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Initial Results From the Base Year of the Education Longitudinal Study of 2002

Statistical Analysis Report

U.S. Department of Education
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Executive Summary

The data for this report, *A Profile of the American High School Sophomore in 2002*, describe the tested achievement and educational status of a cohort based on a nationally representative probability sample of 15,362 10th-graders in 752 public, Catholic, and other private schools, who were studied in the spring term of the 2001–02 school year. The base-year data collection for the Education Longitudinal Study of 2002 (ELS:2002) is the first wave of a new longitudinal study of high school students that continues a series of nationally representative longitudinal studies conducted by the United States Department of Education's National Center for Education Statistics (NCES) over recent decades. Future survey waves will follow both students and high school dropouts and will monitor the transition of the cohort to postsecondary education, the labor force, and family formation. Although the base-year study comprised surveys of parents, teachers, school administrators, and library media specialists, as well as the cohort of high school sophomores, to remain concise, this report draws primarily on data from students, the primary unit of analysis for the study. (Parent, teacher, librarian, and school reports provide contextual data for better understanding the student cohort.)

Chapter 1 serves as an introduction. It summarizes the purposes of ELS:2002, the base-year design, and the levels of analysis that are supported by the ELS:2002 design and data. It also provides an overview of this report's prime foci.

Chapter 2 summarizes the sociodemographic and educational characteristics of the cohort. These characteristics are captured in a series of classification variables that are used to define reporting groups throughout the report. At the student level, these variables are sex, age, race or Hispanic ethnicity, language minority status, family composition, parental education, home socioeconomic status (SES), educational expectations, high school program, and tested achievement. (Note that individuals of Hispanic ethnicity are not represented in the race categories of this report.) Also included are three characteristics of each student's school: its sector (public, Catholic, or other private), metropolitan status (urban, suburban, or rural), and region of the nation (Northeast, Midwest, South, or West).

Chapter 3 examines students' school experiences and, in particular, their perceptions of their school and teachers, their perceptions of safety and experiences of victimization at school, their perceptions of school rules, the importance they place on good grades, and their reasons for going to school.

Chapter 4 explores sophomores' extracurricular participation, including academic, musical, and sports activities. The chapter provides information about the proportion of sophomores participating in extracurricular activities and how these participants were distributed across the various extracurricular options. In addition, it shows how the educational expectations, achievements, and other characteristics of sophomores who devoted exceptionally large amounts of time to extracurricular activities compared to the 10th-grade student norm.

Chapter 5 enlarges the topic of students' time use by examining time spent in reading for pleasure, doing homework, working for pay, and using the computer, as well as engaging in extracurricular activities.

Chapter 6 examines the tested achievement in reading and mathematics of the 2002 sophomore cohort, using a test score that marks out different mastery or proficiency levels. It inquires into what proportion of sophomores, overall and by subgroup, was proficient at each of the three skill levels identified for reading and five levels identified for mathematics. It also further explores differences in test results when racial/ethnic differences by SES, educational expectations, and sex are taken into account.

Finally, chapter 7 investigates sophomores' values, expectations, and plans, by reporting on how cohort members rated the importance of various features of life related to education, work, family, friends, and community. In particular, it reports on life values, expectations for educational attainment, and occupational expectations for age 30.

Comparisons drawn in the text of this report have been tested for statistical significance at the .05 level to ensure that the differences are larger than those that might be expected due to sampling variation. Most comparisons are tested with *t* statistics, although analysis of variance has been used to test for linear trends. Because comparisons drawn in the report are delimited and focused through their reliance on findings from prior studies in the data series and the wider research literature, and because (see below) a criterion of substantive significance has been imposed as well, the *t* tests have not been adjusted for multiple comparisons. Full details of statistical tests used can be found in appendix A. As noted above, all findings have also been subjected to a test of substantive significance. For comparisons of means, findings must show a difference of at least a fifth of a standard deviation (that is, an effect size of .20) to be reported. Further information on effect sizes can also be found in appendix A. For comparisons of proportions, differences noted in the text are at least 5 percentage points.[1] Exceptions arise with comparisons that directly investigate stated research questions and hypotheses or when not performing basic comparisons would be seen as a critical omission. The text notes when comparisons do not meet statistical and/or substantive significance.

Highlights of each of the six analytical chapters appear below.

[1] The selection of 5 percent as the criterion for substantive difference is based on similar analyses in other NCES reports (e.g., NCES 2004-078). It should be noted that the magnitude of effect that would be regarded as substantively or practically significant (and the categorization of the effect into large, medium, small, or trivial) may vary depending on the types and contexts of relationships and outcomes being measured.

Sociodemographic and Educational Characteristics of the Cohort

Various background characteristics and differences are associated with the educational experiences, achievement, and expectations of students as they progress through high school. The following descriptive characteristics of the sophomore class of 2002 are noted:

- The majority of sophomores are Whites (60 percent). Hispanics comprise 16 percent and Blacks 14 percent of the sophomore cohort, Asian and Multiracial sophomores each comprise 4 percent, and American Indians comprise 1 percent of the sophomore cohort (figure 2).
- While 16 percent of White sophomores come from the lowest SES quartile group, half of Hispanics and 35 percent of Blacks come from this group (figure 8).
- Some 57 percent of sophomores live in a family with both their biological parents. Others live in a single-parent household (22 percent), or with their mother or father and a guardian (17 percent). Still others (4 percent) live in a variety of other arrangements (figure 4).
- Approximately 6 out of 10 sophomores (59 percent) have a mother who continued her education beyond high school (figure 5). Fifty-six percent have a father who continued his education beyond high school (figure 6).
- The 2002 sophomore cohort has high ambitions: 72 percent expect to complete a bachelor's degree or higher; indeed, about one-third (36 percent) expect to complete a graduate or professional degree (table 2). However, only about one-half (51 percent) indicate being enrolled in a college preparatory program (table 3).
- There are differences by racial/ethnic group in the likelihood that English is a sophomore's native language. English is the native language of 94 percent of Black and 97 percent of White sophomores. It is the native language of 37 percent of Asian and 48 percent of Hispanic sophomores (figure 3).
- The overwhelming majority of sophomores (92 percent) attend public schools (4 percent attend Catholic schools and 3 percent attend other private schools) (figure 9).
- Half of sophomores attend suburban schools; 30 percent attend urban schools; and 20 percent attend rural schools. However, nearly half (49 percent) of Black students attend urban schools, compared to 21 percent of Whites (figures 12 and 13).

Sophomores' School Experiences

Sophomores reported their perceptions of their school and teachers, school safety, and school rules, as well as the importance they accorded good grades and their reasons for going to school.

Overall, students had a positive view of their school and teachers (e.g., 81 percent indicated that the quality of teaching was good, and nearly three-quarters [74 percent] reported that their teachers were interested in the students and that students and teachers got along well)

(figure 17). The majority (65 percent) reported that they liked school somewhat, and 24 percent liked school a great deal (figure 18).

Nevertheless, 12 percent of sophomores reported not feeling safe in school (table 5) (13 percent in public schools, 3 percent in Catholic schools, and 4 percent in other private schools). Nearly two-thirds (66 percent) had experienced some manifestation of school crime or violence during the first term of the school year (table 6). One out of four was offered drugs for sale, and 24 percent reported that someone had threatened to hurt them. Students who felt safe at school were more likely to report that rules were clear, fair, and consistently enforced (table 7).

Most sophomores (87 percent) indicated that getting good grades was important or very important to them (table 8), and 57 percent reported that engagement with interesting and challenging school subjects was one of their motivations for attending school (table 9).

However, there were some notable differences between subgroups (including, among others, racial/ethnic groups, males versus females, and sophomores in different school sectors) in their responses. Racial/ethnic differences, particularly between Blacks and Hispanics, on the one hand, and Whites, on the other, form a complex pattern. For example:

- Black and Hispanic sophomores were more likely than White sophomores to feel unsafe at school (table 5).
- Black sophomores were less likely than White sophomores to report positive impressions about their school and teachers (when asked about school spirit, teaching quality, and teacher-student relationships) (table 4).
- Blacks (62 percent) and Hispanics (53 percent) were more likely than were Whites (47 percent) to affirm getting good grades as something very important to them (table 8).
- Blacks and Hispanics more often reported that they went to school because their school subjects were interesting and challenging than did Whites (63 percent for Blacks and 65 percent for Hispanics versus 52 percent for Whites) and that they got satisfaction from their classwork (72 percent for Blacks and 70 percent for Hispanics versus 55 percent for Whites) (table 9).
- Black and Hispanic sophomores were more likely than their White peers to indicate that they liked school a great deal (29 percent and 30 percent versus 21 percent) (figure 18).
- Blacks and Hispanics were more likely than Whites to report that their teachers expected them to succeed in school (67 percent for Blacks, 64 percent for Hispanics, and 58 percent for Whites) (table 9).

Subgroup differences by sex include the following:

- Females were more likely than males to report liking school a great deal (26 percent versus 21 percent) (table 4).
- Males were more likely than females to be the victim of school crimes (73 percent versus 59 percent), and they were also more likely to report involvement in physical fights (21 percent for males versus 8 percent for females) and to have had someone offer to sell them drugs (31 percent versus 19 percent) (table 6).
- Females more often reported that getting good grades was very important to them (58 percent for females versus 44 percent for males) (table 8).
- Females were more likely to report that their school subjects were interesting and challenging (59 percent versus 54 percent), and they were more likely to report getting a feeling of satisfaction from doing their classwork (67 percent versus 55 percent) (table 9).
- Females were also more likely to report that their teachers expected them to succeed (63 percent for females versus 58 percent for males) (table 9).

Students in Catholic and other private schools generally reported a more positive perception of their school environment than did public school students. For example, public school sophomores were less likely to report good quality teaching, teacher interest in students, or that students and teachers got along well:

- Some 80 percent of public school sophomores reported good quality teaching in their schools, compared to 91 percent of Catholic and 90 percent of other private school sophomores (figure 17).
- When asked whether teachers were interested in students, 73 percent of public school sophomores agreed, compared to 86 percent of Catholic and 88 percent of other private school sophomores (figure 17).
- Some 73 percent of public school sophomores indicated that students and teachers got along well with each other in their schools, compared to 86 percent of Catholic and 87 percent of other private school sophomores (figure 17).

An important line of distinction between private and public schools is reflected in sophomores' views of their school's normative and disciplinary climate, as represented by the clarity, fairness, and enforcement of school rules:

- Some 89 percent of sophomores in other private schools, and 87 percent of sophomores in Catholic schools, reported that everyone knew what the school rules were. This compared to 82 percent in public schools. In addition, 79 percent of Catholic school sophomores maintained that the rules were strictly enforced, compared to 66 percent of public school students (table 7).
- Some 65 percent of other private school sophomores believed their school rules were fair, compared to 54 percent of public school students (table 7).

Sophomores in private schools were also more likely than public school students to cite sports or other extracurricular participation as a reason for going to school (67 percent of Catholic, 57 percent of other private, and 48 percent of public school students listed playing on a team or belonging to a club as one of their motivations for going to school) (table 9). This is consistent with the higher rates of extracurricular, particularly sports, participation reported for private school students (see chapter 4 of this report).

Sophomores' Extracurricular and Sports Participation

Sophomores were asked if they participated in any of various extracurricular activities. These school-sponsored activities were academic clubs, hobby clubs, musical activities (band, orchestra, choir, or chorus), cheerleading, sports, and vocational education clubs.

Over half (55 percent) of all sophomores participated in sports, including play at the intramural level. Participation in other activities was relatively lower: 8 percent for academic clubs, 13 percent for cheerleading, 10 percent for hobby clubs, 22 percent for musical activities, and 8 percent for vocational education clubs (tables 10 and 11). Some subgroup differences are notable:

- Sports participation varied by school type: 73 percent of Catholic and 74 percent of other private school sophomores participated in sports, compared to 53 percent of public school sophomores (table 11).
- Males played sports at a higher rate than females (61 percent versus 49 percent), but females participated in other extracurricular activities at a higher rate than males (table 11).
- Participation in most extracurricular activities increased with ascending SES (table 11). For example, 6 percent of low-SES-quartile sophomores participated in academic clubs, compared to 13 percent from the high-SES quartile; 45 percent of low-SES-quartile sophomores were athletes, compared to 64 percent of high-SES sophomores; and 16 percent of low-SES sophomores took part in musical activities, compared to 27 percent for high-SES sophomores. The opposite was true for vocational clubs.

Sophomores who spent 9 hours or more per week in extracurricular activities (the highest quartile of the distribution of hours) were compared to the full sample or sophomore norm (averaging over 4 hours of participation per week). High-intensity extracurricular participants (table 16) were more likely to

- expect to earn a 4-year degree or higher (87 percent versus 72 percent for the 10th-grade norm);
- expect to go directly to college (83 percent compared to 72 percent for all sophomores);
- perform in the highest test quartile (37 percent versus 25 percent for the norm);

- report to have "never cut class" (74 percent versus 68 percent); and
- rate good grades as very important (59 percent versus 51 percent for sophomores as a whole).

Sophomores' Time Use

Five specific dimensions of time use were measured: extracurricular activities, reading for pleasure, doing homework, using the computer, and working for pay. For those who worked during the school year, time spent on the job averaged 15 hours per week (table 17). Sophomores reported using computers for about 1 hour per day for schoolwork and 2 additional hours daily for nonschool uses (table 20). Weekly time budgets for key activities were as follows (table 17):

- school-sponsored extracurricular activities: 5 hours
- outside reading (not assigned for class): 3 hours
- homework (outside of school): 6 hours
- working for pay: 15 hours

Several subgroup differences in time use should be noted (table 17):

- Asians spent more time on homework outside school (8 hours per week) than Blacks, Whites, or Hispanics (5–6 hours).
- Catholic and other private school students spent more time on out-of-school homework (8 hours) than public school students (6 hours).
- The average number of hours worked per week was negatively related to SES.

Sophomores' Tested Achievement in Reading and Mathematics

Reading and mathematics achievement were reported in terms of various levels of skill and content mastery, or proficiency. Overall results, and the content and processes embodied by each proficiency level, are summarized below:

Overall, in *reading* (figures 16 and 25):

- 89 percent of sophomores had mastered the skills of simple reading comprehension (proficiency level 1);
- 46 percent were able to make relatively simple inferences beyond the author's main thought (proficiency level 2); and
- 8 percent could make complex inferences (proficiency level 3).

Overall, in *mathematics* (figures 15 and 26):

- 92 percent of sophomores were able to perform simple arithmetical operations on whole numbers (level 1);
- 67 percent could perform simple operations with decimals, fractions, powers, and roots (level 2);
- 46 percent could perform simple problem solving that involved the understanding of low-level mathematical concepts (level 3);
- 20 percent could understand intermediate-level mathematical concepts and/or demonstrate ability to formulate multistep solutions to word problems (level 4); and
- 1 percent could solve complex multistep word problems and had mastered material found in advanced mathematics courses (level 5).

Proficiency results were also examined from the perspective of sophomores' sociodemographic characteristics. For example, an important area of interest is the relationship between racial/ethnic group, SES, and achievement:

- Differences in proficiency were seen by SES; higher SES was associated with higher proficiency scores. For example, in mathematics, 8 percent of sophomores in the lowest quartile were proficient at understanding of intermediate-level mathematical concepts, while 18 percent of those in the middle quartiles and 39 percent of those in the highest SES quartile were proficient. Some 18 percent of sophomores in the highest SES quartile were proficient at the highest reading level (ability to make complex inferences), compared to 3 percent in the lowest SES quartile.
- Differences in proficiency were observed by racial/ethnic subgroup. For example, in mathematics, Asians were more likely than Blacks to be proficient in the understanding of intermediate-level mathematical concepts (32 percent compared to 5 percent). Some 27 percent of White sophomores had reached this level, as compared to 9 percent of Hispanics.
- In reading, Whites and Asians were more likely to be proficient than were Blacks or Hispanics. Some 56 percent of Whites and 47 percent of Asians were proficient at the level of simple inference, compared to 25 percent of Blacks and 28 percent of Hispanics. At the highest reading level (complex inference), 9 percent of Asian and 11 percent of White 10th-graders were proficient, compared to 2 percent of Blacks and 3 percent of Hispanics.
- Differences by racial/ethnic group persist, even when SES is taken into account. Whites were more likely to be proficient at various reading and mathematics levels than their Black or Hispanic peers, within each of the three SES groupings. For example, at the level of simple mathematical problem solving, within the lowest SES group, 12 percent of Blacks, 18 percent of Hispanics, and 36 percent of Whites were proficient. For the middle SES quartiles, the proportions proficient at this level were 19 percent of Blacks, 30 percent of Hispanics, and 54 percent of Whites. In the highest quartile of SES, 42 percent of Blacks, 47 percent of Hispanics, and 76 percent

of Whites were proficient in simple problem solving. The same pattern—persistence of racial/ethnic differences within each SES category, with Whites showing higher achievement than Blacks or Hispanics—was also discernible in reading.

A further area of interest is the alignment of sophomores' educational expectations for the future and their high school preparation for their future education. Since transcripts with information about high school coursetaking have not yet been collected for the cohort, the primary source of available information about academic preparation is tested achievement in mathematics and reading. The higher the students' expectations, the higher their test scores. This generalization is true both overall and within racial/ethnic subgroups (specifically, Whites, Blacks, and Hispanics). However, racial/ethnic differences in achievement persist within each main level of educational expectation:

- For example, 32 percent of 10th-graders who expected to obtain a graduate or professional degree had mastered intermediate mathematical concepts. In contrast, 7 percent of those who expected to complete some college but less than a 4-year degree had done so. At the same time, racial differences were apparent even within expectation levels.
- For example, among sophomores who expected to complete at least a 4-year degree, at reading level 2 (simple inference), 31 percent of Blacks, 35 percent of Hispanics, and 65 percent of Whites were proficient. Among sophomores who expected to complete at least a 4-year degree, at level 4 of mathematics (intermediate concepts), 6 percent of Blacks and 12 percent of Hispanics, contrasted to 33 percent of Whites, were proficient.

Differences in achievement of male and female students were also investigated. Some statistically significant differences were detected, showing a female advantage in reading and a male advantage in mathematics (e.g., at reading level 1, 77 percent of Hispanic males and 82 percent of Hispanic females were proficient, and at mathematics level 4, 30 percent of White males and 24 percent of White females were proficient). *However, these differences were not substantively significant*. Neither overall nor within racial/ethnic groups were sex differences large, compared to the differences found by racial/ethnic group and SES.

In addition to subgroup differences by individual sociodeomographic characteristics, proficiency both in reading and mathematics was examined across a number of school characteristics, including school sector. Students from Catholic and other private schools were more likely to be proficient than were students from public schools:

- In *mathematics* at the level of understanding intermediate concepts, 19 percent of public school sophomores were proficient, compared to 32 percent of Catholic and 35 percent of other private school sophomores.
- In *reading*, students in Catholic and other private schools were more likely to be proficient than students in public schools. For example, 68 percent of Catholic and 65 percent of other private school 10th-graders were proficient at level 2 (simple inferences), compared to 45 percent of public school 10th-graders.

Reading and mathematics results were also examined in relation to student engagement. Student engagement behaviors were positively associated with achievement. For example:

- Students who did more math homework were more proficient in simple problem solving (35 percent of those who did no homework, 46 percent of those who did 1–4 hours of math homework per week, and 53 percent of those who did 5 or more hours of math homework a week were proficient at this level).

- Students who cut class frequently were less likely to be proficient than those who never cut class. In reading, at level 2 (simple inference), 28 percent of those who skipped class seven or more times in the first term of the school year were proficient, compared to 51 percent of those who never skipped class.

Sophomores' Values and Expectations

Values/Life Goals

Sophomores were asked about the outcomes they value for the future, about their educational expectations, and about their occupational expectations for age 30. Overall, the following proportions of sophomores rated the following life goals as "very important" to them (tables 31, 32, and 33):

- Getting a good education: 83 percent
- Becoming an expert in field of work: 71 percent
- Having lots of money 42 percent
- Having leisure time to enjoy own interests 68 percent
- Finding the right person to marry 76 percent
- Having children 47 percent
- Having strong friendships 83 percent
- Living close to parents and relatives 30 percent
- Working to correct social/economic inequalities 19 percent

There were a number of differences by subgroup (table 31). For example:

- Female sophomores (88 percent) and Black sophomores (90 percent) were more likely than male sophomores (78 percent) and White sophomores (80 percent) to rate a good education as very important.
- Having lots of money was very important to more low-SES sophomores (47 percent) than high-SES sophomores (36 percent), and it was very important to more Black sophomores (60 percent) than White sophomores (36 percent).
- Having leisure time was more often very important to high-SES sophomores than to low-SES sophomores (74 percent versus 60 percent).

- Becoming an expert in one's field of work was more often very important to Black sophomores (80 percent) than to their White counterparts (68 percent).

