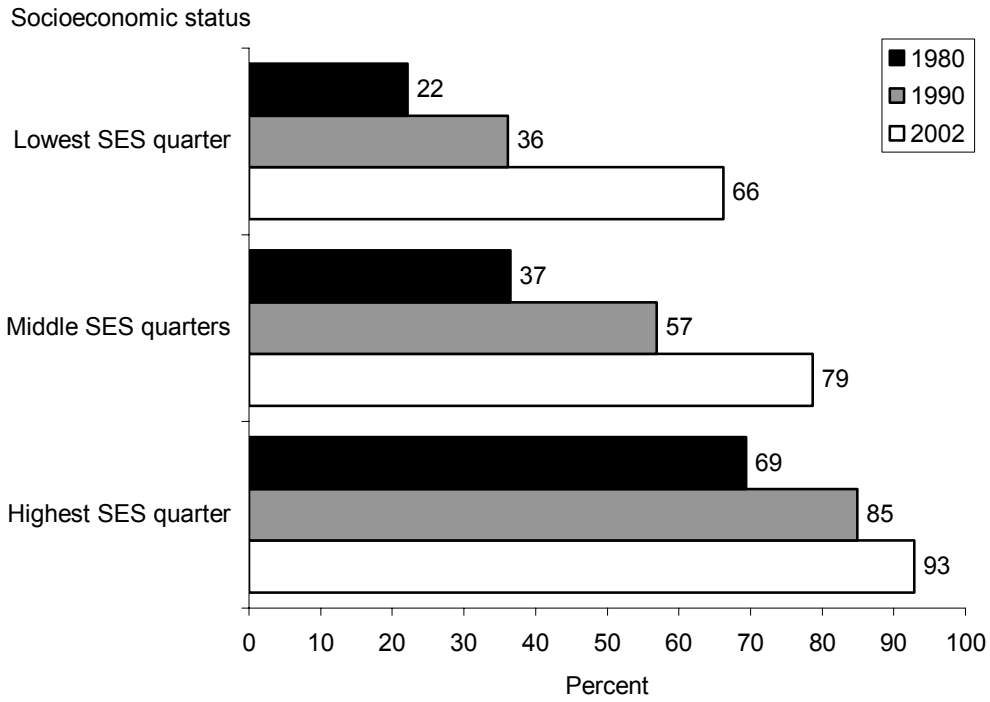
SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

7.1.3 Socioeconomic status (SES), academic test quarters, and educational expectations

Expectations have also increased for each of the SES groupings, with some narrowing of the SES difference (figure 18). Between 1980 and 2002, among the lowest quarter, expectations for a 4-year degree or higher went from 22 percent to 66 percent; among the middle two quarters, from 37 percent to 79 percent; and among the highest quarter, from 69 percent to 93 percent.

Looking at composite achievement test quarters (figure 19), expectations have risen for each of the quarters while remaining significantly different by achievement grouping. For example, among those in the lowest achievement quarter, 19 percent in 1980 and 56 percent in 2002 indicated that they expected to obtain a bachelor's degree or higher, whereas among those in the highest achievement quarter, 72 percent in 1980 and 96 percent in 2002 expected to obtain a bachelor's degree or higher.

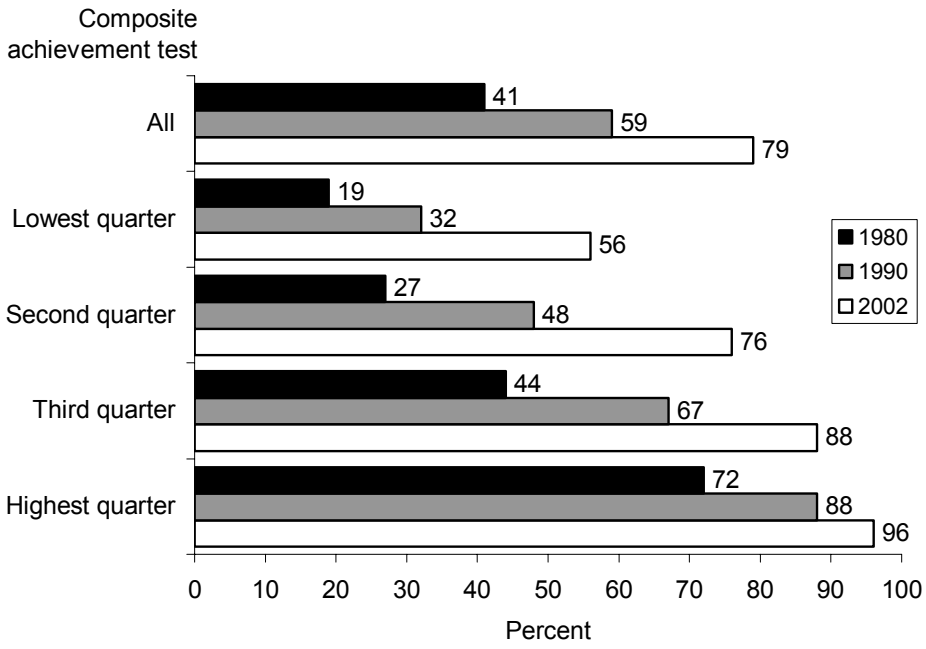
Figure 18. Percentage of high school sophomores who expect to obtain a bachelor's, graduate, or professional degree as highest degree, by socioeconomic status (SES): 1980, 1990, and 2002



NOTE: In this figure, the two middle SES quarters have been combined.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

Figure 19. Percentage of high school sophomores who expect to obtain a bachelor's, graduate, or professional degree as highest degree, by standardized test composite score: 1980, 1990, and 2002



NOTE: Each of the three studies (HS&B, NELS:88, ELS:2002) have constructed a standardized composite test score based on achievement test scores for reading and math. The quarter test score divides the weighted (population estimates) reading and mathematics composite score into four equal groups.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

7.2 Perceptions of Parent, Counselor, and Teacher Views on Attending College

In all 3 years, high school sophomores were asked questions concerning parents', teachers', and counselors' views on their college attendance decisions. The question for 1980 was worded somewhat differently than in 1990 and 2002. In 1980, the question was worded as "What do the following people think you ought to do right after high school?" In 1990 and 2002, sophomores were asked "What do the following people think is the most important thing for you to do right after high school?" Acknowledging this difference in item wording, the period between 1980 and 2002 reflects increases in the perception among sophomores that parents, counselors, and teachers thought they should go to college right after high school (table 32).

Between 1980 and 2002, the percentage of sophomores who perceived that their parents thought they should go to college or that going to college right after high school was the most important thing for them to do increased from 59 percent to 79 percent for fathers and from 65 percent to 85 percent for mothers.

The percentage of respondents who reported that school counselors and teachers thought it was most important for them to attend college right after high school also increased from almost one-third (32 percent in 1980) to almost two-thirds (65 percent for counselors and 66 percent for teachers in 1990) to about three-fourths (72 percent for counselors and 73 percent for teachers in 2002) over the period.

Table 32. Percentage of high school sophomores who report fathers, mothers, school counselors, and teachers think college is the most important thing for them to do right after high school, by selected student characteristics: 1980, 1990, and 2002

Characteristic	Father			Mother			School counselor			Teacher or favorite teacher		
	1980	1990	2002	1980	1990	2002	1980	1990	2002	1980	1990	2002
All sophomores	59.1	77.0	79.4	64.8	82.9	85.4	32.3	65.2	71.5	32.3	65.5	73.3
Sex												
Male	55.6	74.0	75.2	61.6	80.7	81.3	32.2	64.0	67.5	32.1	64.2	68.5
Female	63.5	80.0	83.4	68.6	85.2	89.4	32.7	66.3	75.1	32.5	66.8	77.6
Racial/ethnic group												
American Indian or Alaska Native	46.8	62.4	64.9	81.1	70.3	69.8	31.7	52.4	62.1	29.6	59.8	68.2
Asian or Pacific Islander	78.7	87.9	84.4	63.2	88.8	88.4	32.9	68.6	69.7	34.6	72.0	71.4
Black or African American	56.6	69.4	75.2	67.2	76.6	85.6	37.1	66.1	73.9	42.0	70.0	78.2
Hispanic or Latino	56.3	75.3	74.8	64.5	81.1	82.6	32.2	64.8	69.5	34.5	65.2	71.2
More than one race	†	†	72.5	†	†	85.5	†	†	68.3	†	†	68.2
White	59.7	78.2	81.8	51.9	84.3	86.0	31.4	65.1	71.9	30.4	64.6	73.2
Socioeconomic status												
Lowest quarter	36.7	58.0	67.7	47.0	66.5	77.2	24.9	56.1	65.9	26.3	59.0	69.6
Middle quarters	57.4	76.6	78.3	63.9	84.2	84.9	30.1	63.6	70.4	30.1	63.8	71.3
Highest quarter	84.5	94.5	91.3	86.2	96.7	93.6	44.5	77.7	78.4	42.7	76.1	80.2
Composite achievement test score												
Lowest quarter	40.4	59.9	63.7	47.6	64.7	72.6	26.1	56.4	63.5	28.2	57.2	64.1
Second quarter	49.7	71.7	76.0	55.6	79.3	83.0	26.1	61.1	72.0	26.5	60.7	71.8
Third quarter	63.9	83.1	85.1	69.2	89.7	89.9	31.3	66.4	73.9	30.1	65.5	75.8
Highest quarter	79.8	90.6	90.3	85.1	95.9	94.2	43.1	74.3	74.9	41.7	75.3	79.5
School sector												
Public	57.1	75.2	78.5	63.1	81.5	84.7	31.3	63.5	70.6	31.5	64.0	72.7
Catholic	78.1	92.9	91.9	82.5	95.4	96.0	40.6	80.8	82.8	37.1	77.6	80.1
Other private	77.1	91.2	87.0	78.8	94.4	91.1	45.5	80.5	79.8	45.1	79.3	79.5

See notes at end of table.