Educational Expectations

Overall, about 8 percent of the cohort expected to complete only high school or less (table 34). Another 10 percent expected to attend college but to obtain less than a 4-year degree. Some 36 percent expected to graduate from a 4-year program, another 20 percent to obtain a master's degree, and 16 percent to obtain a Ph.D., M.D., or other advanced doctoral or professional degree. (Around 10 percent have not yet formed an expectation of their probable highest level of future educational attainment.) Subgroup differences are apparent by sex, racial/ethnic group, SES, and other factors:

- Although expectations increased with ascending SES and test performance, expectations were relatively high for all groups. For example, about three-fifths (58 percent) of those in the lowest SES quartile and nearly half (48 percent) of those in the lowest achievement test quartile expected to, at minimum, graduate from college with a 4-year degree. About one-quarter (24 percent) of those in the lowest SES quartile expected to obtain a graduate or professional degree, as did 18 percent of those in the lowest test quartile.
- Nearly twice as many females as males expected to complete a doctoral or professional degree (20 percent versus 12 percent), whereas twice as many males as females expected to end their education with a high school diploma or less (11 percent versus 5 percent) (table 34). A gender gap existed for White, Black, and Hispanic students (table 35). Some 41 percent of Black females expected to earn a graduate degree (master's, Ph.D., or other advanced degree), compared to 25 percent of Black males. Some 44 percent of White females expected to earn a graduate degree, compared to 31 percent of White males (table 35).
- This gender gap generally existed for White, Black, and Hispanic sophomores (figure 35) regardless of SES level (table 35). For example, among sophomores expecting to reach the highest level of educational attainment (graduate or professional degree), for the high-SES group, this expectation was held by 47 percent of White males, compared to 57 percent of White females; by 40 percent of Black males, compared to 68 percent of Black females; and by 33 percent of Hispanic males, compared to 53 percent of Hispanic females.

Occupational Expectations

Sophomores were also asked to name the occupation they expected or planned to hold at age 30. Some 34 percent of sophomores indicated that they did not know what job or occupation they expected to have at age 30. A further 45 percent of the cohort indicated that they expected to be in a professional-level job, while 20 percent indicated any of the wide array of nonprofessional occupations (table 38). About 1 percent of males and 1 percent of females did not expect to work at age 30 (table 39). Less than 1 percent of males and of females indicated that they would be full-time homemakers at age 30.

Appended Matter

Appendix A includes technical notes on the report. It also provides an overview of the study design and methodology, an account of sampling and weighting, a summary of the statistical procedures employed in the report, and a glossary of the ELS:2002 variables and measures used in analysis. Appendix B supplements the technical notes by providing tables of standard errors of measurement (and, for means, sample sizes and standard deviations) for the estimates contained in this report.

Foreword

This report profiles American high school sophomores in the 2001–02 school year. It is the first statistical analysis report based on the Education Longitudinal Study of 2002 (ELS:2002), a new longitudinal study of high school students that continues a series of such studies that National Center for Education Statistics (NCES) has conducted since 1972. In the spring term, students completed assessments in reading and mathematics as well as a questionnaire. Their parents, English and mathematics teachers, school principals, and librarians were surveyed as well.

The data analyzed in this report are now available to researchers for their own use in Electronic Codebook (ECB) format on CD-ROM (NCES 2004–404). The report supplies a demographic profile of 2002 sophomores and discusses their school experiences, extracurricular and sports activities, achievement in mathematics and reading, educational expectations, and postgraduation 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 ELS:2002 data, both now and in the future, as additional waves build upon this baseline.

Jeffrey A. Owings, *Associate Commissioner for Elementary/Secondary & Libraries Studies*

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Chapter 1
Introduction

1.1 Purpose of ELS:2002

The Education Longitudinal Study of 2002 (ELS:2002) is designed to provide trend data about critical transitions experienced by students as they proceed through high school and into postsecondary education or their careers. The study is intended to produce a general purpose dataset for the study of numerous education policy issues. Issues that can be addressed with data collected in the high school years include the following:

- students' academic growth in mathematics;
- the process of dropping out of high school;
- the relationship between family background, the home education support system, and students' educational success;
- the relationship between coursetaking choices and success in the high school years (and thereafter);
- the distinctive school experiences and performance of students from various subgroups, including
  - students in public and private high schools;
  - language minority students;
  - students with disabilities;
  - students in urban, suburban, and rural settings;
  - students in different regions of the country;
  - students from upper, middle, and lower socioeconomic status (SES) levels;
  - male and female high school students; and
  - students from different racial or ethnic groups; and
- steps taken to facilitate the transition from high school to postsecondary education or the world of work.

After ELS:2002 students complete or leave high school, a new set of issues can be examined, starting with the second follow-up in 2006. These include

- the educational and labor market activities of high school dropouts;
- the transition of those who do not proceed directly to postsecondary education or to the workplace;
- access to and choice of undergraduate and graduate educational institutions;
- persistence in attaining postsecondary educational goals;

- rate of progress through the postsecondary curriculum;
- degree attainment;
- barriers to persistence and degree attainment;
- entry of new postsecondary graduates into the workforce;
- social and economic rate of return on education to both the individual and society; and
- adult roles, such as family formation and civic participation.

1.2 Base-Year Design

The ELS:2002 base-year study was carried out in a nationally representative probability sample of 752 public, Catholic, and other private schools in the spring term of the 2001–02 school year. Of 17,591 eligible selected sophomores, 15,362 completed a base-year questionnaire, as did 13,488 parents, 7,135 teachers, 743 principals, and 718 librarians. Data used in this report assume the student to be the basic unit of analysis and are taken from the ELS:2002 student survey (student questionnaire, assessments in reading and mathematics), the parent survey, the school administrator survey, and the Common Core of Data (CCD) and Private School Survey (PSS) universe surveys. The weighted response rate for student questionnaire completion was 87.3 percent. Of the 15,362 student questionnaire completers, 14,543 (95.1 percent, weighted) also had test data; 13,488 (87.5 percent, weighted) had parent data; and 15,215 (99 percent, weighted) had school administrator data. Missing data for key questionnaire and test variables were imputed.[1]

Seven study components comprise the base-year design: assessments of students (achievement tests in reading and mathematics); a survey of students; surveys of parents, teachers, school administrators, and librarians; and a facilities checklist (completed by survey administrators, based on their observations at the school). The student assessments measured achievement in reading and mathematics; the baseline scores can serve as a covariate or control variable for later analyses. Mathematics achievement was reassessed 2 years later (2004), so that achievement gain over the last 2 years of high school can be measured and related to school processes and mathematics coursetaking. The student questionnaire was used to gather information about the student's background, school experiences and activities, plans and goals for the future, employment and out-of-school experiences, language background, and psychological orientation toward learning. The student questionnaire and tests were administered in group settings in schools. The test was administered in two stages: (1) a routing test, and (2) a second-stage test form assigned on the basis of the routing test score.

One parent of each participating sophomore was asked to respond to a parent survey. (The questionnaire asked that the parent or guardian most familiar with the sophomore's educational situation complete the questionnaire.) The parent questionnaire was designed to gauge parental aspirations for their child, home background and the home education support

[1] The weighted sequential hotdeck procedure was used for imputing questionnaire data. Multiple imputation was used to estimate missing mathematics and reading *theta* scores. See appendix A for further details or Ingels et al. (2004) for a full discussion.

system, the child's educational history prior to 10th grade, and parental interactions with and opinions about the student's school. Parent questionnaires were available in English and Spanish. The parent data were collected in two modalities: hardcopy self-administered questionnaires, and computer-assisted telephone interviews. For each student enrolled in English or mathematics, a teacher was also selected to participate in a teacher survey. Each teacher reported on one or more ELS:2002 sample members. The teacher questionnaire collected the teacher's evaluations of the student and provided information about the teacher's background and activities. The school administrator questionnaire was used to collect information on school characteristics, characteristics of the student body, teaching staff characteristics, school policies and programs, use of technology, and school governance and climate. The head librarian or media center director at each school was asked to complete a library media center questionnaire, which inquired into the school's library media center facility, its staffing, technological resources, collection and expenditures, and scheduling and transactions. Finally, the facilities checklist consisted of a brief observational form completed for each school. The form collected information about the condition of school buildings and facilities. Information about coursetaking (covering all years of high school and including the sequence in which courses were taken and grades earned) will be collected at the end of high school through the high school transcript component of the ELS:2002 first follow-up study.

Selection of items for the questionnaires was based in part on the past performance and continuing relevance of items from the prior longitudinal high school cohort studies and was guided by a Technical Review Panel with substantive expertise in the various questionnaire domains. A field test was carried out in the spring of 2001 to test procedures and investigate the performance of test and questionnaire items. The base-year field test report (Burns et al. 2003) provides details of field test trials of methods and forms and includes information on assessment and questionnaire item performance (response rates, reliability and factor structure, differential item functioning, reliabilities of scales, inter-item consistency, etc.).

Follow-ups are scheduled for 2004 (just completed), 2006, and at intervals to be specified thereafter. It is expected that the cohort will be followed to about age 30.

1.3 Levels of Analysis Supported by ELS:2002 Data

The overall scope and design of the study provide for the following four analytical levels:

- cross-sectional profiles of the nation's high school sophomores and seniors (as well as dropouts after the spring term of their sophomore year);
- longitudinal analysis (including examination of life-course changes);
- intercohort comparisons with American high school students of earlier decades; and
- international comparisons: U.S. 15-year-olds to 15-year-olds in other nations.

1.3.1 Cross-Sectional Profiles of High School Sophomores, Seniors, and Dropouts

Cross-sectional data will permit characterization of the nation's high school sophomores in the spring term of the 2001–02 school year. Initial cross-sectional findings from the base year

are available in this report. Because of sample freshening,[2] the results 2 years later will provide a basis for profiling the nation's high school seniors in the spring term of the 2003–04 school year, as well as sophomore cohort members who drop out of high school.

1.3.2 Longitudinal Analysis

Longitudinal analysis will become possible when data are available from the 2004 first follow-up. The primary research objectives of ELS:2002 are longitudinal in nature. The study provides the basis for within-cohort comparisons by following the same individuals over time to measure achievement growth in mathematics, monitor enrollment status over the high school years, and record such key outcomes as postsecondary entry and attainment, labor market experiences, and family formation. In turn, these outcomes can be related to antecedents identified in earlier rounds, including individual, home, school, and community factors.

1.3.3 Intercohort Comparisons

As part of a historical series of studies that repeat a core of key items each decade, ELS:2002 offers the opportunity for the analysis of trends in fundamental areas, such as patterns of coursetaking, rates of participation in extracurricular activities, academic performance, and changes in goals and aspirations. A 1980–2002 National Center for Education Statistics (NCES) high school sophomore trend report is currently in preparation. With completion of the first follow-up in 2004, researchers will be able to compare ELS:2002 high school seniors' experiences, attitudes, and achievement with that of National Education Longitudinal Study of 1988 (NELS:88) seniors in 1992, High School and Beyond (HS&B) seniors in 1980 and 1982, and National Longitudinal Study of the High School Class of 1972 (NLS-72) seniors in 1972. Such cross-cohort comparisons are of particular use in monitoring changes in educational opportunities and outcomes.

Starting with the ELS:2002 first follow-up, trend comparisons can also be made with academic transcript data containing students' high school course histories and sequences, since comparable transcript studies have been conducted, starting with HS&B (1982).[3]

1.3.4 Linkage to International Studies

An ELS:2002 feature that expands the study's power beyond that of the earlier high school longitudinal studies is that it can be linked to an important international comparative study. The Organization for Economic Cooperation and Development's (OECD's) Program in

[2] Sample freshening is a procedure by which spring 2004 seniors who were not sophomores in the spring of 2002 will be given a chance of selection into the Education Longitudinal Study of 2002 (ELS:2002) sample, thus ensuring a nationally representative probability sample of high school seniors.

[3] A number of transcript reports have provided valuable information about coursetaking patterns over time, the most recent based on National Assessment of Educational Progress (NAEP) transcripts (Perkins et al. 2004) and on transcripts collected in High School and Beyond (HS&B), the National Education Longitudinal Study of 1988 (NELS:88), and NAEP (Levesque 2003; Chen et al. forthcoming). Successive versions of a standard coding scheme, The Classification of Secondary School Courses (CSSC), have been used to ensure standardization and comparability of high school transcript data across a number of major national studies. In addition to HS&B, these studies include NELS:88 Second Follow-Up Transcript Component (1992) and NAEP High School Transcript Studies (1987, 1990, 1994, 1998, and 2000). The Bureau of Labor Statistics National Longitudinal Study, 1997 Youth Cohort (NLSY97) is also comparable when aggregated up to the analytic level, in that, in conformity with other studies, it employed the SST-R (Secondary School Taxonomy, 1998 Revision [Bradby and Hoachlander 1999]). (However, transcripts in the earlier NLSY79 cohort study were coded using a different scheme.)

International Student Assessment (PISA)[4] is an international standardized testing program administered to 15-year-olds in their schools. PISA covers three domains: reading literacy, numeracy, and scientific literacy. ELS:2002 reading results have been put on the PISA reading scale based on the PISA:2000 data collection. It is anticipated that ELS:2002 mathematics results will be put on the mathematics scale of the PISA:2003 data collection. Since PISA is not conducted longitudinally in the United States (although in some other nations it will be), it will be of interest to examine future postsecondary and labor market outcomes of ELS:2002 15-year-olds and relate them to PISA reading and mathematics scale scores.

1.4 Descriptive Focus of This Report

This report provides descriptive information about the nation's high school sophomores at a given point in time, the spring term of the 2001–02 school year. It reports on the sociodemographic characteristics of the cohort, their school experiences, their participation in extracurricular activities, their time use, their tested achievement in reading and mathematics, and their expectations and plans. The report profiles the status of America's 10th-graders, both overall and for various distinct subgroups (such as male and female students, students from different racial/ethnic groups, students from different socioeconomic backgrounds, and students from different types of schools [urban, suburban, and rural; public, Catholic, and other private]). In this report, comparisons are made by cross-tabulating various variables from the ELS:2002 base-year dataset. However, a relationship that exists between these variables does not reveal its underlying cause, which may be influenced by a number of other variables. Similarly, these measured relationships do not reflect the influence of unmeasured variables.[5]

Comparisons in the report have been tested for statistical significance at the .05 level, as is further explained in appendix A. Given large sample sizes, small differences with little or no practical or substantive significance may often be statistically significant. Since not all statistically significant differences are necessarily significant in practical terms, other metrics, such as standard deviation units as measured in effect sizes for means, have also been employed in the report to determine whether a particular finding is worthy of being reported.[6] The text notes comparisons that do not meet statistical and/or substantive significance, in cases where comparisons investigate stated research questions and hypotheses or where not having such comparisons would be seen as a critical omission.

The intent of this report is to provide readers with a description of the cohort that will convey a sense of the richness of information that the dataset makes available. Deeper exploration of the themes in this report will be possible as longitudinal data are added and

[4] See Lemke et al. (2001).
[5] To give an example of such a case within the context of this report, cross-tabulations show a positive relationship between tested achievement in mathematics and reading, and sports participation. However, if there are grade restrictions for participation in sports (or other extracurricular activities), this fact could contribute to a spurious positive relationship between participation and achievement. (Of course, it is also possible that such requirements act as an academic spur to marginal students who wish to continue their athletic activities.) Academic eligibility for sports is not measured in the base year of ELS:2002 (though an item to tap this information was included on the first follow-up principal questionnaire).
[6] While a minimum effect size of .20 has been required for comparisons of means, 5 percent has been used as a convention for minimum difference in the reporting of comparisons based on proportions.

sophisticated multivariate analysis techniques are brought to bear on the policy issues that the ELS:2002 dataset has been designed to address.

The report is organized into seven chapters. Chapter 1 summarizes the purposes of ELS:2002, the base-year design, and the levels of analysis supported by the ELS:2002 design and data.

Chapter 2 supplies a demographic profile of 2002 sophomores. The ELS:2002 sample represents 3,439,490 10th-graders in the 50 states and the District of Columbia. Chapter 2 describes the educational attainment of the cohort's parents; racial and ethnic background; language minority status; SES; type of school attended by sector (public, Catholic, other private); metropolitan status (urban, suburban, rural) and region of the country; and individual factors. These factors serve as classification categories (or row variables) for the analyses in later chapters of the report. The demographic profile is achieved primarily with univariate statistics, which show the distribution of these various characteristics across the sophomore cohort. To provide background for understanding the choice and importance of these particular variables for the report, the chapter also includes brief summaries of some of the research literature relating to each variable. In the subsequent chapters, these variables are used in two- and three-way cross-tabulations.

Chapter 3 inquires into the school experiences of cohort members: their perceptions of school and the quality of teaching; safety in school, including victimization, and rules enforcing discipline; and the students' motivation to learn, including the importance to the students of getting good grades.

Chapter 4 examines the extracurricular and sports activities in which the sophomore cohort engaged, including school-sponsored activities and interscholastic sports.

Chapter 5 inquires into how 10th-graders used their time outside regular classroom hours: the time spent in extracurricular activities, reading for pleasure, using a computer, working for pay, or doing homework.

Chapter 6 reports on the cohort's tested achievement in mathematics and reading, and the correlates of achievement. Finally, chapter 7 examines the values, expectations, and plans of this group: their life values, peer values, expectations for educational attainment, and expected occupation at age 30.

Appendixes A and B provide technical documentation for the findings presented here, as well as information about how to obtain these data.

Chapter 2
Sociodemographic and Educational Profile of American High School Sophomores in 2002

Many researchers have linked differences between social groups with differences in educational expectations, experiences, and outcomes. The relationship between social background (including both race and socioeconomic status [SES]) and educational achievement and attainment is a pervasive theme in much of the research literature drawing on the predecessor studies to the Education Longitudinal Study of 2002 (ELS:2002), including the National Longitudinal Study of the High School Class of 1972 (NLS-72), the High School and Beyond (HS&B) longitudinal study, and the National Education Longitudinal Study of 1988 (NELS:88).[7] Individual and school factors are also associated with such differences. An appropriate starting place for this report may therefore be a description of the background characteristics of the 15,362 10th-graders[8] in 752 public, Catholic, and other private schools surveyed in ELS:2002. These students represent the approximately 3.4 million individuals who were in the 10th grade in American high schools in the spring term of the 2001–02 school year. The following student and school characteristics will be examined and appear as row variables[9] in the tables that follow:

- sex;
- age (year of birth);
- racial/ethnic group;
- language minority status;
- family composition;
- parents' education;
- socioeconomic status;
- school type (public, Catholic, other private);
- school metropolitan status (urban, suburban, rural);
- school region of the country;
- educational expectations;

[7] The *NELS:88 Bibliography (*http://www.nces.ed.gov/surveys/nels88/*)* contains many illustrations (see, for example, Hoffer, Rasinski, and Moore [1995]; Fejgin [1995]; and Morgan [1996]).
[8] The terms "10th-grader," "sophomore," and "student" are used interchangeably in this report.
[9] The rows are standard classification variables that embody key reporting categories for the study. The rows are independent variables and the columns dependent variables, in the sense that the row variables may be hypothesized to affect the variables in the columns. While clearly some of the row variables can only be used as independent variables, such as sex of respondent (i.e., male or female), others could be either independent or dependent variables, depending on what is to be measured. For example, tested achievement could be conceptualized as an independent variable with valuation of good grades as the dependent variable. Equally, it could be conceptualized as the dependent variable and hypothesized to vary with amount of time spent in homework. In this report, two of the row (independent) variables are also used as column (dependent) variables. The two variables (which have their own chapters in the report) are "tested achievement" and "expectations for educational attainment." Also note that the row variable "family composition" is only used in the chapter on tested achievement.

- high school program; and
- tested achievement.

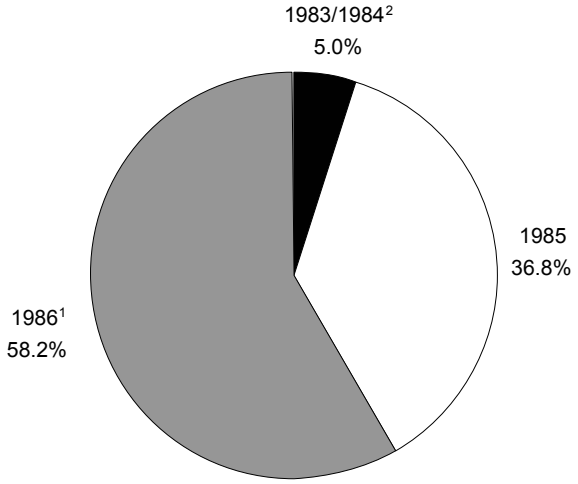
Because of the analytic importance of these characteristics, missing data for most of these key variables were statistically imputed when missing.[10] In subsequent chapters, these characteristics (apart from year of birth) are used to define and report on subgroups of 10th-graders as various topics are addressed: the cohort's school experiences, their extracurricular and sports activities, how they spend time outside the classroom, their tested achievement in mathematics and reading, and their values, expectations, and plans for the future.