Table 32. Percentage of high school sophomores who report fathers, mothers, school counselors, and teachers think college is the most important thing for them to do right after high school, by selected student characteristics: 1980, 1990, and 2002—Continued

Characteristic	Father			Mother			School counselor			Teacher or favorite teacher		
	1980	1990	2002	1980	1990	2002	1980	1990	2002	1980	1990	2002
Region												
Northeast	62.4	82.6	80.8	67.0	88.0	86.6	37.5	72.9	74.9	32.4	68.2	74.8
Midwest	55.9	74.9	78.8	63.3	82.3	84.6	29.9	64.4	70.9	35.2	62.3	73.1
South	56.2	75.9	80.1	62.4	81.3	86.6	30.0	64.1	72.4	30.1	67.4	75.2
West	65.3	76.3	77.7	69.0	82.0	83.5	32.9	61.6	67.8	33.4	63.4	69.3

† Not applicable.

NOTE: The racial/ethnic groups were modified for ELS:2002 to be consistent with Office of Management and Budget (OMB) requirements allowing for multiple race choices. Choosing more than one race was not permitted in HS&B and NELS:88. Respondents who identified themselves as being of Hispanic origin are classified as Hispanic, regardless of their race.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

7.3 Continuing Education Right After High School

In each of the three surveys, high school sophomores were also asked a question about their plans for continuing their education "right after high school." Wording of the question varied somewhat in each of the surveys, but not in a manner that could be expected to change the results.[30]

Table 33 documents the increase in the percentage of high school sophomores "expecting to attend college right after high school"—from 49 percent overall in 1980 to 60 percent in 1990 and 66 percent in 2002. By racial/ethnic group, the percentage intending to go to college right after high school was higher than the national average for Asians and lower for American Indians in each of the 3 years. No differences were detected between Blacks and Whites in any of the 3 years.

With regard to SES differences, these data display much the same pattern discussed above regarding the question on educational expectations—an overall increase, especially between 1980 and 1990, in the percentage expecting to go to college right after high school. For example, in 1980 the percentage of sophomores who planned to enroll in college right after high school was 72 percent for the highest SES quarter and 31 percent for the lowest quarter (figure 20). In 2002, the percentage planning to enroll in college had increased by 15 percent for the highest SES quarter (up to 82 percent) and by 70 percent for the lowest SES quarter (up to 53 percent). In 1980, rates for the highest SES quarter were 2.3 times higher than those in the lowest SES quarter, whereas in 2002 rates for the highest SES quarter were 1.6 times higher than those of the lowest quarter.

[30] In 1980, the question was "Do you plan to go to college at some time in the future?"; in 1990, the question was "Do you plan to go to college after you graduate from high school?" In 2002, the question was asked as a follow-up to the question "As things stand now, how far do you expect to go in school?" Those who indicated "below high school" or "high school graduate" skipped the question "Do you plan to continue your education right after high school or at some time in the future?" The choices written on the survey form were the same in all 3 years, although the 2002 survey had one extra category. In each of the years, the response categories included "Yes, right after high school," "Yes, after a year," Yes, after more than a year," "Don't know," and "No, don't plan to continue my education after high school." In 2002, there was also a "Yes, do not know when" category, which is included in the "No/Don't know" group.

Table 33. Percentage of high school sophomores who report various intentions with regard to entering college after high school graduation, by selected student characteristics: 1980, 1990, and 2002

Characteristic	Right after high school			After a year			After more than a year			No/don't know		
	1980	1990	2002	1980	1990	2002	1980	1990	2002	1980	1990	2002
All sophomores	48.5	60.0	65.9	13.3	15.0	14.2	2.6	2.3	1.9	35.7	22.6	18.0
Sex												
Male	45.0	55.3	59.3	13.1	15.4	14.9	3.2	3.3	3.0	38.6	26.0	22.8
Female	51.7	64.7	72.6	13.5	14.5	13.5	2.0	1.4	0.8	32.8	19.4	13.1
Racial/ethnic group												
American Indian or Alaska Native	33.0	45.8	50.6	15.2	16.1	20.9	7.3	1.2	3.1	44.6	37.0	25.3
Asian or Pacific Islander	73.3	78.0	81.1	9.5	9.1	6.0	3.8	1.8	1.2	13.4	11.1	11.6
Black or African American	51.4	61.5	69.2	13.6	13.7	13.4	4.4	2.5	1.2	30.6	22.4	16.2
Hispanic or Latino	43.6	52.5	58.9	15.1	18.9	14.9	3.2	4.0	2.2	38.1	24.6	23.9
More than one race	†	†	58.3	†	†	19.2	†	†	2.8	†	†	19.8
White	48.3	60.1	66.7	13.1	14.9	14.3	2.1	2.2	2.0	36.5	22.8	17.0
Socioeconomic status												
Lowest quarter	31.0	39.2	52.6	11.8	17.7	16.4	3.2	2.7	2.5	53.9	40.4	28.6
Middle quarters	45.8	58.9	64.2	14.6	15.8	15.8	2.5	2.4	1.9	37.1	22.9	18.1
Highest quarter	71.9	80.7	82.4	12.2	10.2	8.9	1.9	1.6	1.3	14.0	7.5	7.4
Composite achievement test score												
Lowest quarter	29.8	38.5	49.0	13.3	17.9	14.8	3.5	2.4	2.7	53.4	41.1	33.5
Second quarter	36.5	52.4	59.7	15.2	18.4	19.7	2.5	2.3	1.8	45.8	26.8	18.8
Third quarter	51.7	66.0	71.5	14.4	13.8	14.3	2.2	2.6	1.9	31.6	17.6	12.3
Highest quarter	73.4	81.8	82.5	10.5	9.4	8.2	1.8	1.7	1.3	14.3	7.1	8.0
School sector												
Public	46.3	58.2	64.5	13.6	15.4	14.7	2.7	2.4	2.0	37.4	24.0	18.7
Catholic	71.1	82.9	87.9	9.8	7.2	6.5	1.0	1.9	0.5	18.1	8.0	5.2
Other private	65.2	74.2	76.9	11.7	13.7	9.6	1.9	0.7	0.5	21.2	11.4	13.0

See notes at end of table.

Table 33. Percentage of high school sophomores who report various intentions with regard to entering college after high school graduation, by selected student characteristics: 1980, 1990, and 2002—Continued

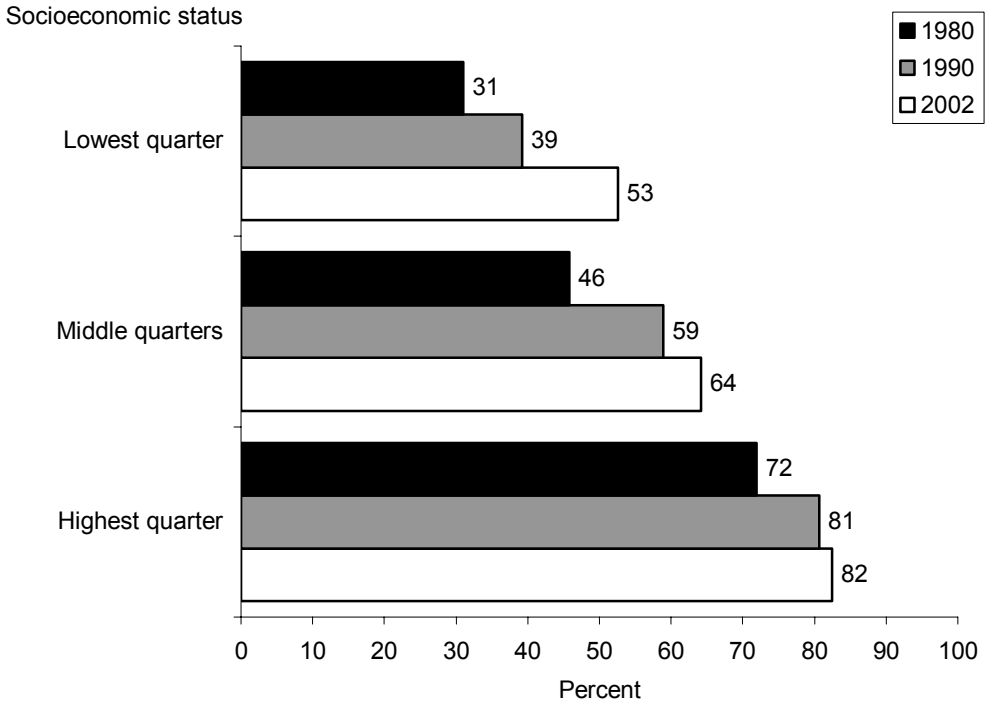
Characteristic	Right after high school			After a year			After more than a year			No/don't know		
	1980	1990	2002	1980	1990	2002	1980	1990	2002	1980	1990	2002
Region												
Northeast	52.1	66.9	70.4	11.6	11.5	13.1	2.2	2.2	2.1	34.0	19.4	14.4
Midwest	46.2	59.5	66.6	11.7	13.9	14.2	2.2	2.1	1.3	39.9	24.5	18.0
South	47.0	59.5	66.8	13.4	15.2	13.9	2.8	2.0	1.8	36.8	23.3	17.4
West	50.0	56.6	60.2	17.3	18.5	15.5	3.1	3.1	2.6	29.6	21.8	21.6

† Not applicable.

NOTE: Estimates may differ from previously released estimates because of revisions made to the data file and/or changes in rounding procedures. The racial/ethnic groups were modified for ELS:2002 to be consistent with Office of Management and Budget (OMB) requirements allowing for multiple race choices. Choosing more than one race was not permitted in HS&B and NELS:88. Respondents who identified themselves as being of Hispanic origin are classified as Hispanic, regardless of their race.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

Figure 20. Percentage of high school sophomores who expect to enroll in college right after high school, by socioeconomic status (SES): 1980, 1990, and 2002



NOTE: In this figure, the two middle SES quarters have been combined. Estimates may differ from previously released estimates because of revisions made to the data file and/or changes in rounding procedures.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

7.4 Occupational Expectations

As noted above, 66 percent of high school sophomores in 2002 planned on attending college right after high school, and 79 percent expected to obtain a bachelor's or higher degree. This section reports what sophomores thought their occupation would be at age 30. It examines the extent to which occupational expectations were consistent with educational expectations and to what extent these expectations were consistent with recent projections in the area of job openings for the years in which the sophomores will be entering the labor market.