2.1 Student Sex, Age, Racial/Ethnic Group, and Native Language

2.1.1 Sex and Age

Half of the ELS:2002 sophomore cohort is male (50 percent) and half is female (50 percent). Sample members were surveyed in the first 5 months of 2002; most cohort members were 15 or 16 years old at the time they were surveyed. Sample members were born over a time span of 5 years. Most sample members (58 percent) were born in 1986, although a substantial minority (42 percent) were born earlier (figure 1). More specifically, 1 percent were born in 1983, 4 percent in 1984, 37 percent in 1985, 58 percent in 1986, and 1 percent in 1987 (data not shown).

Figure 1. Percentage of high school sophomores, by year of birth: 2002



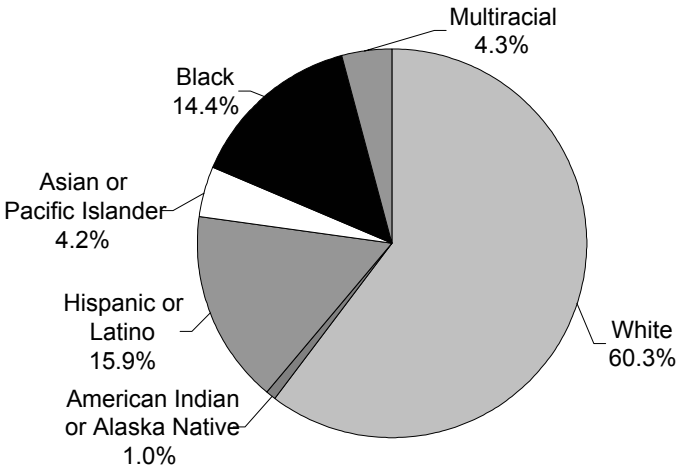
[1] 57.6 percent born in 1986 and an additional 0.5 percent born in 1987 or later.
[2] 4.4 percent born in 1984 and an additional 0.6 percent born in 1983 and earlier.
NOTE: Detail may not sum to totals because of rounding. See appendix A for the weighted response rates of all unimputed variables used in this analysis. Aggregated estimates were derived from unrounded estimates.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

[10] A weighted sequential hot deck procedure was used to statistically impute missing data for key questionnaire variables. Multiple imputation was used to impute the ability estimates (*theta*) for the cognitive test battery when assessment data were missing. See appendix A for further details and Ingels et al. (2004) for a more extensive discussion.

2.1.2 Race/Hispanic Ethnicity

As depicted in figure 2, 36 percent of 2002 sophomores are from racial or ethnic minority groups (Black, Asian, American Indian, or Hispanic). Some 60 percent are White, and the remainder (4 percent) are Multiracial.[11] For America's high school sophomores, Hispanics and Blacks are the largest minority groups (16 percent and 14 percent, respectively).[12]

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



NOTE: Detail may not sum to totals because of rounding. All race categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

2.1.3 Native Language

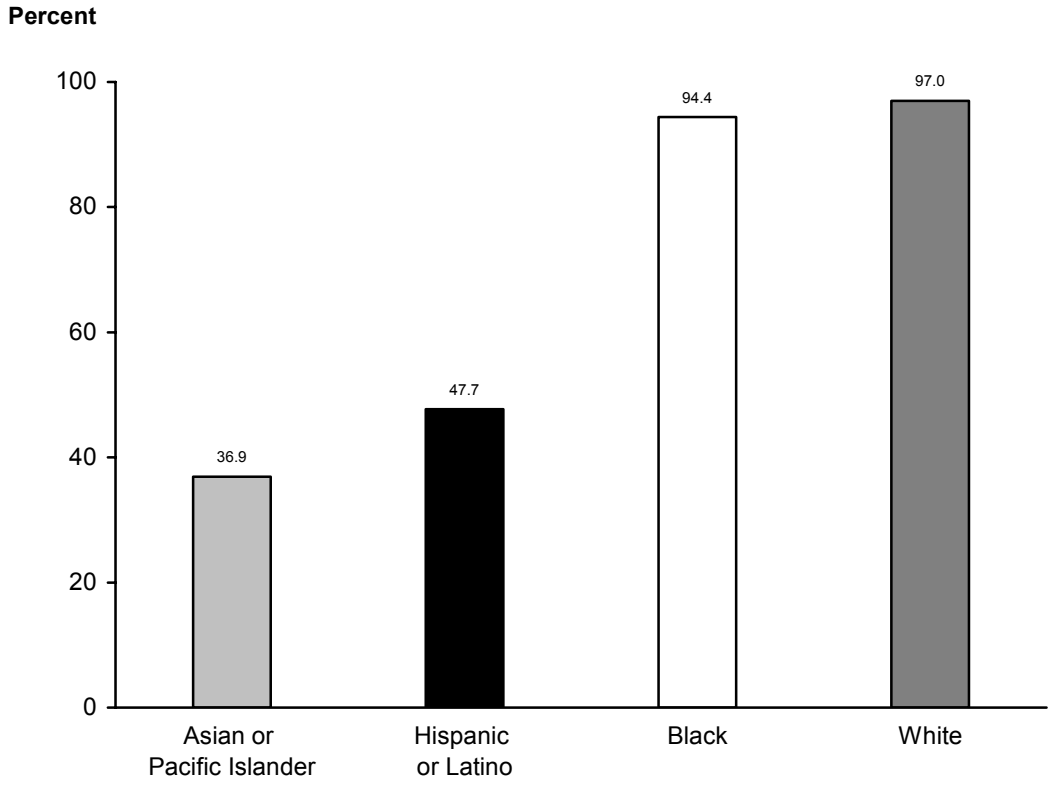
Sophomores were asked whether English was their native language (the first language they learned to speak when they were children). Some 14 percent indicated that English was not their native language, and 86 percent indicated that English indeed was their native language (data not shown). As seen in figure 3, incidence of English as a native language varies greatly by racial/ethnic group. English was the native language of nearly all White (97 percent) and Black (94 percent) sophomores. However, substantial proportions of Asians and Hispanics had a non-English native language. The native language of 48 percent of Hispanics and 37 percent of Asians was English. In other words, a non-English language was the native language of 52 percent of Hispanics and 63 percent of Asians. It is important to note that language minority status—having a language other than English as one's native language—is not in itself

[11] For convenience, the following shorthand terms are used in the text of this report to refer to racial/ethnic categories: American Indian (includes Alaska Native); White; Black or African American; Asian (includes Pacific Islander and Native Hawaiian); Hispanic or Latino; and Multiracial (includes more than one race). Race categories exclude Hispanic origin. The terms "Black" and "African American" are taken to be generally synonymous, as are "Hispanic" and "Latino."

[12] U.S. Census Bureau figures released in January 2003 for the U.S. population as of July 2001 show Hispanics as 13 percent of the U.S. population, Blacks as 12.7 percent, Whites as 70 percent, and Asians as 4 percent. Minority proportions are higher, however, in younger age groups; the modal age of the Education Longitudinal Study of 2002 (ELS:2002) cohort at the time of being surveyed was about 15.5 years.

informative about language proficiency, either in English or the home language. Many students whose native language is not English are nevertheless fully proficient in English, while others are not (Bradby 1992).

Figure 3. Percentage of high school sophomores whose native language was English, by selected racial/ethnic groups: 2002



NOTE: Excludes "American Indian/Alaska Native" and "More than one race." All race categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

2.2 Family Composition and Educational/Social Background

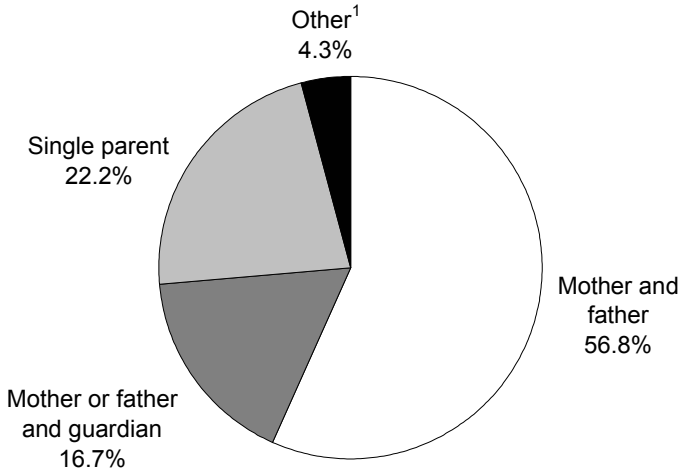
2.2.1 Family Composition

Figure 4 depicts the proportion of 2002 sophomores in each of four different family configurations. Some 57 percent of sophomores lived in a traditional mother-father household with their natural parents. Some 22 percent lived in a single-parent household with either their mother (19 percent of the total) or father (3 percent of the total). Over 15 percent lived with their mother or father and a stepparent (13 percent lived in a mother and guardian family, and 3 percent lived in a father and guardian family) (16.7 percent versus 15 percent). The remaining 4 percent lived in various other arrangements.

Both family composition and family structure, as well as parental income, occupation, and education, are associated with students' academic performance, educational attainment, and occupational outcomes. An extensive literature addresses the question of the complex

relationship between family structure and attainment, when income, parental aptitude and education, family cultural and interpersonal resources, parenting processes, and so forth, are taken into account. Nord and West (2001, pp. 5-12) offer a helpful summary.

Figure 4. Percentage of high school sophomores living in various family configurations: 2002



[1]Other includes two guardians, female guardian only, male guardian only, and a guardian who lives with the student less than half the time.
NOTE: Detail may not sum to totals because of rounding. Aggregated estimates were derived from unrounded estimates.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

2.2.2 Social Background: Income, Parental Occupation, and Education

Socioeconomic status is one of a host of factors (including genetic aptitude for learning, family structure, race/ethnicity, coursetaking choices, instructional experiences, school engagement, etc.) thought to be related to achievement and other educational outcomes.

This report uses a composite variable as a measure of the SES of students' families. The variable was constructed from the following five elements: father's occupation, mother's occupation, family income, father's education level, and mother's education level. In this report, both the SES variable and (separately) one of its key constituents, parental education, are employed. Socioeconomic status represents both family economic and sociocultural resources (including orientations, expectations, and norms) that form an essential part of the student's environment and support.[13]

[13] Although the ELS:2002 socioeconomic status (SES) composite is a powerful variable, it is unlikely that it captures all aspects of social class differences between people and all educationally important differences in social background. For example, the ELS:2002 SES variable captures economic well-being through the measurement of family income, but financial assets may also play a role in family well-being and capacity to make educational investments; indeed, some have suggested that there are greater educationally relevant differences between certain groups (such as Blacks and Whites) when financial assets are considered rather than income (Conley 1999). Information on family composition in relation to achievement has been included in chapter 5 to complement the perspective provided by SES.

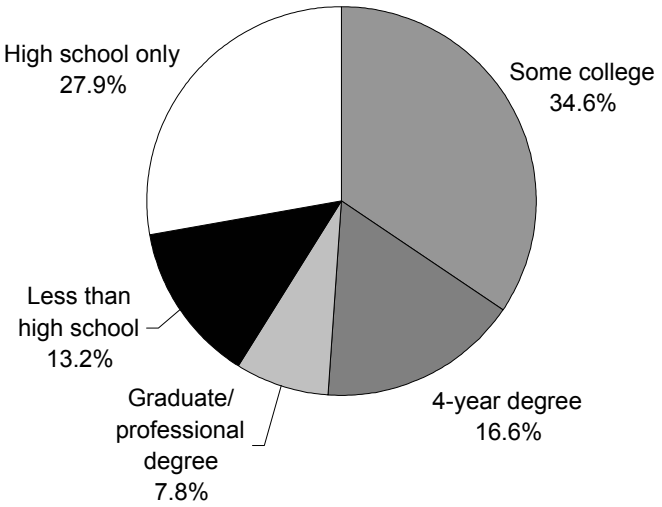
One element in the SES composite is income. Income contributes to a family's material standard of living, housing and neighborhood quality, cultural opportunities, and often the psychological well-being of family members. In turn, income has been found to have independent positive effects on children's intellectual and social development (Duncan and Brooks-Gunn 1997 [passim]; Haveman and Wolfe 1994, 1995). Income may affect the resources available at every stage of a child's development—from better resources in the early formative years of childhood to increased ability to finance postsecondary education. However, Duncan and Brooks-Gunn (1997) note that family income effects are largest for younger children and smallest for adolescents. While family income is related both to children's cognitive test scores (Armor 2003; Blau 1999; Mayer 1997) and their educational attainment (Ellwood and Kane 2000; Mayer 1997; Teachman et al. 1997), the contribution of income to these outcomes, in comparison to other possibly confounding factors, is less certain (Mayer 1997).

Another element in the ELS:2002 SES composite is parent occupation. If one aspect of SES is to be seen in parental resources (whether educational, cultural, or material), another aspect involves rank or status, that is, relative position in the occupational or social class hierarchy. ELS:2002 mother and father occupational data were recoded, using an index of occupational prestige (Duncan 1961; Nakao and Treas 1992).

The final element in the SES composite is parent education, that is, the highest educational attainment of both the mother and the father. (Parent education, in the form of a constructed variable that reports a single value representing the highest educational attainment of either parent, is also used as a row variable for analyses in this report.) Parental educational attainment is strongly and positively associated with children's educational outcomes (Haveman and Wolfe 1995). The education of the parent reflects both knowledge attained as a result of formal schooling and "status origins," which are related to the child's odds of attaining a given level of schooling.

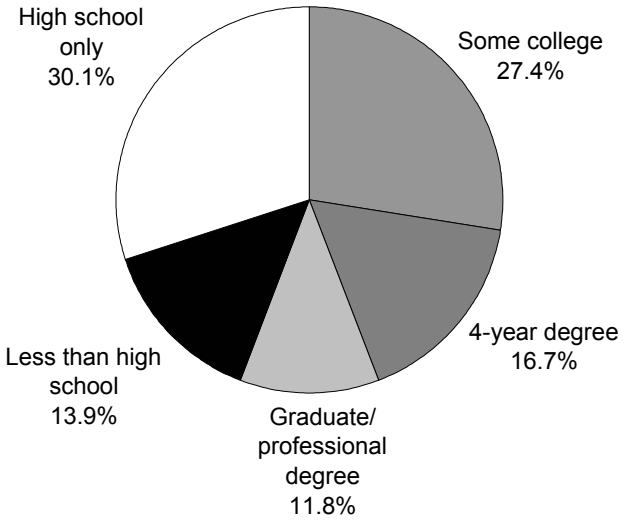
Figure 5 depicts the mother's highest level of education for the cohort; figure 6 shows the father's highest level of education. In later chapters of the report, we combine these two measures by employing the highest level of education achieved by either parent. As can be seen from figure 5, approximately 6 out of 10 sophomores (59 percent) have a mother who continued her education beyond high school. As can be seen from figure 6, 56 percent have a father who continued his education beyond high school.

Figure 5. Percentage of high school sophomores, by mother's highest level of education: 2002



NOTE: Detail may not sum to totals because of rounding. Aggregated estimates were derived from unrounded estimates.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

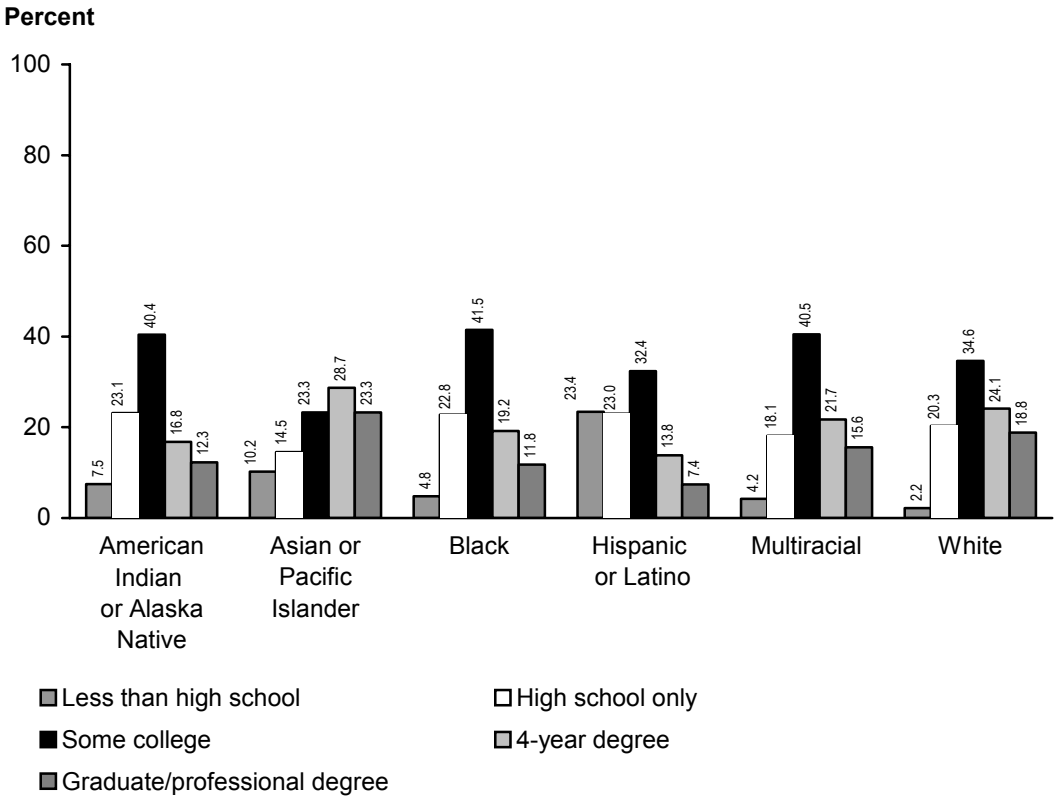
Figure 6. Percentage of high school sophomores, by father's highest level of education: 2002



NOTE: Detail may not sum to totals because of rounding. Aggregated estimates were derived from unrounded estimates.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

Past research has demonstrated that outcomes such as high school achievement gains are highly associated with parental education. In addition, levels of parental education have increased over recent years, although unevenly for various racial/ethnic subgroups, and appear to account for some (but far from all) differences in racial/ethnic achievement gains over time (Grissmer et al. 1994; Wang, Schiller, and Plank 1997). Data in figure 7 demonstrate that the level of sophomores' parental education in 2002 varied greatly across racial and ethnic groups. Students who were Hispanic were more likely than White students to have parents who did not complete high school (23 percent for Hispanic versus 2 percent for White). Compared with Asian (52 percent) and White (43 percent) sophomores, a smaller percentage of Black (31 percent) and Hispanic (21 percent) 10th-graders had parents who graduated from college with a 4-year degree or above.

Figure 7. Percentage of high school sophomores, by parents' highest level of education, by racial/ethnic group: 2002

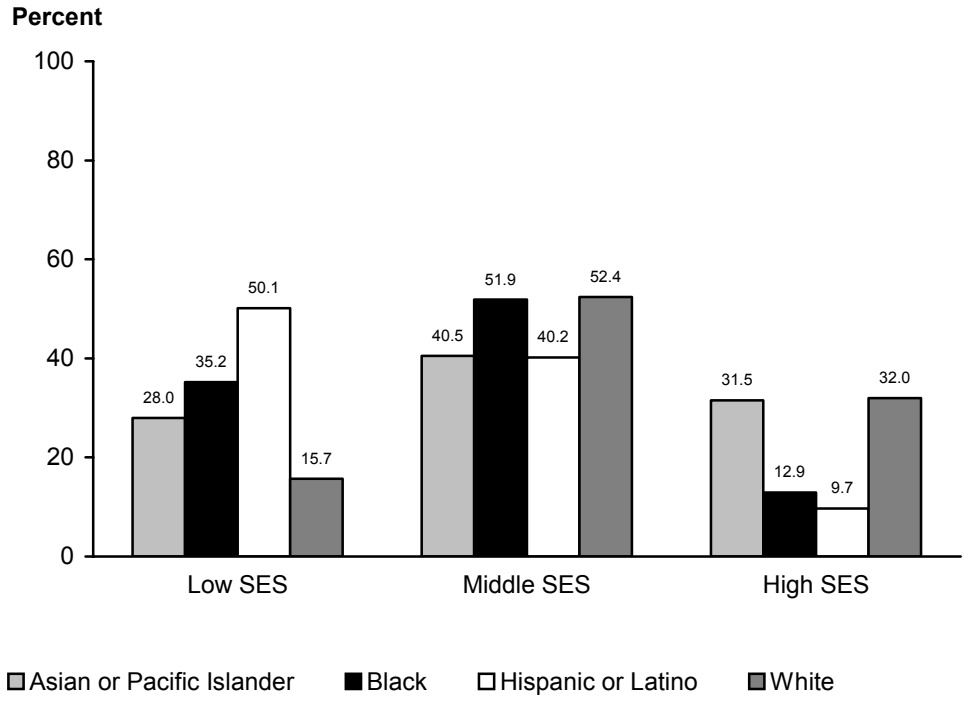


NOTE: Details may not sum to totals because of rounding. All race categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

Because race and SES covary and interact (Grissmer et al. 1994), it is important to consider racial/ethnic group and SES simultaneously. Parental education is one component of SES, a composite measure that includes parental occupation and family income as well. For this analysis, SES has been categorized as high, middle, or low, based on weighted quartiles (highest quartile, middle two quartiles, and lowest quartile). When SES and racial/ethnic group are examined together, an important relationship, seen in figure 8, is that Hispanics and Blacks were

more likely than Whites and Asians to be in the lowest SES quartile and that Whites and Asians were more likely than Hispanics or Blacks to be in the highest SES quartile.[14]

Figure 8. Percentage of high school sophomores in selected racial/ethnic groups, by socioeconomic status (SES): 2002



NOTE: Details may not sum to totals because of rounding. Excludes "American Indian/Alaska Native" and "More than one race." All race categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

2.3 Students and Their Schools

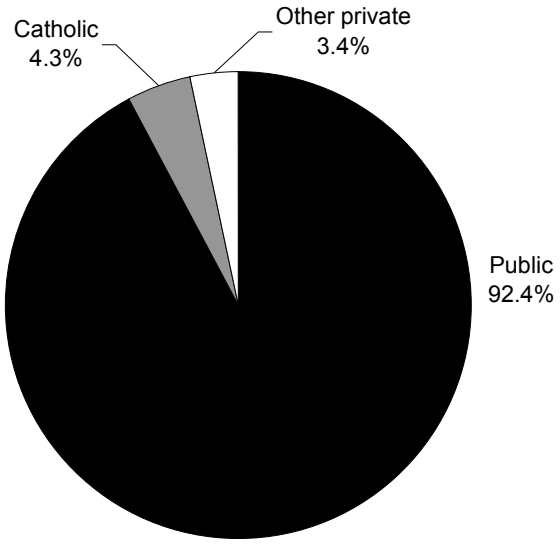
Academic outcomes may vary by the type of high school that a student attends. ELS:2002 looks at three different school sectors: public schools, Catholic schools, and other private schools. Previous research has shown that private schools have more students at the

[14] Because racial/ethnic group and SES covary, sometimes racial/ethnic group and SES should be considered simultaneously so that one can adjust for the independent impact of each factor. For example, if more Hispanics are likely to be in the lowest SES quartile, when one examines the relationship between, say, Hispanic ethnicity and mathematics proficiency, one wants to be sure that the relationship found is not confounded by the SES difference. Differential levels of achievement for different racial and ethnic groups have long been a concern, and there is much interest in whether gaps between groups are growing smaller. There is also much interest in understanding the reason for such gaps. As race and ethnicity results are examined in this report, it is necessary to keep the close relationship of racial/ethnic group and SES in mind—racial/ethnic differences are typically much smaller when looked at within SES groups. Although controlling for SES may have the effect of muting some racial/ethnic differences, in most instances, race and ethnicity remain independently viable factors in the elementary and secondary school years—they do not "go away" (Adelman 1999; Jacobsen et al. 2001; Jencks and Phillips 1998).

highest academic proficiency levels than public schools, and private school students are more likely than public school students to complete at least a bachelor's degree. [15]

Some of this difference may have to do with background characteristics (Alexander and Pallas 1985; Willms 1984). The simple crosstabulations in this report do not control for differential selection between the public and private school sectors. Differences between students in private and public schools may reflect student and family background characteristics (e.g., SES), characteristics of the schools (e.g., disciplinary climate), classrooms (e.g., class size), and instruction (e.g., higher-level math classes), or a combination of factors. Figure 9 shows the distribution of the nation's high school sophomores across the three school types.

Figure 9. Percentage of high school sophomores attending various types of schools: 2002



NOTE: Details may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

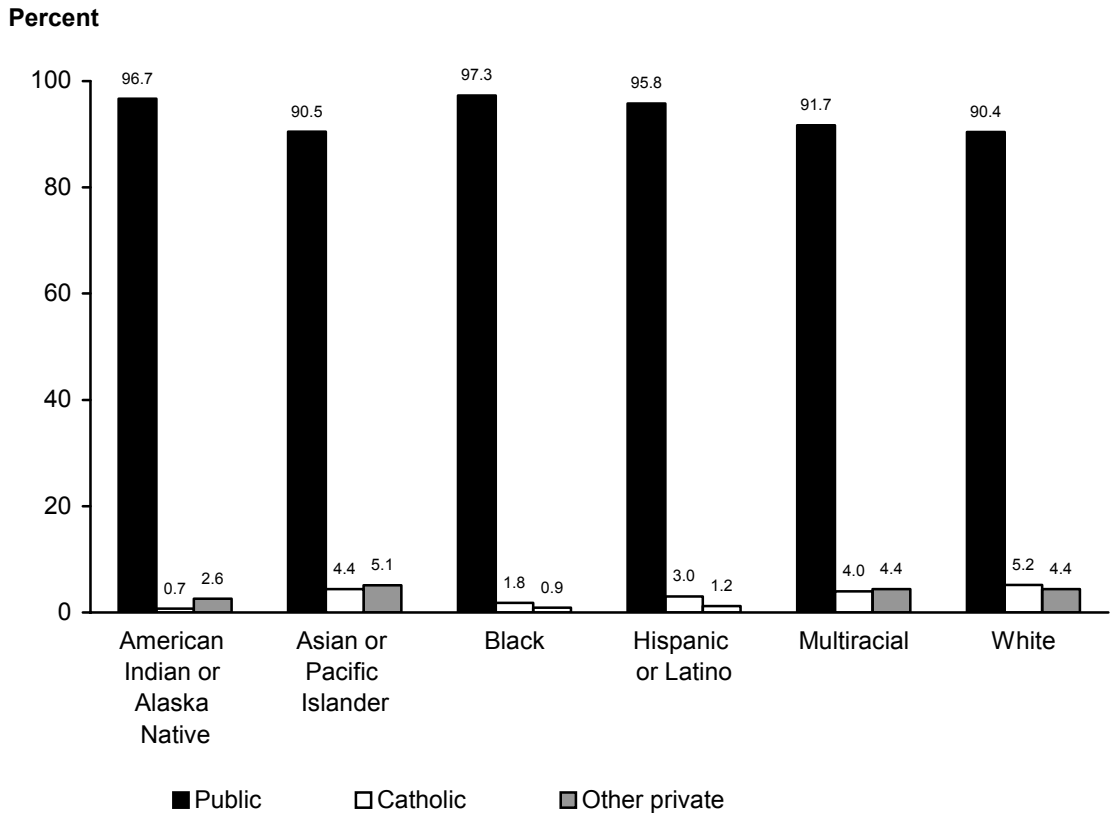
The overwhelming majority of sophomores in 2002 attended public schools (92 percent). Some 4 percent attended Catholic schools and 3 percent other private schools.

The majority of students of all races/ethnic groups attended public schools, as can be seen in figure 10. However, a higher proportion of Whites and Asians (10 percent each) attended

[15] For example, for the National Education Longitudinal Study of 1988 (NELS:88) in 1992, 81 percent of seniors in private schools of the National Association of Independent Schools (NAIS) tested at the highest level of proficiency in math, as did 47 percent of Catholic seniors and 42 percent of seniors attending non-NAIS private schools. In contrast, 32 percent of public school seniors reached this level. A similar pattern is seen for reading (Green et al. 1995). In addition, data from the NELS:88 show that eighth-graders who attended private schools (Catholic and other private) in 1988 were twice as likely to have completed a bachelor's or higher degree 12 years later than were eighth-graders who attended public schools (Ingels et al. 2002, table 2). Specifically, 52 percent of private school eighth-graders and 26 percent of public school eighth-graders had been awarded at least the baccalaureate by 2000.

nonpublic schools (Catholic and other private) than did Blacks (3 percent) or Hispanics (4 percent).

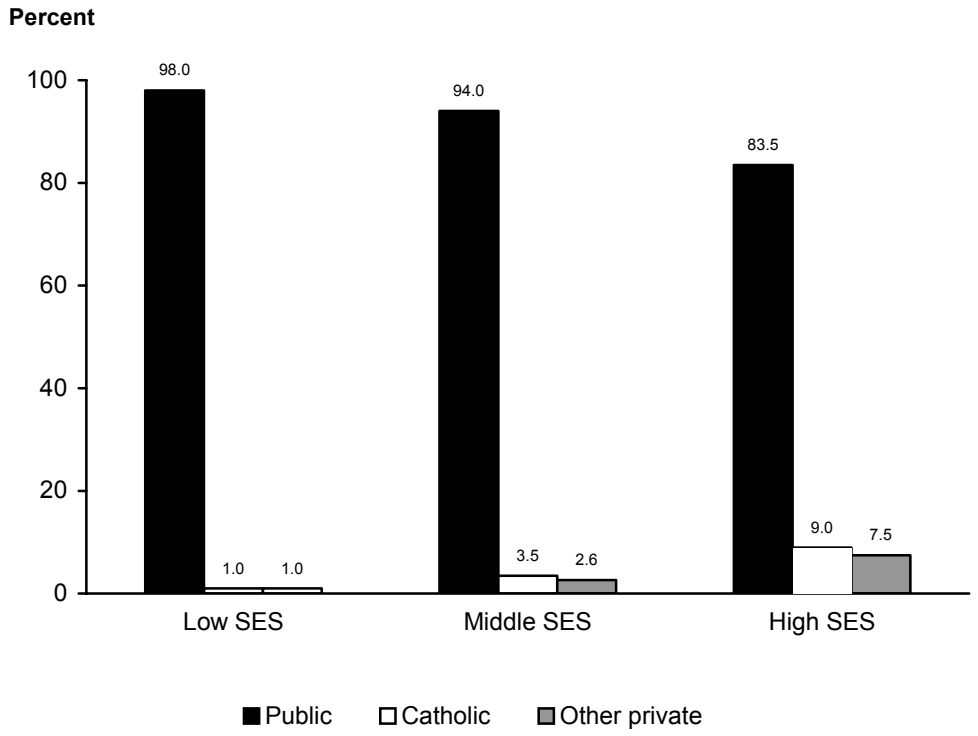
Figure 10. Percentage of high school sophomores attending various types of schools, by racial/ethnic group: 2002



NOTE: Details may not sum to totals because of rounding. All race categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

Figure 11 indicates the SES of students attending the three main school types. Because private schools typically charge tuition, affluent families are more likely to send their children to such schools than are families with fewer resources. Some 17 percent of sophomores in the highest SES quartile attended nonpublic schools, while 2 percent of sophomores in the lowest SES quartile attended nonpublic schools.

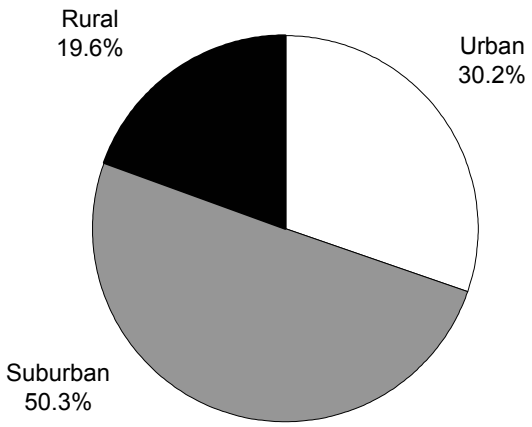
Figure 11. Percentage of high school sophomores attending various types of schools, by socioeconomic status (SES): 2002



NOTE: Details may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

Another important school-level characteristic is the location—that is, the metropolitan status or urbanicity—of the school. Although schools of the highest quality may be found in any setting, urban public schools are more likely than suburban or rural schools to have concentrations of students from low-income families (Lippman, Burns, and McArthur 1996). (In turn, rural schools are more likely than suburban schools to have a high proportion of students from low-income families.) In urban areas, students are more likely to change schools and be exposed to crime and violence, and urban schools are more likely to serve students with limited English proficiency (Lippman, Burns, and McArthur 1996). Rural schools, on the other hand, are characterized by having fewer sports and extracurricular offerings (but higher student participation rates) and lower student postsecondary educational expectations (Lippman, Burns, and McArthur 1996; Roscigno and Crowley 2001). As indicated in figure 12, some 30 percent of sophomores attended an urban school, 50 percent attended a suburban school, and 20 percent attended a rural school.

Figure 12. Percentage of high school sophomores in urban, suburban, and rural schools: 2002

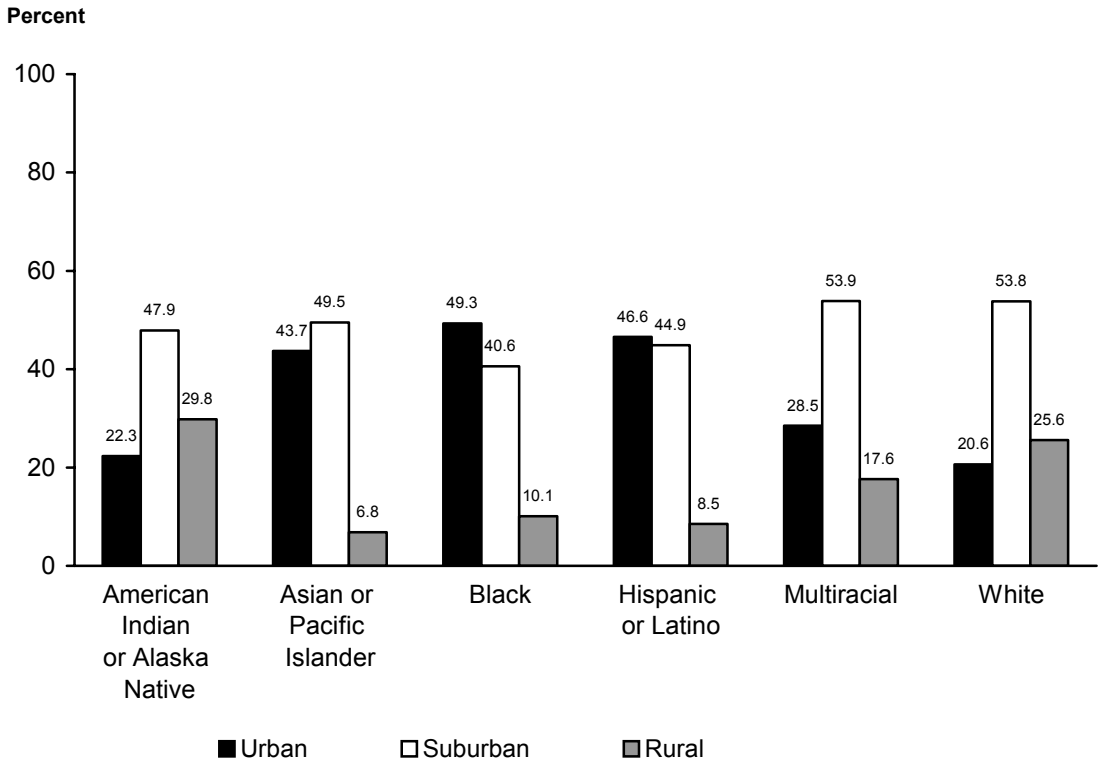


NOTE: Details may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

There is some disparity in the distribution of racial groups across schools of different urbanicity status. As figure 13 demonstrates, Whites were less likely to attend urban schools than all other racial/ethnic groups except American Indians. Asians, Blacks, and Hispanics were the most likely to attend urban schools and the least likely to attend rural schools.

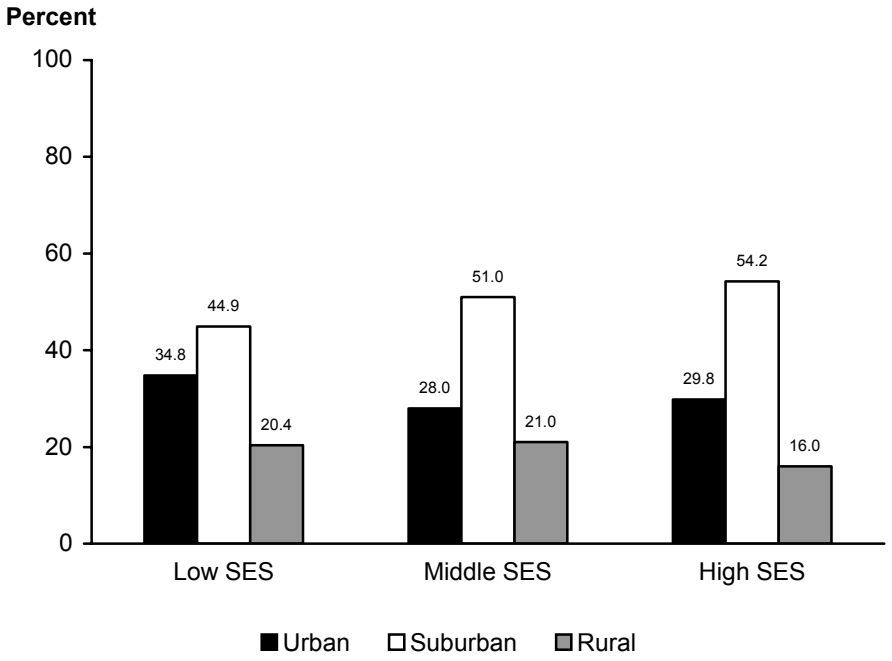
As figure 14 illustrates, sophomores in the lowest SES quartile were more likely to attend urban schools and less likely to attend suburban schools than those students with greater social and economic advantages (middle- or high-SES students). They were more likely to go to schools located in rural communities than students in the highest SES quartile. Nonetheless, the largest share of students in each SES group attended suburban schools.

Figure 13. Percentage of high school sophomores in urban, suburban, and rural schools, by racial/ethnic group: 2002



NOTE: Details may not sum to totals because of rounding. All race categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

Figure 14. Percentage of high school sophomores in urban, suburban, and rural schools, by socioeconomic status (SES): 2002



NOTE: Details may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

Finally, small but consistent differences are often found in educational achievement in different regions of the country (see Donahue et al. [1999] for examples from the National Assessment of Educational Progress). The four national Census regions are used for geographical reporting: Northeast, Midwest, South, and West. Table 1 shows the proportions of sophomores who lived in each of the four regions.

Table 1. Percentage of high school sophomores in each geographic region: 2002

Region	Percent
Northeast[1]	18.5
Midwest[2]	24.1
South[3]	34.3
West[4]	23.0

[1] Northeast = CT, ME, MA, NH, NJ, NY, PA, RI, VT.
[2] Midwest = IL, IN, IA, KS, MI, MN, MO, NE, ND, OH, SD, WI.
[3] South = AL, AR, DE, DC, FL, GA, KY, LA, MD, MS, NC, OK, SC, TN, TX, VA, WV.
[4] West = AK, AZ, CA, CO, HI, ID, MT, NV, NM, OR, UT, WA, WY.
NOTE: Details may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

2.4 Educational Expectations, School Program, and Achievement

2.4.1 Educational Expectations

Students' and their families' educational expectations are associated with educational outcomes, including achievement, high school completion, and postsecondary attainment. An individual's goal setting comes in part from the expectations and encouragement of others; that is, individual expectations are in part shaped by a larger social context. Expectations may also reflect the student's reading of what is realistically possible to accomplish and what it is in the student's rational self-interest to pursue.[16] Certainly, educational expectations must be incorporated into any attempt to understand entry into postsecondary education and eventual educational attainment. They also provide a criterion against which students' educational choices in high school, such as coursetaking or preparation for college entrance examinations, may be measured for their degree of alignment with educational goals.

Some 90 percent of the 2002 sophomore cohort had a definite expectation of how far in the education system they expected to get. The cohort held generally quite high educational expectations for the future, as may be seen in table 2.[17]

Table 2. Percentage of high school sophomores, by highest level of education expected: 2002

Level of education	Percent
Less than high school	0.9
High school completion or GED[1]	7.3
Attend or complete 2-year community college or vocational school	6.4
Attend 4-year program, but not complete degree	3.9
Graduate from college	35.8
Master's degree or equivalent	19.7
Ph.D., M.D., or other advanced degree	16.1
Don't know	9.8

[1]GED = general equivalency diploma.
NOTE: Details may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

Some 72 percent of the cohort expected to complete a 4-year college degree or higher. Indeed, 36 percent expected to go beyond a bachelor's degree and to obtain a graduate or professional degree. Eight percent did not expect to go on to postsecondary education in any form.

[16] For clear discussions of educational expectations in the context of both sociological (status-attainment) and economic models, see Plank and Jordan (2001) and Morgan (1996).