Table 34 lists the occupational expectations at age 30 as reported by the high school sophomore cohorts (1980, 1990, and 2002). Some caution is needed in interpreting these data due to questionnaire changes over the three studies. The 1980 survey displayed the occupations listed in table 34 and gave several examples of the occupations included in each listed category. The 1990 survey, the NELS:88 first follow-up, used the same list with the same examples but added a "don't know" option. The 2002 survey form asked the question in an open-ended format with the only option displayed on the questionnaire being the "don't know" option.

Table 34. Percentage of high school sophomores' expected occupation at age 30, by sex: 1980, 1990, and 2002

Occupation	All			Male			Female		
	1980	1990	2002	1980	1990	2002	1980	1990	2002
Clerical	9.7	2.7	0.3	1.5	1.3	0.1	17.2	4.2	0.4
Craftsman	9.1	3.5	2.7	18.1	6.5	4.6	1.0	0.5	0.8
Farmer, farm manager	2.6	0.9	0.1	4.4	1.5	0.2	0.9	0.3	#
Homemaker	5.0	1.9	0.1	0.2	0.2	#	9.3	3.6	0.2
Laborer	2.1	0.5	0.4	4.0	1.0	0.7	0.4	0.1	#
Manager, administrator	4.0	5.1	1.9	4.8	5.5	2.2	3.2	4.8	1.7
Military	3.5	2.7	0.9	5.8	4.2	1.7	1.4	1.2	0.2
Operative	2.9	1.2	0.6	5.2	1.9	1.1	0.9	0.5	0.1
Professional (1)	24.7	23.2	24.7	20.8	21.6	25.5	28.3	24.7	23.9
Professional (2)	13.0	19.3	20.2	12.3	15.5	11.6	13.6	23.1	28.5
Proprietor or owner	3.6	5.4	2.1	5.5	6.9	2.6	1.8	4.0	1.6
Protective service	1.6	2.8	2.2	2.6	4.5	3.3	0.8	1.0	1.2
Sales	1.9	1.8	0.6	1.7	1.9	0.8	2.1	1.7	0.3
School teacher	2.6	4.4	1.6	0.8	1.8	0.6	4.2	7.0	2.6
Service	4.1	1.4	2.6	0.6	0.5	0.4	7.3	2.3	4.6
Technical	7.4	4.9	3.3	10.4	7.4	4.5	4.6	2.4	2.2
Plan not to work	2.2	0.2	1.0	1.4	0.2	1.1	2.9	0.2	0.9
Other	—	8.0	0.5	—	8.3	0.5	—	7.8	0.5
Don't know	†	10.0	34.3	†	9.3	38.4	†	10.7	30.3

— Not available.

† Not applicable.

Rounds to zero.

NOTE: Estimates may differ from previously released estimates because of revisions made to the data file and/or changes in rounding procedures. Caution is needed in interpreting this table due to questionnaire differences. In 1980 and 1990, the options were listed with several examples in parentheses (list given below). In 2002, the question was asked in an open-ended format, and the only option displayed was the "don't know" option. In 1980, the "don't know" and other options were not provided. In 1990, "don't know" was displayed as one of the options above displayed. The occupational list given to sophomores in 1980 and 1990 was as follows: Clerical such as bank teller, bookkeeper, secretary, typist, mail carrier, ticket agent; Craftsman such as baker, automobile mechanic, machinist, painter, plumber, telephone installer, carpenter; Farmer, farm manager; Homemaker or housewife only; Laborer such as construction worker, car washer, sanitary worker, farm laborer; Manager, administrator such as sales manager, office manager, school administrator, buyer, restaurant manager, government official; Military such as career officer, enlisted man or woman in the Armed Forces; Operative such as meat cutter, assembly worker, machine operator, welder, taxicab, bus or truck driver; Professional (1) such as accountant, artist, registered nurse, engineer, librarian, writer, social worker, actor, actress, athlete, politician, but not including school teacher; Professional (2) such as clergyman, dentist, physician, lawyer, scientist, college teacher; Proprietor or owner such as owner of small business, contractor, restaurant owner; Protective service such as detective, police officer or guard, sheriff, fire fighter; Sales such as salesperson, advertising or insurance agent, real estate broker; School teacher such as elementary or secondary; Service such as barber, beautician, practical nurse, private household worker, janitor, waiter; Technical such as draftsman, medical or dental technician, computer programmer; Plan not to work; and Other (not listed in 1980).