[17] Some relevant comparison points are the proportion of persons 25 years and over in the United States in 2000 who were college graduates or more (26 percent) (U.S. Census Bureau 2003) and the proportion of 1988 eighth-graders who had completed a bachelor's degree or higher 12 years later (29 percent) (Ingels et al. 2002, table 2). Some 66 percent of the 1988 eighth-grade cohort indicated that they expected to complete a bachelor's degree or higher (Hafner et al. 1990). Clearly, while adolescents in general tend to have high educational (and occupational) expectations, many fail to realize their early goals. Nonetheless, those who have "aligned ambitions"—that is, those who make prudent educational choices (such as selecting the course sequences that will serve as optimal means to their ultimate ends) and invest in educational preparation and planning—are far more likely to realize their educational and occupational expectations and goals than those whose educational choices and efforts are less closely aligned with their ambitions (Schneider and Stevenson 1999).

Because of their presumed importance as a predictor of later outcomes, educational expectations are used as a row variable in this report as various topics are analyzed. However, student educational expectations may be hypothesized to also be influenced by other factors (including both background and academic achievement). Expectations are themselves examined in detail in chapter 7.

2.4.2 High School Program

One common feature of schools is curricular differentiation or the sorting of students. One form this may take is tracking.

In public schools, the high school curriculum has traditionally been divided into distinct curricular tracks or program placements. In broad terms, three program types may be distinguished: a college preparatory or academic track; a general track for non-college-bound students; and a specialized vocational track. In part, track placement may reflect assignment by the school, but it also, at least in part, may be elective, within the constraints of the logic of the system (LeTendre, Hofer, and Shimizu 2003) and, thus, may also reflect student and parent course selection decisions. Curriculum tracks provide different learning opportunities such that the program in which a student is enrolled may be a determinant of academic achievement, likelihood of completing high school, and postsecondary enrollment (Gamoran and Mare 1989). Many high schools in recent years have striven to avoid using formal program and track labels, though different groups of students continue to take very different sequences of courses (Lucas 2001).[18] Since specific coursetaking information for the ELS:2002 sophomore cohort will not be available until after their high school transcripts are collected in fall 2004, the high school program variable is the best available indicator of the kinds of courses that these students are likely to be taking currently.[19]

As can be seen from table 3, 39 percent of ELS:2002 sophomores reported that they were in a general program, 51 percent in a college preparatory or academic program, and 11 percent in a vocational program.

[18] Because broad program or track labels are less often used today, and because students may imperfectly understand the formal or informal program structure of their schools, student self-reports of being enrolled in an academic, general, or vocational track may not always be objectively accurate. Nevertheless, self-report data may remain relevant for the study of track effects on achievement in that self-reports are likely to "capture the social-psychological aspects of tracking because track perceptions are linked to expectations and peer associations" (Gamoran 1992; compare Kubitschek and Hallinan [1998]).

[19] Although NELS:88 gathered information from sample members' teachers about the overall achievement level and track of their class in given subjects, classroom-level information was not gathered in the ELS:2002 teacher survey. However, an objective measure of high school program can be obtained from the ELS:2002 high school transcripts, after they are collected in the first follow-up (2004). It is anticipated that a composite variable for transcript-based program would be created, similar to the NELS:88 variable, which contains the following distinctions: (1) rigorous academic track, (2) academic track, (3) vocational track, (4) rigorous academic and vocational, and (5) academic and vocational.

Table 3. Percentage of high school sophomores, by type of academic program: 2002

Type of program	Percent
General	38.6
College preparatory—academic	50.7
Vocational, including technical/business	10.8

NOTE: Details may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

2.4.3 Tested Achievement

ELS:2002 included assessments in reading and mathematics. The two tests were designed to measure the achievement status of 10th-graders at both the individual and the group level. After the 2004 data collection, the test results can also be used to measure gains in mathematics achievement over the last 2 years of high school.

Cross-sectional comparisons, as made within this report, relate test results to the various demographic subgroups of students (e.g., males and females; Blacks, Whites, Asians, Hispanics) and types of schools (e.g., urban, rural, and suburban; public, Catholic, and other private).[20]

This report illustrates two kinds of test score reporting. One kind of score (the quartile score) is norm referenced. It answers the question: How do students compare with their peers? A second kind of score is criterion referenced (the proficiency score). It answers the question: What skills do students have?

Quartile scores are used as row variables in chapters 3–5 and in chapter 7. This score is a composite of the average mathematics and reading standardized scores, re-standardized to a national mean of 50.0 and standard deviation of 10.0. The achievement distributions have been divided into four equal groups. Quartile 1 corresponds to the lowest achieving quarter of the national population of 2002 10th-graders, and quartile 4 corresponds to the highest achieving quarter.

In addition to the normative quartile scores used in most chapters of the report, chapter 6 employs a criterion-referenced or proficiency score, so that achievement can also be understood in terms of specific levels of skill mastery.[21] Criterion-referenced proficiency scores are based on clusters of items that mark different levels on the math and reading scales. Clusters of four items each mark five hierarchical levels in math and three in reading.

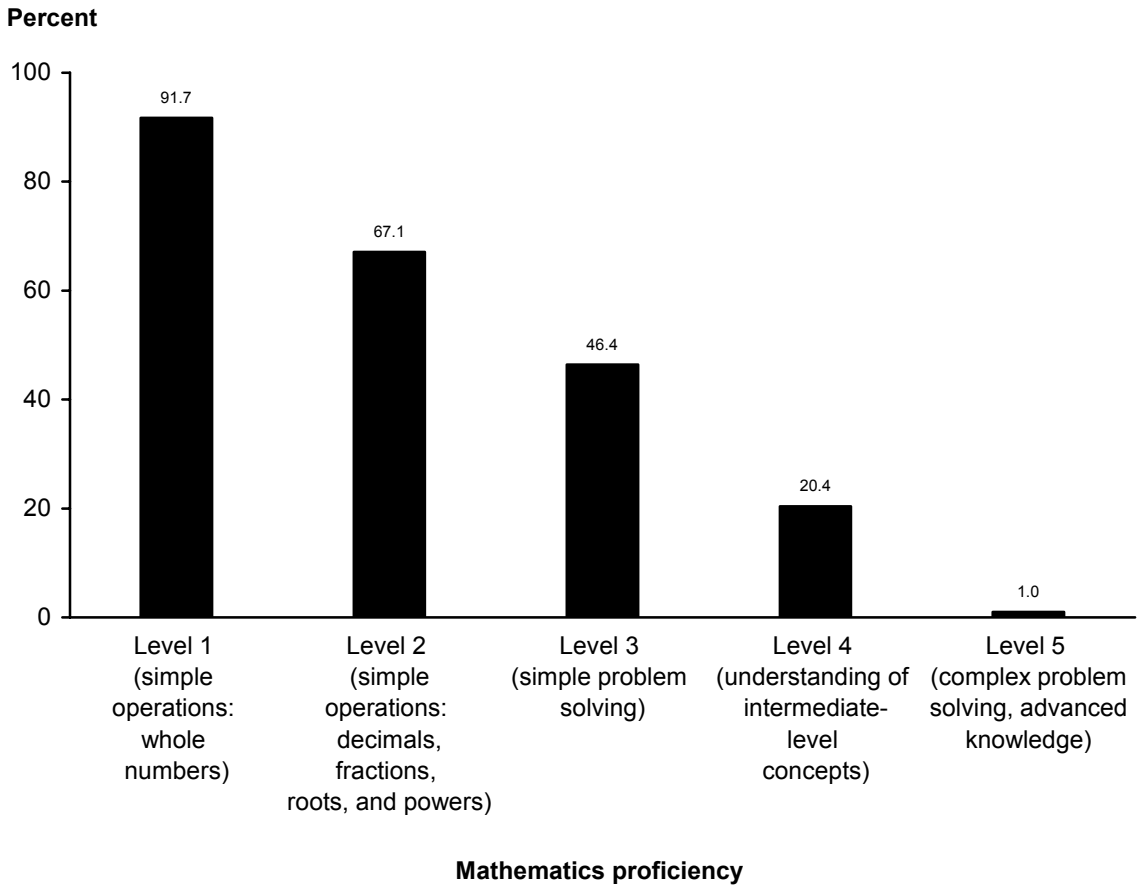
The math levels are as follows: (1) simple arithmetical operations on whole numbers; (2) simple operations with decimals, fractions, powers, and roots; (3) simple problem solving,

[20] These cross-sectional estimates may also be used in cross-cohort or trend comparisons with the results of previous sophomore cohorts (as in High School and Beyond [HS&B] in 1980 and NELS:88 in 1990). This document does not report cross-cohort findings; however, a separate report will compare survey and test results for the 1980, 1990, and 2002 sophomore cohorts. In terms of longitudinal analysis, it should be stated that the reading test will not be repeated in the ELS:2002 first follow-up. Reading scores can be used both cross sectionally, to describe status at 10th grade, and longitudinally, as a baseline covariate or control variable. The mathematics test will be repeated in the first follow-up. This will permit gains in math to be measured between grades 10 and 12 and related to various in-school processes and out-of-school factors, including the specific courses and course sequences completed in high school.

[21] A fuller account of the mathematics and reading proficiency levels can be found in chapter 6 and appendix A (glossary) of this report, as well as in the *ELS:2002 Data File User's Manual* (Ingels et al. 2004).

requiring the understanding of low-level mathematical concepts; (4) understanding of intermediate-level mathematical concepts and/or multistep solutions to word problems; and (5) complex multistep word problems and/or advanced mathematics material. As may be seen in figure 15, about 92 percent of the cohort are proficient at simple arithmetical operations with whole numbers, and 67 percent are proficient in simple operations with decimals, fractions, roots, and powers.

Figure 15. Percentage of high school sophomores, by demonstrated mathematics proficiency: 2002



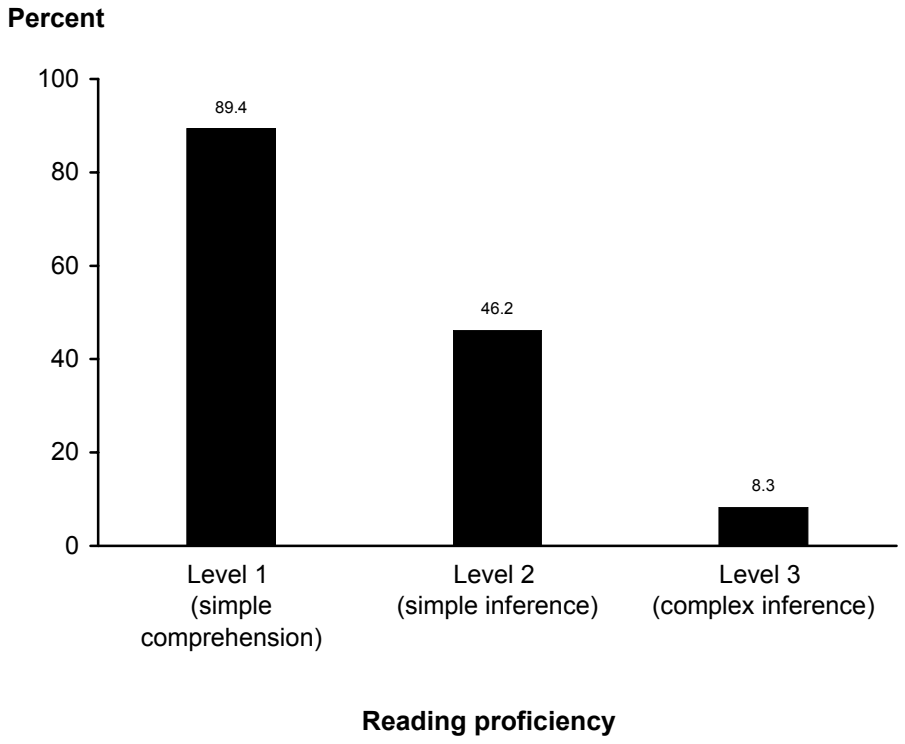
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

However, only about one-half are capable of simple problem solving in mathematics, and only about one-fifth show proficiency in understanding of intermediate-level mathematical concepts. Since the knowledge and skills involved in level 5 are generally taught only in upper-level mathematics courses toward the end of high school, it is not surprising that only 1 percent of the cohort show mastery at this level.

The reading levels are (1) simple reading comprehension, including reproduction of detail and/or the author's main thought; (2) ability to make relatively simple inferences beyond the author's main thought and/or to understand and evaluate abstract concepts; and (3) ability to make complex inferences or evaluative judgments that require piecing together multiple sources

of information from the passage. As shown in figure 16, the overwhelming majority (nearly 90 percent) of sophomores are proficient at simple reading comprehension. However, when it comes to the ability to make relatively simple inferences beyond the author's main thought or to evaluate abstract concepts, only 46 percent of the cohort demonstrate proficiency. At the highest level of reading proficiency, ability to make complex inferences or judgments based on combining multiple instances of information, only about 8 percent show mastery.

Figure 16. Percentage of high school sophomores, by demonstrated reading proficiency: 2002



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

The next chapter uses the measures described above (student educational expectations, race/ethnicity, socioeconomic status, high school program, tested achievement, school sector, and so forth) to investigate the school experiences—perceptions of school, perceptions of school safety, importance accorded good grades, and reasons for going to school—of the sophomore cohort.[22]

[22] The family composition variable is used only in chapter 6, which examines the cohort's tested achievement in reading and mathematics.

Chapter 3
School Experiences

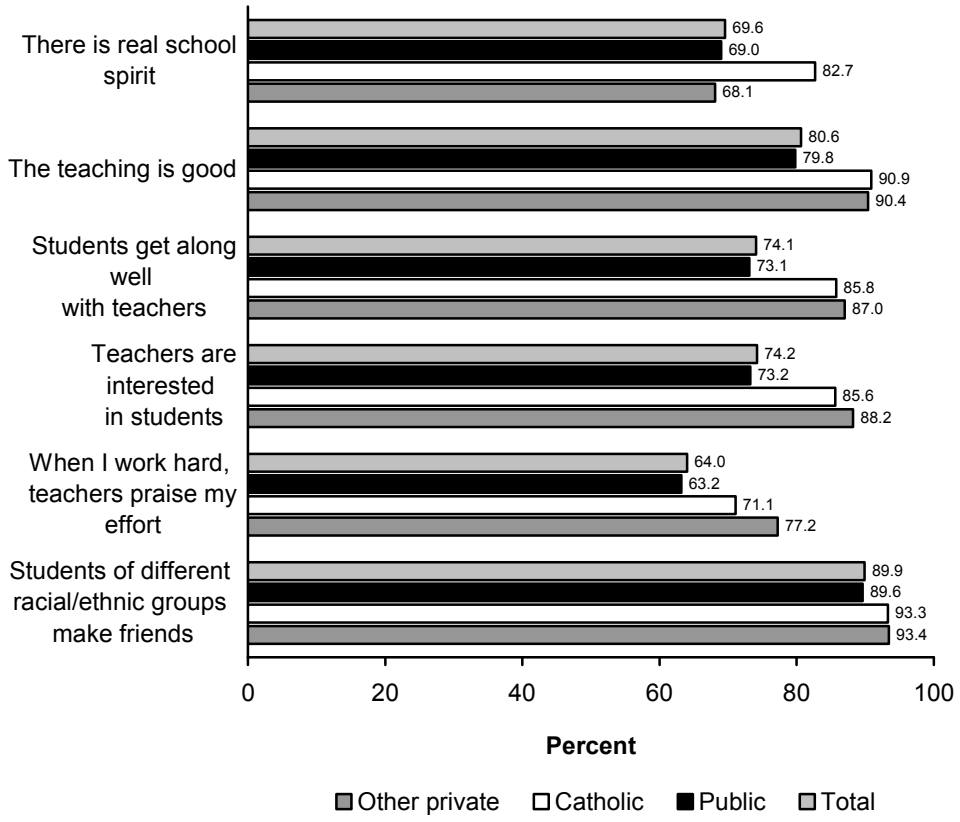
This chapter describes the school experiences of the sophomore class of 2002 by examining their perceptions of school, the quality of teaching, and school rules and discipline; their reports on school safety and victimization at school; their views on the importance of getting good grades; and their reasons for attending school. Although student reports may not be viewed as objective measures of school circumstances, they do provide an important indication of the school environment in which instruction and learning took place in 2002. The findings reported here are examined in light of relevant student and school characteristics discussed in chapter 2.

3.1 Students' Perceptions of Their School and Their Teachers

In the Education Longitudinal Study of 2002 (ELS:2002), 10th-grade students were asked to respond to a number of statements about the climate of their school, the quality of teaching, and their experiences with teachers. Overall, the majority of 10th-graders viewed their school as providing a positive learning environment: 70 percent agreed that there was real spirit in their school; 81 percent indicated that the quality of teaching was good; 74 percent observed that students and teachers got along well; 74 percent felt that their teachers were interested in the students; and 64 percent said that teachers praised their efforts when they worked hard (figure 17).

Consistent with the differences between students at public and private schools reported in earlier studies (Alt and Peter 2002; Bryk, Lee, and Holland 1993), students in Catholic and other private schools were generally more likely than their counterparts in public schools to express positive views about their school and teachers (figure 17). For example, when asked whether there was real spirit in their school, 83 percent of Catholic school students indicated that it existed, compared with 69 percent of public school students. At least 85 percent of both Catholic and other private school students indicated that the quality of teaching was good, students and teachers got along well, and teachers were interested in students, compared with 80 percent or less of public school students. Students in both Catholic and other private schools (71 percent and 77 percent, respectively) were also more likely than their counterparts in public schools to report that their teachers praised their efforts (63 percent).

Figure 17. Percentage of high school sophomores who agreed or strongly agreed with various statements about their school and the teachers in their school, by school type: 2002



NOTE: See appendix A for the weighted response rates of all unimputed variables used in this analysis.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

Earlier research reveals that students' perceptions of their schools vary by race/ethnicity, socioeconomic status (SES), and school sector. White, high-SES, and private school students tend to view their school and teachers more favorably than their minority, low-SES, or public school counterparts (Green et al. 1995; Hafner et al. 1990). These patterns were also observed in the 2002 sophomore cohort. As shown in table 4, White students were more likely than Black and Hispanic students to indicate that students got along well with teachers: 78 percent of White sophomores affirmed this statement, compared to 61 percent of Black sophomores and 71 percent of Hispanics. Whites were more likely than Blacks to indicate that the quality of teaching was good and that teachers were interested in students. Students from high-SES families were more likely than those from low-SES families to indicate that students got along well with teachers: 82 percent of high-SES sophomores affirmed this statement, compared to 69 percent of low-SES sophomores. High-SES sophomores were also more likely than low-SES sophomores to report an experience of high-quality teaching and teacher interest in students.

Table 4. Percentage of high school sophomores who agreed or strongly agreed with various statements about their school and teachers in their school, and percentage who reported that they liked their school a great deal, by selected student and school characteristics: 2002

Selected student and school characteristics	There is real school spirit	The teaching is good	Students get along well with teachers	Teachers are interested in students	When I work hard, teachers praise my effort	Students of different racial/ethnic groups make friends	Like school a great deal
Total	69.6	80.6	74.1	74.2	64.0	89.9	23.6
Sex							
Male	67.9	79.0	75.0	72.2	63.2	89.3	20.7
Female	71.2	82.2	73.1	76.3	64.8	90.5	26.3
Racial/ethnic group							
American Indian or Alaska Native	77.2	77.2	73.1	74.1	58.8	87.3	17.5
Asian or Pacific Islander	67.6	84.3	78.2	77.4	66.9	90.7	23.9
Black	66.2	75.6	60.7	67.3	65.2	90.8	29.0
Hispanic or Latino	63.5	81.2	70.8	74.9	67.6	91.1	29.5
More than one race	68.1	77.9	67.9	70.2	59.3	90.6	22.1
White	72.1	81.6	78.3	75.8	63.0	89.3	20.9
Socioeconomic status							
Lowest quartile	67.4	79.4	68.7	73.2	65.1	89.9	26.7
Middle two quartiles	69.8	79.6	73.0	73.0	62.4	90.1	21.9
Highest quartile	71.3	83.9	81.6	77.8	66.1	89.5	23.7
Parents' education							
High school or less	68.3	79.7	70.8	74.0	63.7	89.5	24.4
Some college	69.8	79.4	72.6	72.3	62.4	90.5	22.3
College graduation	70.1	82.2	76.4	75.9	65.7	90.6	23.7
Graduate/professional degree	70.3	82.7	79.7	76.6	65.7	88.4	24.6
Native language[1]							
English	70.4	80.1	74.2	74.1	63.0	89.9	22.2
Non-English	64.4	83.6	73.2	74.9	70.3	90.1	31.9
Student's educational expectations							
High school or less	60.4	68.7	59.7	62.6	56.5	85.3	13.0
Some college	66.8	76.2	70.6	68.6	60.7	88.3	15.3
College graduation	70.9	81.5	74.7	75.5	65.0	91.0	22.2
Graduate/professional degree	72.2	85.5	79.5	79.1	67.8	90.6	31.6
Don't know	65.6	74.5	67.7	67.8	56.4	88.9	16.5

See notes at end of table.