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

As can be seen from the frequencies in the table, the open-ended manner of asking the question in 2002 with a displayed "don't know" option elicited a response of "don't know" from 34 percent of sophomores (who checked a "don't know" response box rather than writing in an occupational response). This compares with 10 percent choosing "don't know" in 1990. It is difficult to know whether the higher percentage of uncertainty manifest in 2002 over 1990 is a result of increased uncertainty in the types of occupations that might be possible in a rapidly

changing workforce or the result of changes in the way the question was asked between the studies. However, with the survey form differences, there was a decline in the percentage of females who chose "clerical" (from 17 percent to 0.4 percent) and an increase in the percentage who chose "Professional 2"[31] (the pinnacle of the occupational prestige scale) from 1980 to 2002 (from 14 percent to 29 percent). In 2002, males more frequently chose to answer the question with a "don't know" response than females (38 percent for males compared with 30 percent for females). In 2002, females were more likely than males to indicate that they expected to be employed as a Professional 2 (29 percent compared with 12 percent).

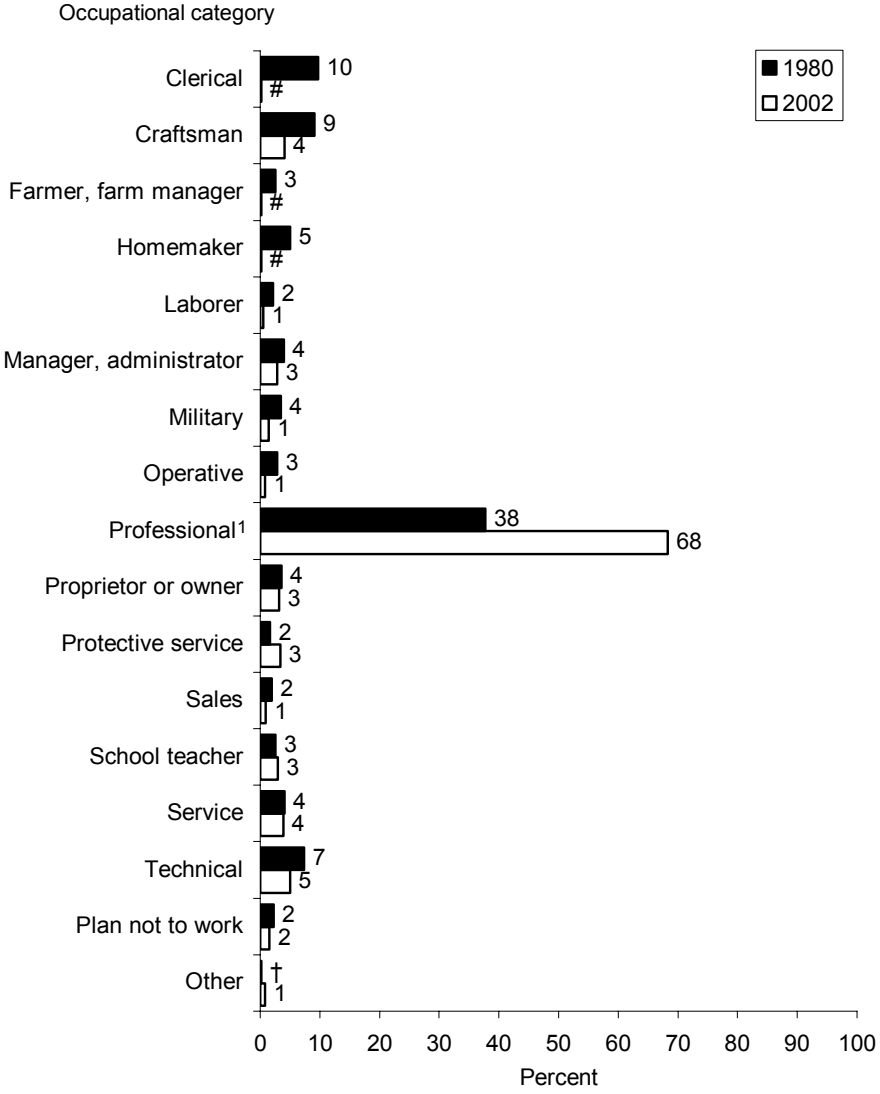
Figure 21 and table 35 display the percentage distributions for the three surveys with those who responded "don't know" removed from the tabulations. These data indicate that by 2002, among those who did not choose "don't know," there were relatively few sophomores who reported that they expected to be in nonprofessional jobs. Overall, 71 percent of sophomores who reported a known job expectation at age 30 listed a professional job (including the two professional categories and school teachers), and another 3 percent expected to be in management jobs. Five percent indicated that they expected a job in the technical grouping, which includes computer programming. These categories (taken together) account for 79 percent of the expressed job expectations for age 30 named by sophomores in 2002.

The examination of the occupational projections for the period in which the 2002 sophomores can be expected to enter the job market raises some questions as to the degree of congruence between sophomores' occupational aspirations and current labor market projections. Tables 36 and 37 give Bureau of Labor Statistics (BLS) data and projections for job distributions by occupational group and educational requirements (2000 and 2010). While most of the distributional projected growth is in professional and technical jobs, which is in line with sophomore job expectations, the relative increases may not be large enough to meet the high professional, management, or technical occupational aspirations of cohorts such as the 2002 sophomores. By 2010, professional and related occupations are expected to be 20 percent of the total, up from 18 percent in 2000, and the management, business, and financial occupations (many of which are included in the professional category in the classification used in the three NCES surveys) are expected to be 11 percent (the same as 2000).

Similarly, the figures related to the educational requirements of jobs given in table 37 project that 21 percent of job openings will require a bachelor's degree or higher and that 1.2 percent will require a first professional education in 2010. An additional 9 percent are listed as requiring an associate degree or vocational postsecondary award. Understanding labor market projections is complex and needs to take into account expectations from economic growth and changes in the economy as well as replacement needs.

[31] Professional 1 includes such occupations as accountant, artist, registered nurse, librarian, writer, social worker, actor/actress, engineer, athlete, and politician (but not school teacher). Professional 2 includes occupations such as clergyman, physician, attorney, scientist, and college professor.

Figure 21. Percentage of high school sophomores, by occupational expectations at age 30 with "don't know" responses removed: 1980 and 2002



† Not applicable.

Rounds to zero.

[1]The "professional" category in this figure combines the two professional (Professional 1 and Professional 2) categories; note that school teacher is a separate listing in the figure.

NOTE: Estimates may differ from previously released estimates because of revisions made to the data file and/or changes in rounding procedures. The occupational list given to sophomores in 1980 and 1990 was as follows: Clerical such as bank teller, bookkeeper, secretary, typist, mail carrier, ticket agent; Craftsman such as baker, automobile mechanic, machinist, painter, plumber, telephone installer, carpenter; Farmer, farm manager; Homemaker or housewife only; Laborer such as construction worker, car washer, sanitary worker, farm laborer; Manager, administrator such as sales manager, office manager, school administrator, buyer, restaurant manager, government official; Military such as career officer, enlisted man or woman in the Armed Forces; Operative such as meat cutter, assembly worker, machine operator, welder, taxicab, bus or truck driver; Professional (1) such as accountant, artist, registered nurse, engineer, librarian, writer, social worker, actor, actress, athlete, politician, but not including school teacher; Professional (2) such as clergyman, dentist, physician, lawyer, scientist, college teacher; Proprietor or owner such as owner of small business, contractor, restaurant owner; Protective service such as detective, police officer or guard, sheriff, fire fighter; Sales such as salesperson, advertising or insurance agent, real estate broker; School teacher such as elementary or secondary; Service such as barber, beautician, practical nurse, private household worker, janitor, waiter; Technical such as draftsman, medical or dental technician, computer programmer; Plan not to work; and Other (not listed in 1980).

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

Table 35. Percentage of high school sophomores' expected occupation at age 30, by sex with "don't know" responses removed: 1980, 1990, and 2002

Occupation	All			Male			Female		
	1980	1990	2002	1980	1990	2002	1980	1990	2002
Clerical	9.7	3.0	0.4	1.5	1.4	0.1	17.2	4.7	0.6
Craftsman	9.1	3.9	4.1	18.1	7.2	7.5	1.0	0.6	1.2
Farmer, farm manager	2.6	1.0	0.2	4.4	1.7	0.3	0.9	0.3	#
Homemaker	5.0	2.1	0.2	0.2	0.2	#	9.3	4.0	0.3
Laborer	2.1	0.6	0.5	4.0	1.1	1.2	0.4	0.2	#
Manager, administrator	4.0	5.7	2.9	4.8	6.0	3.5	3.2	5.4	2.4
Military	3.5	3.0	1.4	5.8	4.7	2.7	1.4	1.4	0.3
Operative	2.9	1.3	0.8	5.2	2.1	1.7	0.9	0.5	0.1
Professional (1)	24.7	25.8	37.5	20.8	23.9	41.3	28.3	27.7	34.3
Professional (2)	13.0	21.5	30.8	12.3	17.1	18.9	13.6	25.8	40.9
Proprietor or owner	3.6	6.0	3.2	5.5	7.6	4.3	1.8	4.5	2.3
Protective service	1.6	3.1	3.4	2.6	5.0	5.4	0.8	1.2	1.7
Sales	1.9	2.0	0.9	1.7	2.1	1.4	2.1	1.9	0.5
School teacher	2.6	5.9	2.5	0.8	2.0	1.0	4.2	7.8	3.8
Service	4.1	1.5	3.9	0.6	0.5	0.7	7.3	2.6	6.6
Technical	7.4	5.4	5.0	10.4	8.1	7.3	4.6	2.7	3.1
Plan not to work	2.2	0.2	1.5	1.4	0.2	1.8	2.9	0.2	1.3
Other	—	8.9	0.8	#	9.2	0.9	#	8.7	0.7
Don't know	†	†	†	†	†	†	†	†	†

— Not available.

† Not applicable.

Rounds to zero.