Table 4. Percentage of high school sophomores who agreed or strongly agreed with various statements about their school and teachers in their school, and percentage who reported that they liked their school a great deal, by selected student and school characteristics: 2002—Continued

Selected student and school characteristics	There is real school spirit	The teaching is good	Students get along well with teachers	Teachers are interested in students	When I work hard, teachers praise my effort	Students of different racial/ethnic groups make friends	Like school a great deal
High school program[2]							
General	66.6	76.0	69.3	68.7	59.3	88.5	17.6
College preparatory	72.5	84.8	78.7	79.0	68.0	91.2	28.5
Vocational	66.2	77.3	69.4	71.3	61.8	88.8	21.4
Composite achievement test score in sophomore year							
Lowest quartile	65.7	73.9	61.2	67.7	62.8	87.4	24.3
Middle two quartiles	70.5	80.4	74.3	72.7	61.7	90.7	21.2
Highest quartile	71.6	87.7	86.4	83.7	69.7	90.9	27.5
Sophomore's school sector							
Public	69.0	79.8	73.1	73.2	63.2	89.6	23.2
Catholic	82.7	90.9	85.8	85.6	71.1	93.3	23.5
Other private	68.1	90.4	87.0	88.2	77.2	93.4	32.1
Region of sophomore's school							
Northeast	62.6	80.7	71.9	75.6	67.4	90.9	20.9
Midwest	73.1	81.2	77.1	74.1	60.8	89.5	22.9
South	72.1	80.2	72.0	74.2	64.1	88.8	25.0
West	67.6	80.7	75.7	73.3	64.5	91.2	24.2
Urbanicity of sophomore's school							
Urban	68.6	79.6	70.6	73.9	65.7	91.3	27.1
Suburban	69.2	81.7	75.4	74.7	63.5	89.9	22.9
Rural	71.8	79.5	76.0	73.7	62.7	87.7	19.8

[1]The first language students learned to speak when they were children.
[2]Students' self-reports of the type of high school program in which they participated.
NOTE: See appendix A for the weighted response rates of all unimputed variables used in this analysis. All categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

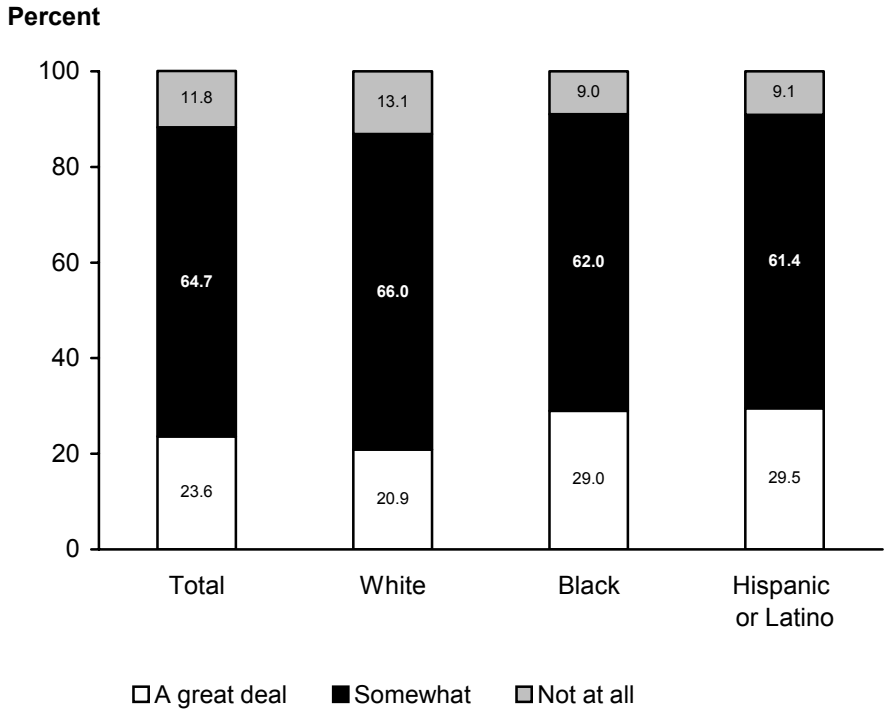
Again paralleling earlier research (Green et al. 1995; Ladd and Birch 1997; Osterman 2000), students' perceptions of their school and teachers were tied to specific academic characteristics among students, such as their educational expectations, self-reported enrollment in a high school program, and achievement test scores. For example, 10th-graders who expected to complete a bachelor's degree or higher were more likely to express positive opinions about their school and teachers than were 10th-graders who expected to earn only a high school diploma or less. Likewise, sophomores enrolled in a college preparatory program, or those scoring in the highest achievement quartile, were more likely to express positive attitudes toward school and teachers than were enrollees in a general education or vocational program, or sophomores who scored in the lowest achievement quartile.

Given the overall positive perceptions of students toward their school and teachers, one might expect that students would like school very much. Their responses, however, showed a somewhat different picture. When 10th-graders were asked how much they liked school, 24 percent responded that they liked it a great deal (figure 18). A majority of 10th-graders (65 percent) reported that they liked school somewhat, and 12 percent said they did not like it at all (figure 18). Although White students were generally more likely than their Black or Hispanic peers to perceive school and teachers positively (table 4), they were less likely than Blacks and Hispanics to say that they liked school a great deal (21 percent versus 29 and 30 percent, respectively).

Girls often have more positive attitudes toward school than boys (Bae et al. 2000). This finding was observed among the members of the 10th-grade cohort. For example, when asked about the extent to which they liked school, 26 percent of females reported liking school a great deal, compared with 21 percent of males (table 4). Educational expectations also are associated with students' attitudes toward school. The percentage of sophomores who said that they liked school a great deal increased with their educational expectations. Differences were also found among students enrolled in various types of high school programs in a way that was expected[23]: those in a college preparatory program were more likely than their counterparts in general education or vocational programs to report that they liked school a great deal. Finally, the extent to which students liked school was related to the type of school they attended. Students attending other private schools were more likely than either public or Catholic school students to indicate that they liked school a great deal.

[23]Similar findings were also reported in *The Condition of Education 2002*, Indicator 18 (U.S. Department of Education 2002).

Figure 18. Percentage distribution of high school sophomores according to the extent to which they liked their school, by selected racial/ethnic groups: 2002



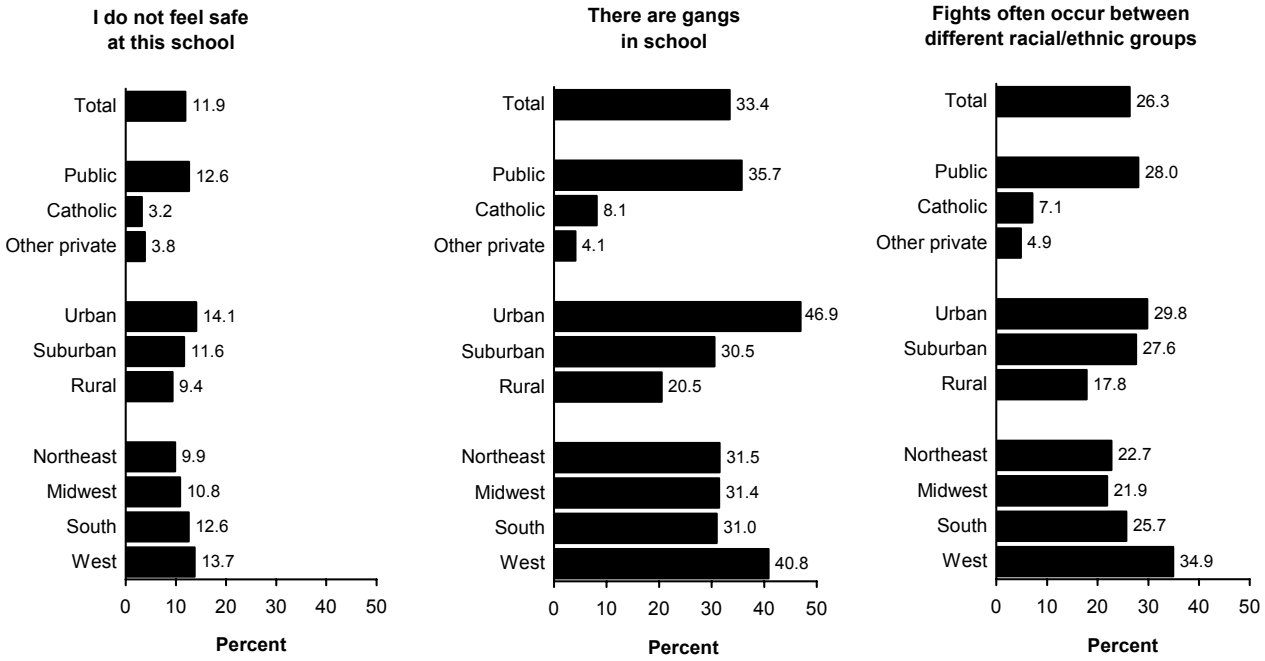
NOTE: Details may not sum to totals because of rounding. See appendix A for the weighted response rates of all unimputed variables used in this analysis. Excludes "American Indian/Alaska Native" and "More than one race." All race categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

3.2 Students' Perceptions of Safety and Experiences of Crime and Bullying at School

Schools should be safe and secure places for students to learn and teachers to teach. If students and teachers are subject to theft, assault, or other forms of crime and bullying at school, if schools are places where gang activities and bullying often take place, or if classrooms are frequently disrupted by misbehaving students, neither teachers nor students can perform at their best (Stephens 1994, 2000; Elliott, Hamburg, and Williams 1998).

Are schools providing a safe haven in which learning can occur? This section addresses the question by looking at the 10th-grade cohort's perceptions of their own safety in school, observations of safety-related problems (e.g., gang activities), and experiences of various forms of crime and bullying on school property. In 2002, a majority of 10th-graders (88 percent) perceived their school as a safe place. However, this means that about 12 percent of 10th-graders reported that they did not feel safe at school (figure 19).

Figure 19. Percentage of high school sophomores who agreed or strongly agreed with various statements about school safety, by school type, urbanicity, and region: 2002



NOTE: See appendix A for the weighted response rates of all unimputed variables used in this analysis.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

Feeling unsafe was more likely to be reported by sophomores in public schools than by their peers in Catholic and other private schools. About 13 percent of 10th-graders in public schools said that they did not feel safe at school, compared with 3 and 4 percent of 10th-graders in Catholic and other private schools, respectively (figure 19 and table 5). Reflecting the higher crime rates reported in urban areas (DeVoe et al. 2002; Miller 2003), 10th-grade students in urban schools were more likely to feel unsafe than their counterparts in suburban or rural schools.

Black and Hispanic students were more likely than White students to feel unsafe at school (table 5).[24] Feeling unsafe at school was also more likely to be reported by students whose native language was not English than by native-English-speaking students, by students whose parents did not attend college than by those whose parents completed a bachelor's degree or higher, and by students from low-SES families than by those from high-SES families (table 5). These differences may be attributed to the fact that students from disadvantaged social and economic backgrounds often attend schools with a variety of discipline, safety, and other related problems (Mayer, Mullens, and Moore 2001; Marsh and Cornell 2001).

One aspect of a school's environment that may contribute to students' feeling of safety on school grounds is the extent of gang activities at the school (Ralph et al. 1995; Howell 1998). In

[24]Because of the small sample size and large standard errors, American Indian or Alaska Native students were not statistically different from White students in their reports of school safety. For the same reason—that small sample size and large standard errors limit generalization—findings for American Indians are not a major focus of this report. However, using the tables of estimates and standard errors in this report, readers with a special interest in this subgroup can do their own significance tests for generalizations of specific interest to them.

2002, one-third of 10th-graders reported that gangs were present at their school (figure 19 and table 5). Gang activities were more prevalent in public schools than in Catholic and other private schools and in urban schools than in rural or suburban schools. Also, certain groups of students were more likely than others to report the presence of gangs at school. For instance, gangs were more likely to be reported by Blacks, Hispanics, and Asians than Whites; by students from low-SES families than those from high-SES families; and by students whose native language was not English than their native English-speaking peers (table 5).

Table 5. Percentage of high school sophomores who agreed or strongly agreed with various statements about school safety, by selected student and school characteristics: 2002

Selected student and school characteristics	I do not feel safe at this school	There are gangs in school	Fights often occur between different racial/ethnic groups
Total	11.9	33.4	26.3
Sex			
Male	12.7	36.5	27.3
Female	11.1	30.3	25.4
Racial/ethnic group			
American Indian or Alaska Native	17.2	38.4	27.9
Asian or Pacific Islander	11.9	40.7	32.8
Black	17.4	42.7	26.3
Hispanic or Latino	16.6	52.2	40.7
More than one race	14.9	36.3	29.3
White	9.1	25.6	21.9
Socioeconomic status			
Lowest quartile	16.4	39.8	32.9
Middle two quartiles	12.0	33.4	26.9
Highest quartile	7.3	27.3	18.6
Parents' education			
High school or less	15.2	37.5	31.4
Some college	12.0	34.6	27.6
College graduation	9.7	30.4	22.9
Graduate/professional degree	9.2	27.9	19.8
Native language[1]			
English	11.2	30.6	24.1
Non-English	16.7	51.2	40.1
Student's educational expectations			
High school or less	22.8	44.7	39.5
Some college	16.7	34.9	30.1
College graduation	9.6	32.2	24.6
Graduate/professional degree	9.1	31.2	22.1
Don't know	16.2	35.4	32.9

See notes at end of table.

Table 5. Percentage of high school sophomores who agreed or strongly agreed with various statements about school safety, by selected student and school characteristics: 2002—Continued

Selected student and school characteristics	I do not feel safe at this school	There are gangs in school	Fights often occur between different racial/ethnic groups
High school program[2]			
General	14.0	35.5	28.1
College preparatory	9.7	30.7	23.4
Vocational	14.9	38.7	34.0
Composite achievement test score in sophomore year			
Lowest quartile	21.1	44.1	39.3
Middle two quartiles	10.7	32.7	25.1
Highest quartile	5.2	24.3	15.7
Sophomore's school sector			
Public	12.6	35.7	28.0
Catholic	3.2	8.1	7.1
Other private	3.8	4.1	4.9
Region of sophomore's school			
Northeast	9.9	31.5	22.7
Midwest	10.8	31.4	21.9
South	12.6	31.0	25.7
West	13.7	40.8	34.9
Urbanicity of sophomore's school			
Urban	14.1	46.9	29.8
Suburban	11.6	30.5	27.6
Rural	9.4	20.5	17.8

[1]The first language students learned to speak when they were children.
[2]Students' self-reports of the type of high school program in which they participated.
NOTE: See appendix A for the weighted response rates of all unimputed variables used in this analysis. All categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

In the ELS:2002 survey, 10th-grade students were given a list of eight instances of crime, threat, or violence and asked to report the number of such incidents of each type that they had experienced at school during the first semester/term of the school year. These instances of crime, threat, or violence included the following:

- "I had something stolen from me at school."
- "Someone offered to sell me drugs at school."
- "Someone threatened to hurt me at school."
- "I got into a physical fight at school."
- "Someone hit me."
- "Someone used strong-arm or forceful methods to get money or things from me."

- "Someone purposely damaged or destroyed my belongings."
- "Someone bullied me or picked on me."

In 2002, 66 percent of 10th-graders reported having experienced at least one of these eight forms of crime, threat, or violence at least once or twice during the first semester/term of the school year (figure 20). Theft was the most commonly reported crime: 41 percent of 10th-graders reported that something was stolen from them at school at least once or twice during the first semester/term of the school year. In addition to theft, some students experienced more serious negative events that involved direct confrontation with the perpetrators. One out of four 10th-graders reported that someone at school offered to sell them drugs (25 percent) or threatened to hurt them (24 percent). One out of five 10th-graders reported that someone at school hit them (21 percent) or bullied or picked on them (20 percent). About 15 percent of 10th-graders reported that their belongings were purposely damaged or destroyed by someone at school, and 14 percent said that they were engaged in a physical fight with someone on school property. About 3 percent of 10th-graders were victims of someone using strong-arm or forceful methods to get money or possessions from them at school.

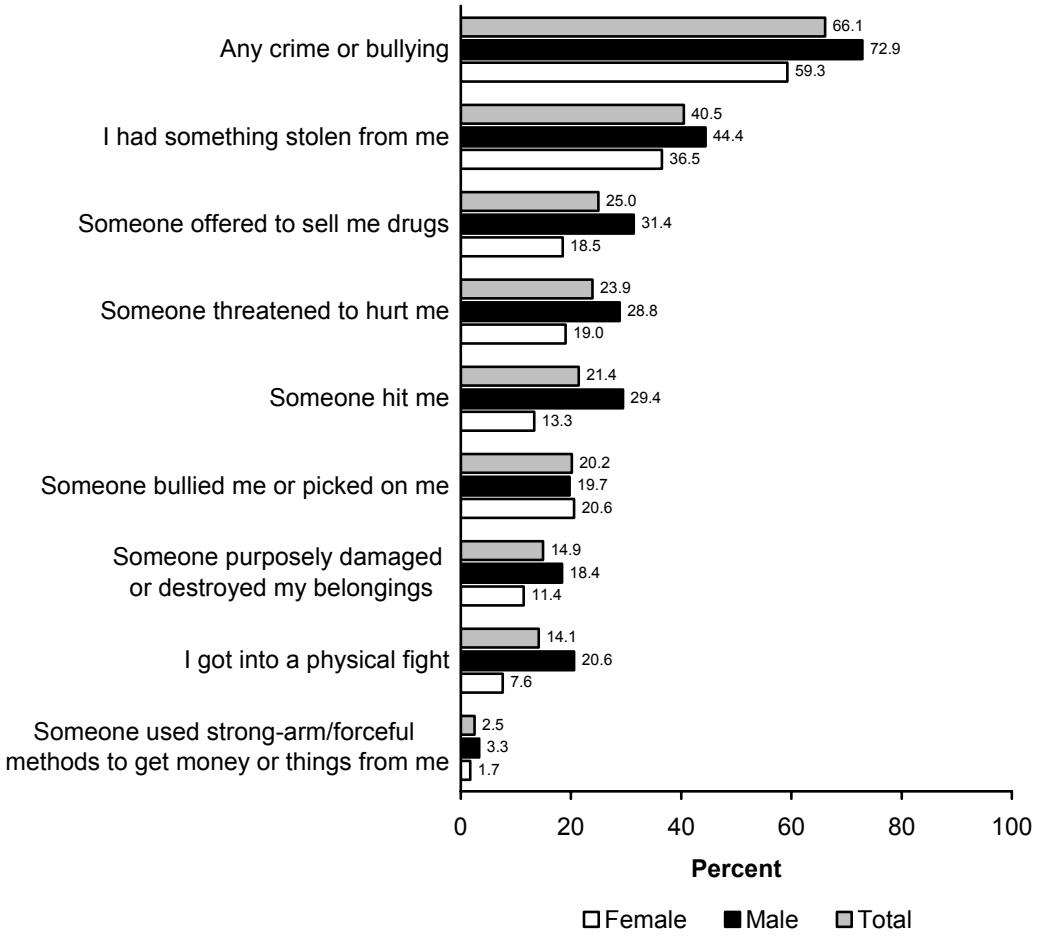
Exposure to crime and violence at school varied by certain student characteristics. Consistent with some other reports (e.g., DeVoe et al. 2002; Kaufman et al. 1998), males were generally more likely than females to be victims of crimes, threat, or violence at school (table 6).[25] In terms of exposure to these negative events, the largest relative difference between the sexes was "I got into a physical fight with someone at school": males were over twice as likely as females to report fights (21 percent versus 8 percent). In addition, males were more likely than females to report that someone offered to sell them drugs (31 percent versus 19 percent) and that someone hit them at school (29 percent versus 13 percent).

Some racial/ethnic differences were also observed in the extent to which sophomores experienced various types of crime, threat, or violence, and these differences were consistent with those reported in earlier studies (DeVoe et al. 2002). Black students were more likely than White students to have experienced theft (47 versus 38 percent), and both Black and Hispanic students (20 percent and 17 percent, respectively) were more likely than White and Asian students (12 percent and 9 percent, respectively) to report being engaged in a physical fight. Whites were more likely than Blacks, Hispanics, and Asians to report someone threatening to hurt them and someone bullying or picking on them at school, and they were also more likely than Blacks and Asians to report being offered drugs on school property.

Incidents of crime and bullying were more common in public schools than in private schools (table 6). Compared with students in Catholic and other private schools, students in public schools were more likely to be offered drugs on school property, to be threatened by someone at school, and to engage in a physical fight at school.

[25]The exception was bullying, for which a gender difference was not detected.

Figure 20. Percentage of high school sophomores who experienced various forms of crime and bullying at school at least once or twice during the first semester/term of the school year, by sex: 2002



NOTE: See appendix A for the weighted response rates of all unimputed variables used in this analysis.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

Table 6. Percentage of high school sophomores who experienced various kinds of crime and bullying at school at least once or twice during the first semester/term of the school year, by selected student and school characteristics: 2002

Selected student and school characteristics	Any crime and bullying	I had something stolen from me	Someone offered to sell me drugs	Someone threatened to hurt me	I got into a physical fight	Someone hit me	Someone used strong-arm or forceful methods to get money or things from me	Someone purposely damaged or destroyed my belongings	Someone bullied me or picked on me
Total	66.1	40.5	25.0	23.9	14.1	21.4	2.5	14.9	20.2
Sex									
Male	72.9	44.4	31.4	28.8	20.6	29.4	3.3	18.4	19.7
Female	59.3	36.5	18.5	19.0	7.6	13.3	1.7	11.4	20.6
Racial/ethnic group									
American Indian or Alaska Native	76.4	44.8	39.5	28.1	16.2	30.0	2.4	19.4	19.5
Asian or Pacific Islander	58.8	39.2	17.9	16.7	8.6	19.5	2.7	13.0	15.6
Black	67.6	46.4	18.3	18.7	20.3	23.6	2.9	13.6	12.9
Hispanic or Latino	65.7	40.4	28.0	22.1	16.7	19.9	3.4	12.7	16.7
More than one race	76.6	51.1	31.6	30.8	19.1	30.9	4.3	21.5	26.3
White	65.5	38.3	25.5	25.6	12.0	20.5	2.0	15.4	22.7
Socioeconomic status									
Lowest quartile	66.9	40.9	23.5	24.6	16.8	21.3	2.9	13.7	19.6
Middle two quartiles	67.3	41.3	26.5	25.0	15.4	22.7	2.5	15.8	20.3
Highest quartile	63.1	38.3	23.4	21.1	9.0	18.7	2.1	14.3	20.6
Parents' education									
High school or less	65.6	39.1	25.2	24.8	16.5	20.7	2.5	14.0	18.8
Some college	68.8	42.5	26.1	25.9	15.3	22.6	2.5	15.9	21.0
College graduation	64.5	40.4	24.4	22.0	12.1	20.8	2.7	15.7	20.2
Graduate/professional degree	63.5	38.3	22.7	20.7	10.3	20.6	2.2	13.0	20.8
Native language[1]									
English	66.6	40.7	25.2	24.4	13.9	21.7	2.3	15.1	20.6
Non-English	63.5	39.4	23.5	21.0	15.5	19.7	3.6	13.6	17.8

See notes at end of table.

Table 6. Percentage of high school sophomores who experienced various kinds of crime and bullying at school at least once or twice during the first semester/term of the school year, by selected student and school characteristics: 2002—Continued

Selected student and school characteristics	Any crime and bullying	I had something stolen from me	Someone offered to sell me drugs	Someone threatened to hurt me	I got into a physical fight	Someone hit me	Someone used strong-arm or forceful methods to get money or things from me	Someone purposely damaged or destroyed my belongings	Someone bullied me or picked on me
Student's educational expectations									
High school or less	77.3	48.2	35.1	33.6	28.8	33.8	6.0	18.1	23.2
Some college	72.6	43.0	32.3	28.3	20.8	28.2	3.0	17.0	21.5
College graduation	64.5	40.0	23.1	21.6	12.8	19.9	1.8	13.9	17.5
Graduate/professional degree	62.0	38.4	21.5	21.6	9.4	17.3	2.1	14.1	21.0
Don't know	71.1	40.7	28.1	27.9	16.9	24.3	3.3	16.8	22.9
High school program[2]									
General	70.0	43.5	28.6	26.6	17.1	24.0	3.0	16.2	20.8
College preparatory	62.7	38.1	21.9	21.1	10.7	18.5	1.9	14.1	19.5
Vocational	68.8	40.7	26.3	27.5	19.5	25.7	3.4	14.1	21.0
Composite achievement test score in sophomore year									
Lowest quartile	72.1	44.4	26.6	26.7	24.3	27.1	4.3	15.9	20.9
Middle two quartiles	66.5	41.4	26.9	24.6	12.6	20.2	2.2	14.5	19.3
Highest quartile	59.4	34.7	19.5	19.8	7.0	17.9	1.3	14.7	21.3
Sophomore's school sector									
Public	66.8	40.8	25.8	24.6	14.6	21.5	2.5	15.0	20.4
Catholic	60.5	36.9	19.0	17.4	9.3	19.2	2.1	14.8	20.0
Other private	54.6	36.6	9.7	14.7	8.5	20.1	2.0	11.6	15.6

See notes at end of table.

Table 6. Percentage of high school sophomores who experienced various kinds of crime and bullying at school at least once or twice during the first semester/term of the school year, by selected student and school characteristics: 2002—Continued

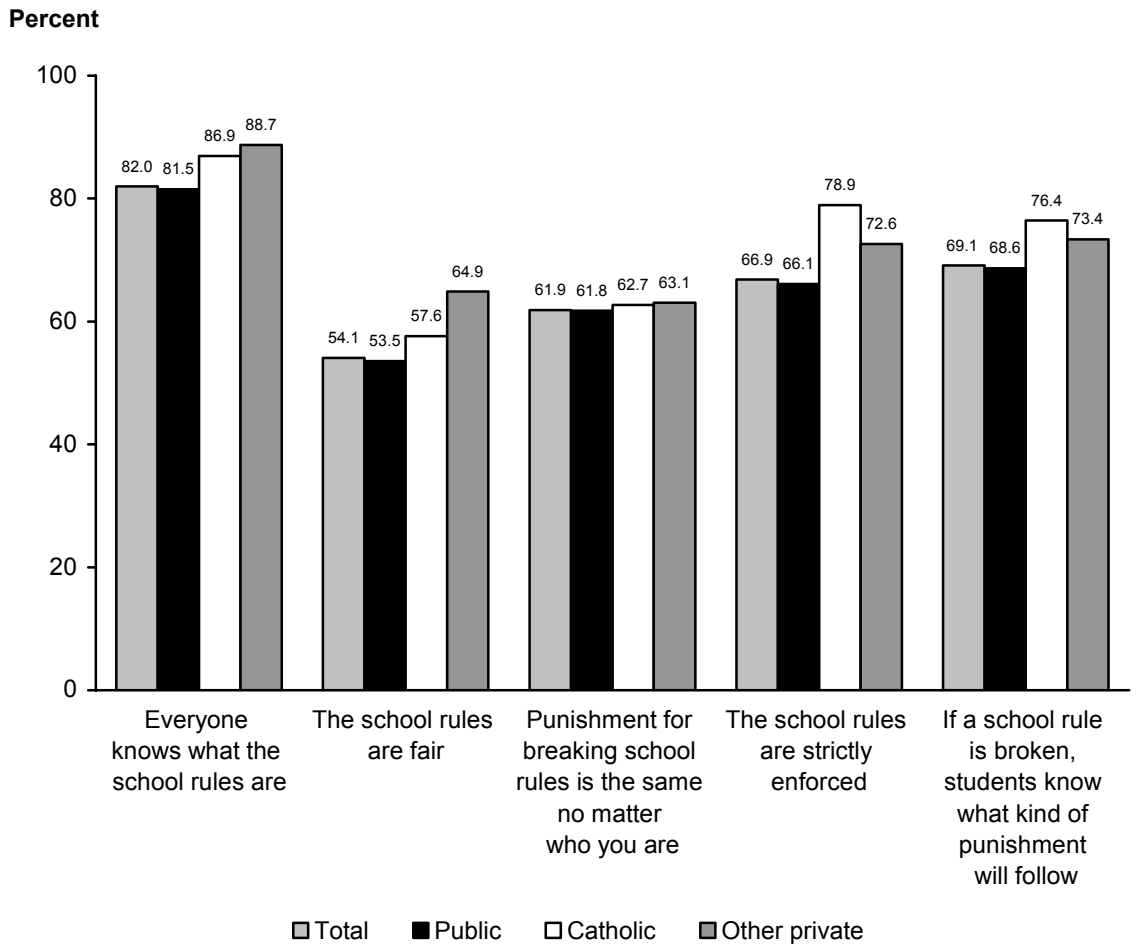
Selected student and school characteristics	Any crime and bullying	I had something stolen from me	Someone offered to sell me drugs	Someone threatened to hurt me	I got into a physical fight	Someone hit me	Someone used strong-arm or forceful methods to get money or things from me	Someone purposely damaged or destroyed my belongings	Someone bullied me or picked on me
Region of sophomore's school									
Northeast	64.1	36.3	24.0	25.1	14.7	21.4	2.0	13.4	20.9
Midwest	67.8	40.0	25.0	25.8	14.1	22.9	2.4	17.0	23.1
South	64.9	41.2	23.3	21.9	13.6	19.7	2.3	13.8	18.7
West	67.9	43.3	28.2	24.0	14.6	22.3	3.3	15.6	18.8
Urbanicity of sophomore's school									
Urban	65.7	41.7	24.9	22.0	14.6	19.6	2.8	14.7	16.7
Suburban	66.6	40.5	25.8	25.2	13.5	21.5	2.4	14.9	21.1
Rural	65.8	38.7	22.9	23.5	15.0	23.8	2.2	15.4	23.2

[1]The first language students learned to speak when they were children.
[2]Students' self-reports of the type of high school program in which they participated.
NOTE: Detail may not sum to totals because of rounding. See appendix A for the weighted response rates of all unimputed variables used in this analysis. All categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

3.3 Students' Perceptions of School Rules

In the ELS:2002 survey, 10th-grade students were asked to respond to a number of statements about the rules at their school. As shown in table 7 and figure 21, a majority of 10th-graders (82 percent) agreed or strongly agreed with the statement that everyone in school knew what the school rules were. More than 60 percent of students agreed or strongly agreed with the statement that if a school rule was broken, students knew the kind of punishment that followed (69 percent), that the school rules were strictly enforced (67 percent), and that the punishment for breaking rules was the same for everyone (62 percent). While over four-fifths of students perceived that their school rules were effectively communicated, just over half (54 percent) thought that these rules were fair. In other words, 46 percent of students perceived that their school rules were not fair.

Figure 21. Percentage of high school sophomores who agreed or strongly agreed with various statements about their school rules, by school type: 2002



NOTE: See appendix A for the weighted response rates of all unimputed variables used in this analysis.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

Table 7. Percentage of high school sophomores who agreed or strongly agreed with various statements about their school rules, by selected school characteristics: 2002

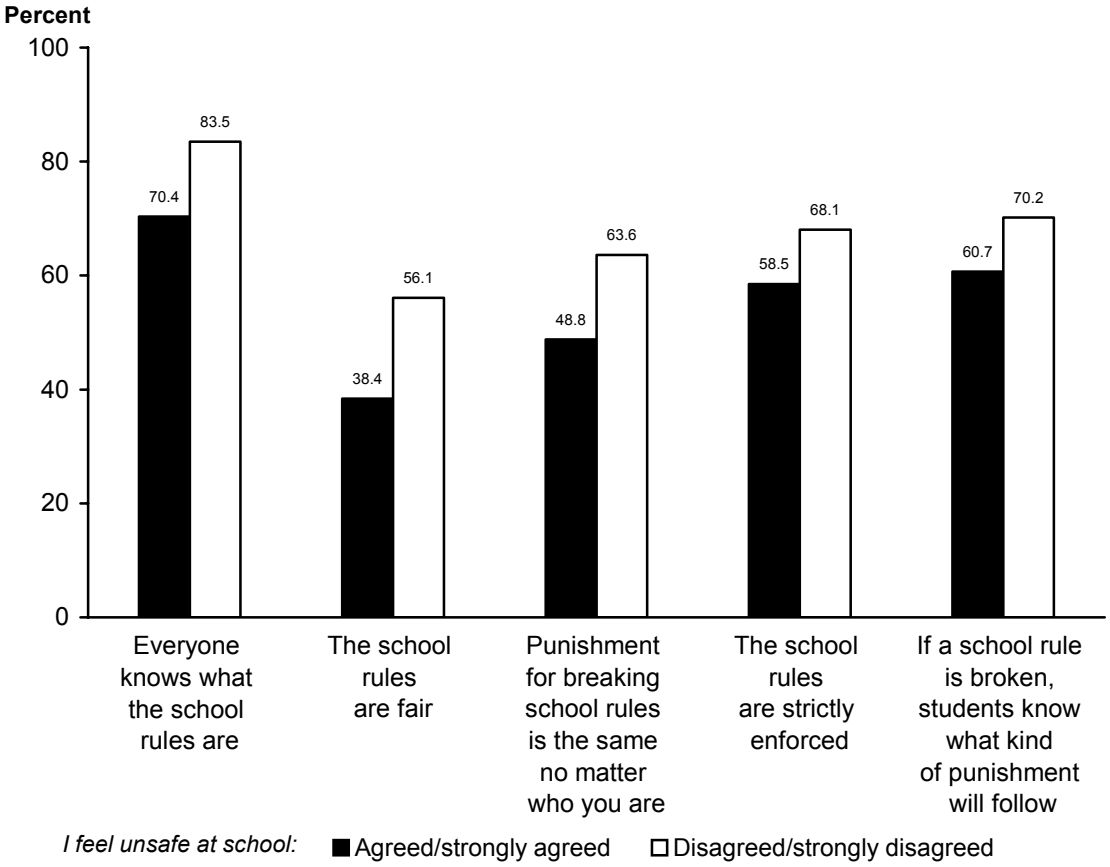
Selected school characteristics	Everyone knows what the school rules are	The school rules are fair	Punishment for breaking school rules is the same no matter who you are	The school rules are strictly enforced	If a school rule is broken, students know what kind of punishment will follow
Total	82.0	54.1	61.9	66.9	69.1
Sophomore's school sector					
Public	81.5	53.5	61.8	66.1	68.6
Catholic	86.9	57.6	62.7	78.9	76.4
Other private	88.7	64.9	63.1	72.6	73.4
Region of sophomore's school					
Northeast	79.3	54.3	64.9	66.6	70.4
Midwest	82.9	53.9	57.7	66.3	69.1
South	84.4	52.0	58.9	69.0	71.3
West	79.5	57.2	68.3	64.6	64.9
Urbanicity of sophomore's school					
Urban	81.7	52.0	63.5	67.7	69.3
Suburban	81.3	54.9	62.0	66.9	68.5
Rural	84.3	55.2	59.1	65.5	70.6
I feel unsafe at school					
Agreed/strongly agreed	70.4	38.4	48.8	58.5	60.7
Disagreed/strongly disagreed	83.5	56.1	63.6	68.1	70.2

NOTE: See appendix A for the weighted response rates of all unimputed variables used in this analysis.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

Sophomores' perceptions of school rules varied by the type of school they attended. Consistent with the pattern shown in earlier reports (Alt and Peter 2002), sophomores at private schools were more likely than sophomores at public schools to agree that students knew the school rules and that the rules were strictly enforced. Specifically, students in Catholic and other private schools were more likely than their public school peers to agree or strongly agree that everyone was aware of what the school rules were, that students knew how rule breakers would be punished, and that the rules were strictly enforced. Compared with their public school counterparts, students in other private schools were more likely to think that their school's rules were fair.

Students' perceptions of school rules were linked to their perceptions of their own safety in school (figure 22). Students felt safer at school when they perceived that their school rules were clearly communicated, fair, and strictly enforced and that the consequences for breaking the rules were made clear and applied equally to everyone.

Figure 22. Percentage of high school sophomores who agreed or strongly agreed with various statements about their school rules, by students' feelings of safety at school: 2002



NOTE: See appendix A for the weighted response rates of all unimputed variables used in this analysis.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

3.4 Students' Perceptions of the Importance of Good Grades

ELS:2002 sophomores were asked how important good grades were to them. Most (87 percent) responded that obtaining good grades was important or very important (table 8). One percent of 10th-graders reported that it was not important to get good grades. Females were more serious about their grades than males: 58 percent of females said that getting good grades was very important to them compared to 44 percent of males. The attitude toward grades also differed by the first native language that students spoke: students whose first native language was not English were more likely than their native-English-speaking peers to emphasize getting good grades. Although Whites exhibited higher achievement scores than Blacks and Hispanics (see chapter 6), Whites were less likely to think that obtaining good grades was very important to them (47 percent versus 62 percent and 53 percent, respectively). However, Blacks and Asians were equally likely to value good grades (for both groups, good grades were very important to 62 percent and important to 31 percent).

Table 8. Percentage distribution of high school sophomores according to their reports on how important good grades were to them, by selected student and school characteristics: 2002

Selected student and school characteristics	Not important	Somewhat important	Important	Very important
Total	1.4	12.1	35.9	50.7
Sex				
Male	2.1	15.6	38.6	43.8
Female	0.7	8.6	33.2	57.6
Racial/ethnic group				
American Indian or Alaska Native	6.2	5.3	38.8	49.8
Asian or Pacific Islander	0.8	6.3	30.9	62.0
Black	0.5	6.6	30.9	62.0
Hispanic or Latino	1.8	10.0	35.5	52.7
More than one race	1.2	13.8	39.9	45.1
White	1.4	14.3	37.2	47.1
Socioeconomic status				
Lowest quartile	1.6	12.8	36.3	49.4
Middle two quartiles	1.4	12.7	37.9	48.1
Highest quartile	1.2	10.3	31.5	57.1
Parents' education				
High school or less	1.6	14.2	37.6	46.6
Some college	1.3	12.3	38.2	48.2
College graduation	1.6	10.4	33.9	54.1
Graduate/professional degree	0.9	10.3	30.8	58.1
Native language[1]				
English	1.4	12.7	36.5	49.5
Non-English	1.5	8.4	32.4	57.7
Student's educational expectations				
High school or less	6.4	30.8	36.4	26.4
Some college	2.0	23.3	45.2	29.6
College graduation	0.6	10.0	40.4	49.1
Graduate/professional degree	0.4	4.3	26.9	68.4
Don't know	3.2	21.3	42.5	33.1
High school program[2]				
General	2.5	18.7	40.8	38.1
College preparatory	0.5	6.6	31.4	61.5
Vocational	1.3	14.4	39.7	44.6
Composite achievement test score in sophomore year				
Lowest quartile	2.3	13.9	37.6	46.2
Middle two quartiles	1.0	13.4	39.0	46.6
Highest quartile	1.2	7.6	28.3	63.0

See notes at end of table.

Table 8. Percentage distribution of high school sophomores according to their reports on how important good grades were to them, by selected student and school characteristics: 2002—Continued

Selected student and school characteristics	Not important	Somewhat important	Important	Very important
Sophomore's school sector				
Public	1.4	12.3	36.0	50.4
Catholic	1.2	8.8	37.5	52.5
Other private	1.6	10.8	32.2	55.4
Region of sophomore's school				
Northeast	1.6	12.3	38.0	48.1
Midwest	1.4	14.0	37.4	47.1
South	1.3	10.0	33.5	55.2
West	1.2	13.0	36.1	49.8
Urbanicity of sophomore's school				
Urban	1.3	9.9	33.6	55.2
Suburban	1.4	12.2	36.8	49.6
Rural	1.5	15.1	37.1	46.4

[1]The first language students learned to speak when they were children.
[2]Students' self-reports of the type of high school program in which they participated.
NOTE: Detail may not sum to totals because of rounding. See appendix A for the weighted response rates of all unimputed variables used in this analysis. All race categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

Students' emphasis on good grades also differed by their academic characteristics, such as their achievement test scores, type of high school program, and educational expectations.[26] For example, students who scored in the top quartile of the 10th-grade achievement test and students who were enrolled in a college preparatory program were more likely to place great importance on getting good grades than their counterparts who had lower test scores or were in a general education or vocational program. Indeed, 62 percent of sophomores in college preparatory programs rated getting good grades as very important, compared to 38 percent of sophomores in general programs and 45 percent of sophomores in vocational programs. The percentage of students who emphasized the importance of school grades increased with their educational expectations, and sophomores' educational expectations proved an even stronger predictor of according high interest to getting good grades than was high school program. Some 68 percent of those who expected to go on to a graduate or professional degree rated good grades as very important, compared to only 26 percent of those who expected to complete no more than high school.[27]

Although the percentage of sophomores who indicated that getting good grades was "very important" was higher in other private schools than in public schools (55 percent versus 50 percent), there were no measurable differences between the proportions of students attending

[26] Of course, it would also be of interest to compare students' actual grades with their perceptions of the importance of good grades. High school grade information, however, will not become part of the ELS:2002 database until academic transcripts are collected in the fall of 2004.
[27] While our analysis focuses on those sophomores (some 51 percent of the sample) who rated getting good grades as "very important," it should be noted that an additional 36 percent rated getting good grades as "important" to them. Thus, for example, even for those expecting to at most complete high school, good grades were rated as either important or very important by 63 percent of them, with an additional 31 percent rating them "somewhat important." Only 6 percent of this group said they were not important.

Catholic schools and those attending public or other private schools who reported getting good grades as "very important." Students attending urban schools were more likely than students in suburban and rural schools to think highly of obtaining good grades. Students attending schools in southern states (55 percent) were also more likely than students from other regions (47 to 50 percent) to say that getting good grades was important to them.