NOTE: Estimates may differ from previously released estimates because of revisions made to the data file and/or changes in rounding procedures. All "don't know" responses were excluded from the numerator and denominator in tabulating the percentage distribution for this table. Caution is needed in interpreting this table due to questionnaire differences. In 1980 and 1990, the options were listed with several examples in parentheses (list given below). In 2002, the question was asked in an open-ended format, and the only option displayed was the "don't know" option. In 1980, the "don't know" and other options were not provided. In 1990, "don't know" was displayed as one of the options above displayed. The occupational list or given to sophomores in 1980 and 1990 was as follows: Clerical such as bank teller, bookkeeper, secretary, typist, mail carrier, ticket agent; Craftsman such as baker, automobile mechanic, machinist, painter, plumber, telephone installer, carpenter; Farmer, farm manager; Homemaker or housewife only; Laborer such as construction worker, car washer, sanitary worker, farm laborer; Manager, administrator such as sales manager, office manager, school administrator, buyer, restaurant manager, government official; Military such as career officer, enlisted man or woman in the Armed Forces; Operative such as meat cutter, assembly worker, machine operator, welder, taxicab, bus or truck driver; Professional (1) such as accountant, artist, registered nurse, engineer, librarian, writer, social worker, actor, actress, athlete, politician, but not including school teacher; Professional (2) such as clergyman, dentist, physician, lawyer, scientist, college teacher; Proprietor or owner such as owner of small business, contractor, restaurant owner; Protective service such as detective, police officer or guard, sheriff, fire fighter; Sales such as salesperson, advertising or insurance agent, real estate broker; School teacher such as elementary or secondary; Service such as barber, beautician, practical nurse, private household worker, janitor, waiter; Technical such as draftsman, medical or dental technician, computer programmer; Plan not to work; and Other (not listed in 1980).

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Base Year, 1980"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, 1990"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002."

Table 36. Number and percentage of jobs, by major occupational group: 2000 and projected 2010

Occupation	Employment				Percent change 2002–10
	Number (in thousands)		Percent		
	2000	2010	2000	2010	
Total	145,594	167,754	100.0	100.0	†
Management, business, and financial	15,519	17,635	10.7	10.5	-1.9
Professional and related	26,758	33,709	18.4	20.1	9.2
Service	26,075	31,163	17.9	18.6	3.9
Sales and related	15,513	17,365	10.7	10.4	-2.8
Office and administrative support	23,882	26,053	16.4	15.5	-5.5
Farming, fishing, and forestry	1,429	1,480	1.0	0.9	-10.0
Construction and extraction	7,451	8,439	5.1	5.0	-2.0
Installation, maintenance, and repair	5,820	6,482	4.0	3.9	-2.5
Production	13,060	13,811	9.0	8.2	-8.9
Transportation and material moving	10,088	11,618	6.9	6.9	#

† Not applicable.

Rounds to zero.

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

SOURCE: U.S. Bureau of Labor Statistics. (2003). Employment and Earnings, Monthly, June 2003, and unpublished data. Retrieved November 15, 2005, from http://stats.bls.gov.ces/home.htm.

Table 37. Percentage of job openings and average annual earnings, by educational training category: 2000 and 2010 (projected distribution)

Educational training	Percentage distribution of employment		Projected percentage distribution of openings due to growth and net replacements: 2000–2010[1]	2000 mean annual earnings [2]
	2000	2010 (projected)		
All occupations[3]	100	100	100	$33,089
Bachelor's or higher degree	20.7	21.8	20.9	56,533
First professional degree	1.4	1.4	1.2	91,424
Doctoral degree	1.0	1.1	1.3	52,146
Master's degree	1.0	1.0	1.1	43,842
Bachelor's or higher degree plus work experience	5.0	5.2	4.7	69,967
Bachelor's degree	12.2	13.0	12.6	48,440
Associate degree or postsecondary vocational award	8.1	8.7	9.3	36,701
Associate degree	3.5	4.0	4.5	41,488
Postsecondary vocational award	4.6	4.7	4.8	31,296
Work-related training	71.3	69.5	69.8	25,993
Work experience in a related occupation	7.2	6.9	5.5	40,881
Long-term on-the-job training	8.5	8.0	6.5	33,125
Moderate-term on-the-job training	19.0	18.4	15.1	29,069
Short-term on-the-job training	36.5	36.3	42.7	19,799

[1] Total job openings represent the sum of employment increases and net replacements. Job openings due to net replacement estimate the need in existing jobs as workers vacate, change jobs, or leave the labor force. If employment change is negative, it indicates that job openings due to growth are zero and total job openings equal net replacements.

[2] Earnings are for wages and salary workers.

[3] The total number of occupations in 2000 was 145,594, and the total jobs projected in 2010 are 167,754, leading to a projected growth of 57,932 jobs between 2000 and 2010.

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

SOURCE: Hecker, D.E. (2001). Occupational Employment Projections to 2010 (Table 6). *Monthly Labor Review*, *124*(11): 57–84.

7.5 Summary

Continuing on to college after high school graduation has become an increasingly expected pathway for American youth. This is reflected in the plans and expectations that high school sophomores hold for their futures as well as the expectations of those close to them. For example, sophomores in 2002 were more likely than their peers in 1980 to expect to complete a college degree and were more likely to hold plans to enroll in college immediately after high school. Similarly, the parents, teachers, and guidance counselors of high school sophomores increasingly felt that college was important for them. With respect to future occupational plans, sophomores in 2002 were more likely than those in 1980 to expect a professional job at age 30. Lastly, over the 22-year period, females have been increasingly more ambitious about their futures than have males: by 2002, females were more likely than males to expect a college degree and to hold a professional job at age 30.

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