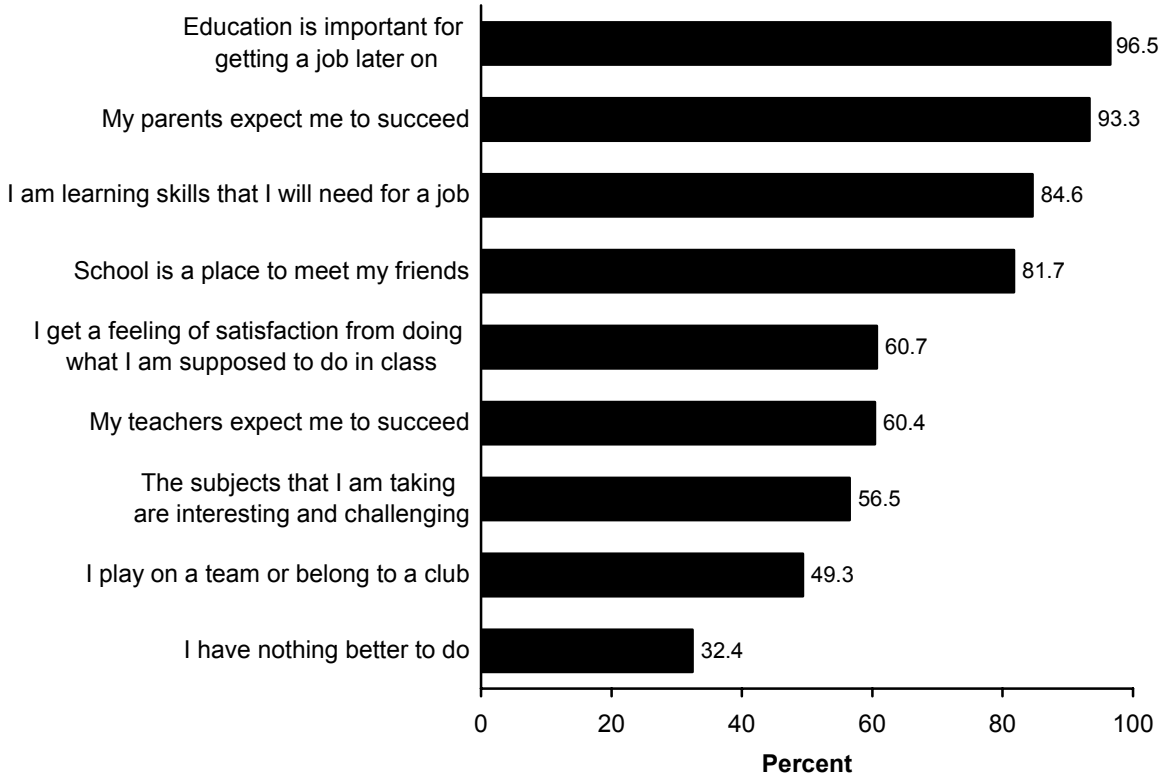
3.5 Students' Reasons for Going to School

In addition to being asked about the importance of getting good grades, the 10th-grade students were asked why they went to school. Two of the principal reasons they cited were related to their future jobs and careers: 97 percent said that they attended school because education was important for getting a job later on, and 85 percent indicated that they were learning skills they will need in a job (figure 23). Other frequently cited reasons for attending school were related to their parents' expectations and school friends: 93 percent of the 10th-graders cited parents' expectations for their success as a reason for going to school, and 82 percent noted that school was a place to meet their friends. Some students cited reasons related to their schooling experiences, such as a feeling of satisfaction from what they learned in class (61 percent), their teachers' expectations for their success (60 percent), interesting and challenging subjects they were taking (57 percent), or team or club participation (49 percent). About one-third of 10th-graders (32 percent) indicated that they went to school because they had nothing better to do.

While most of the reasons that students gave contained elements that were conducive to their motivation to engage in school and learn, the reason that "I went to school because I had nothing better to do" indicated disengagement. This reason was cited more frequently by males (35 percent) than females (30 percent); by students with lower educational expectations than those with higher expectations (e.g., 43 percent of those who expected to complete only high school or less and 27 percent of those who expected to get a graduate or professional degree); by those enrolled in a general education program (37 percent) as contrasted to their peers in a college preparatory program (29 percent); and by sophomores with lower achievement test scores (36 percent) than by those with higher test scores (29 percent).

Over 90 percent of both Black and White students reported that education is important to getting a job later on and that their parents expect them to succeed. However, when looking at racial/ethnic differences, a consistent pattern emerged indicating that Blacks were more likely than Whites to cite other reasons that might be linked to high levels of motivation and school engagement (see figure 24). For example, Blacks were more likely than Whites to indicate that they went to school because their school subjects were interesting and challenging (63 percent versus 52 percent), that they got satisfaction from their classwork (72 percent versus 55 percent), that they would need the skills they were learning in a job (90 percent versus 83 percent), and that their teachers expected them to succeed (67 percent versus 58 percent) (table 9). On the other hand, Blacks were less likely than Whites to indicate that they went to school because they had nothing better to do (27 percent versus 33 percent) and for social reasons, such as to meet friends, play on a team, or belong to a club.

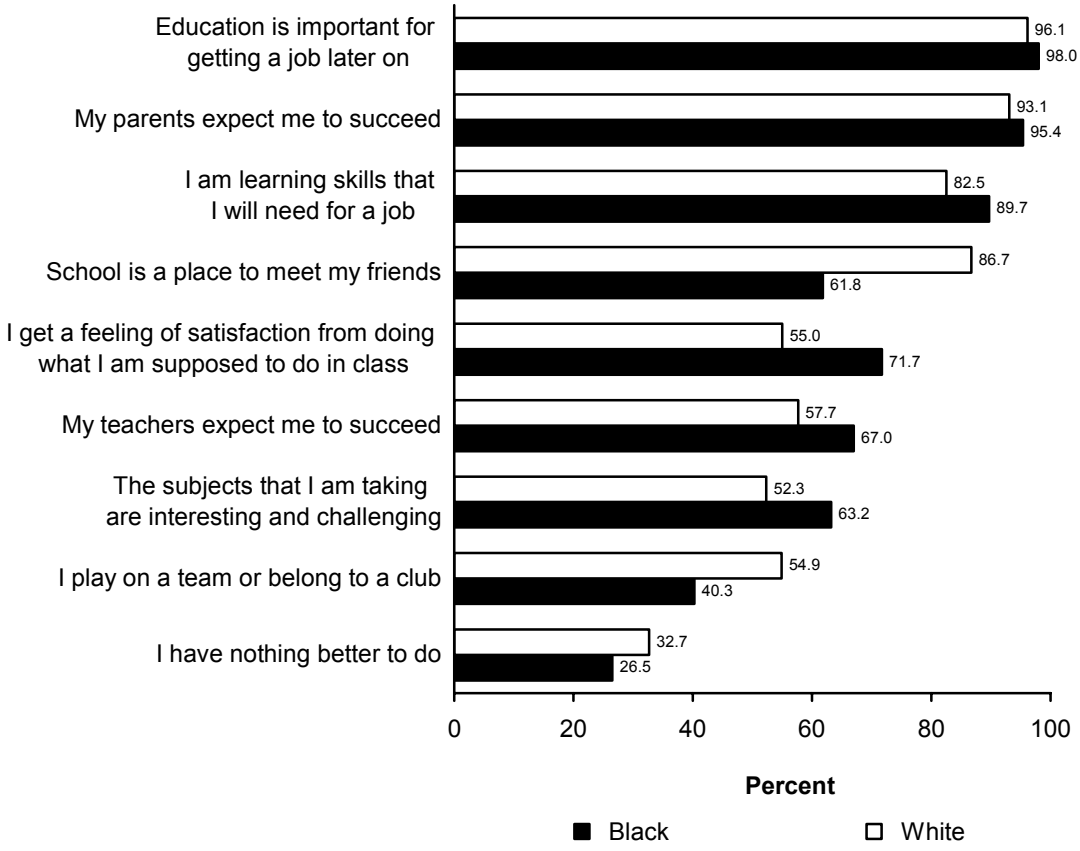
Figure 23. Percentage of high school sophomores who agreed or strongly agreed with various statements about reasons for going to school: 2002



NOTE: See appendix A for the weighted response rates of all unimputed variables used in this analysis.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

A similar pattern also emerged (although to a lesser extent) when comparing Hispanic and White 10th-graders. Hispanics were more likely than Whites to report that they went to school because their school subjects were interesting and challenging (65 percent versus 52 percent), that they felt satisfaction from their classwork (70 percent versus 55 percent), and that their teachers expected them to succeed (64 percent versus 58 percent). Hispanics were less likely than Whites, however, to cite that school was a place to meet friends (79 percent versus 87 percent) and that they participated in school team or club activities (37 percent versus 55 percent).

Figure 24. Percentage of high school sophomores who agreed or strongly agreed with various statements about reasons for going to school, by selected racial/ethnic groups: 2002



NOTE: See appendix A for the weighted response rates of all unimputed variables used in this analysis. Excludes "American Indian or Alaska Native" and "More than one race." All race categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

Table 9. Percentage of high school sophomores who agreed or strongly agreed with various statements about the reasons for going to school, by selected student and school characteristics: 2002

Selected student and school characteristics	Education is important for getting a job later on	My parents expect me to succeed	I am learning skills that I will need for a job	School is a place to meet my friends	I get a feeling of satisfaction from doing what I am supposed to do in class	My teachers expect me to succeed	The subjects that I am taking are interesting & challenging	I play on a team or belong to a club	I have nothing better to do
Total	96.5	93.3	84.6	81.7	60.7	60.4	56.5	49.3	32.4
Sex									
Male	95.3	93.0	83.0	81.8	54.8	57.6	54.1	49.8	34.9
Female	97.8	93.6	86.1	81.7	66.6	63.1	58.9	48.8	30.0
Racial/ethnic group									
American Indian or Alaska Native	93.7	92.1	86.5	83.6	72.9	61.8	56.9	53.4	40.1
Asian or Pacific Islander	98.1	95.5	89.5	85.5	69.7	65.4	65.2	43.7	37.9
Black	98.0	95.4	89.7	61.8	71.7	67.0	63.2	40.3	26.5
Hispanic or Latino	96.1	92.4	86.7	79.1	70.1	64.3	64.9	37.3	34.2
More than one race	97.4	91.7	82.8	83.1	57.4	56.1	54.8	50.1	34.3
White	96.1	93.1	82.5	86.7	55.0	57.7	52.3	54.9	32.7
Socioeconomic status									
Lowest quartile	95.5	93.2	86.7	75.7	66.5	64.1	61.2	35.1	32.3
Middle two quartiles	96.6	93.0	84.4	81.5	58.9	59.1	54.3	49.8	33.0
Highest quartile	97.4	94.0	82.8	88.1	58.5	59.2	56.4	62.6	31.4
Parents' education									
High school or less	95.3	92.7	85.1	78.2	64.0	62.7	57.3	38.3	32.8
Some college	96.9	93.7	85.4	80.7	59.6	59.5	56.1	48.3	32.2
College graduation	96.6	93.2	84.4	84.8	59.5	59.6	55.6	56.5	33.1
Graduate/professional degree	97.8	93.5	81.9	85.8	59.1	59.4	57.5	60.6	31.6
Native language[1]									
English	96.6	93.5	84.0	82.3	58.5	59.3	54.7	51.5	31.8
Non English	96.0	92.5	88.1	78.5	73.7	66.6	68.0	35.9	36.3

See notes at end of table.

Table 9. Percentage of high school sophomores who agreed or strongly agreed with various statements about the reasons for going to school, by selected student and school characteristics: 2002—Continued

Selected student and school characteristics	Education is important for getting a job later on	My parents expect me to succeed	I am learning skills that I will need for a job	School is a place to meet my friends	I get a feeling of satisfaction from doing what I am supposed to do in class	My teachers expect me to succeed	The subjects that I am taking are interesting & challenging	I play on a team or belong to a club	I have nothing better to do
Student's educational expectations									
High school or less	86.8	87.0	70.3	74.7	48.9	48.8	41.8	25.9	43.3
Some college	94.9	93.3	83.7	79.8	55.2	55.0	48.4	35.9	39.0
College graduation	97.7	94.4	86.1	83.1	60.2	61.3	55.1	51.9	31.3
Graduate/professional degree	98.9	93.9	88.4	83.3	69.0	65.3	66.6	59.4	26.8
Don't know	93.4	92.4	77.6	79.1	47.7	54.1	45.9	37.0	40.9
High school program[2]									
General	94.4	92.3	79.1	80.7	53.7	54.0	47.7	42.6	36.9
College preparatory	98.4	94.2	88.1	83.9	65.7	65.1	63.4	57.4	28.9
Vocational	95.0	92.9	87.3	75.3	62.0	60.8	56.1	35.6	33.3
Composite achievement test score in sophomore year									
Lowest quartile	94.5	92.3	85.5	72.6	65.9	64.6	59.3	35.8	36.1
Middle two quartiles	96.9	94.2	84.7	82.3	59.0	58.6	53.1	49.5	32.2
Highest quartile	97.9	92.7	83.4	89.8	58.7	59.6	60.5	62.5	29.2
Sophomore's school sector									
Public	96.5	93.3	84.6	81.4	60.5	60.3	56.2	48.2	32.7
Catholic	97.9	94.4	84.7	86.6	63.2	62.3	60.3	66.6	28.9
Other private	96.5	92.1	83.7	84.4	60.8	58.0	60.4	57.1	28.8
Region of sophomore's school									
Northeast	96.1	93.7	83.0	82.2	59.8	59.4	55.7	51.2	31.2
Midwest	96.3	93.4	84.8	83.6	58.7	59.7	55.4	53.1	32.6
South	97.1	93.8	85.2	78.8	61.7	62.4	56.8	48.0	29.5
West	96.3	92.2	84.6	83.8	61.9	58.8	58.0	45.7	37.7

See notes at end of table.

Table 9. Percentage of high school sophomores who agreed or strongly agreed with various statements about the reasons for going to school, by selected student and school characteristics: 2002—Continued

Selected student and school characteristics	Education is important for getting a job later on	My parents expect me to succeed	I am learning skills that I will need for a job	School is a place to meet my friends	I get a feeling of satisfaction from doing what I am supposed to do in class	My teachers expect me to succeed	The subjects that I am taking are interesting & challenging	I play on a team or belong to a club	I have nothing better to do
Urbanicity of sophomore's school									
Urban	97.1	93.2	86.1	76.7	64.8	62.0	61.2	43.0	31.5
Suburban	96.3	93.2	84.4	83.6	59.9	59.7	56.0	51.9	32.2
Rural	96.2	93.7	82.6	84.5	56.4	59.4	50.9	52.3	34.6

[1]The first language students learned to speak when they were children.
[2]Students' self-reports of the type of high school program in which they participated.
NOTE: See appendix A for the weighted response rates of all unimputed variables used in this analysis. All race categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

3.6 Summary

This chapter examined the school experiences of the 2002 sophomore cohort, focusing on their perceptions of school, the quality of teaching, school safety and rules, their experiences of negative events (such as crime and bullying) at school, and the importance to them of obtaining good grades, as well as their reasons for going to school. Most 10th-graders held positive views about their school and teachers (table 4). However, when asked how much they liked school, a lower percentage responded positively, with one in four students (24 percent) indicating that they liked it a great deal (table 4). While a majority of students perceived their school as a safe place with a set of clear and consistently enforced rules, about 12 percent did not feel safe at school (table 5). In addition, 66 percent of 10th-graders reported that they had been exposed to some risk and violence at school (table 6). Safety appeared to be a greater concern for students attending public and urban schools and for students from disadvantaged family backgrounds than for other students (table 5).

Obtaining good grades was important to most 10th-graders (table 8). This was particularly a priority for students with strong academic characteristics—that is, those who had high educational expectations (college or graduate degree), were enrolled in a college preparatory program in high school, and scored in the top quartile of the 10th-grade achievement test (table 8). One of the primary reasons students were motivated to attend school was related to future jobs and careers: 97 percent said that they attended school because education was important for getting a job later on, and 85 percent indicated that they were learning skills that they would need in a future job (table 9). However, nearly one-third of 10th-graders also said that they went to school because they had nothing better to do (table 9).

Some significant differences were apparent between Black and White sophomores in their school experiences, which were consistent with those observed in earlier research (e.g., Oakes 1985). Black 10th-graders were less likely than White 10th-graders to report positive impressions about their school and teachers when asked about the presence of school spirit, quality of teaching, and teacher-student relationships (table 4). Blacks were more likely than Whites to feel unsafe at school and to acknowledge the presence of gangs in school (table 5). They were also more likely to report having had items stolen from them and having gotten into a physical fight (table 6). However, Black students were more likely than their White peers to indicate that they liked school a great deal (29 percent of Black sophomores versus 21 percent of White sophomores) (table 4).

Blacks were also more likely to endorse the importance and value of education and schooling. When asked how important good grades were to them, 62 percent of Black 10th-graders said they were "very important," compared with 47 percent of their White peers (table 8). When asked why they went to school, Blacks were more likely than Whites to indicate that they were motivated by the interesting and challenging subjects they were taking, feelings of satisfaction from completing their coursework, the importance of education in getting a future job, and the high expectations of their teachers (table 9). Furthermore, Black students were less likely than White students to say that they attended school because they had nothing better to do (table 9).

Finally, consistent with earlier studies (Alt and Peter 2002; Bryk, Lee, and Holland 1993), students who attended public schools had somewhat different experiences than their peers who attended Catholic and other private schools. Students in public schools reported less confidence in the quality of teaching (80 percent of public school sophomores said that the teaching at their school was good, compared to 91 percent for Catholic and 90 percent for other private school sophomores). Also, public school sophomores were somewhat less likely to agree that the teachers in their school were interested in students (73 percent for public school sophomores) than were sophomores in Catholic (86 percent) or other private schools (88 percent) (table 4). Compared with students at Catholic schools, public school sophomores were less likely to describe their schools as having real school spirit (table 4): 83 percent of Catholic school sophomores and 69 percent of public school sophomores reported that "there is real school spirit." Public school students also reported more violence (e.g., physical fights: 15 percent of public school sophomores reported their occurrence, as contrasted to 8 percent for Catholic and 9 percent for other private school sophomores). For all three school sectors, the overwhelming majority of sophomores felt safe in school. Only 13 percent of public school sophomores reported that they did not feel safe at their school, compared to an even lower number of Catholic (3 percent) and other private school (4 percent) sophomores (table 5). While in all three school sectors most students agreed that students knew the school rules and that the rules were strictly enforced, proportions agreeing were higher in Catholic and other private schools. (Some 82 percent of sophomores who attended public schools agreed that students knew the rules, compared to 87 percent for Catholic and 89 percent for other private schools.) Some 66 percent of public school sophomores but 79 percent of Catholic and 73 percent of other private school sophomores agreed that the school rules were strictly enforced (table 7).

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Chapter 4
Extracurricular and Sports Activities

Chapter 3 examined the high school settings experienced by 2002 10th-graders, and it reported on sophomores' experiences in school, including their attitudes and feelings about the school environment. As critical as the classroom setting is for student learning, it is not the only school-related environment in which learning and social development take place. Typically schools are in session only about 180 days of the year. On those days, 10th-graders generally have 6–7 hours of instructional classroom time, so that even on school days, most students spend the majority of their waking hours outside the classroom.[28] Frequently, some of this out-of-the-classroom time is spent in school-sponsored extracurricular activities. Sophomores' choices about how to spend time carry with them potential costs as well as benefits. Time is finite, activities vary in their utility in fostering intellectual and social development, and, inevitably, time expended in one activity displaces time potentially expended in another. In chapters 4 and 5, student reports of extracurricular and out-of-school experiences are used to extend the profile of the activities and status of the sophomore cohort. Chapter 4 reports on participation in academic, hobby, and vocational clubs, sports and cheerleading, and music.[29] In the subsequent chapter (chapter 5), time use is assessed across five activities that take place outside the formal instructional setting of the classroom: (1) engaging in extracurricular activities, (2) reading for pleasure, (3) doing homework, (4) computer use, and (5) working for pay.

The structure of the discussion in chapter 4 can be represented by a series of six questions. *First*, what proportion of 2002 10th-graders participated in extracurricular activities, and how were these participants distributed across the various extracurricular options? *Second*, what proportion of schools offered various sports (overall, and to male versus female sophomores), and what proportion of students enjoyed these specific opportunities? *Third*, at what level—intramural, junior varsity, varsity, varsity captain—did sophomore athletes participate in their sports? *Fourth*, how did 10th-grade sports participants compare—in background, expectations and attitudes, and school behaviors—to participants in nonsports extracurricular activities? *Fifth*, how did the educational expectations, achievements, and other characteristics of students who devoted exceptionally large amounts of time to extracurricular activities compare to the 10th-grade student norm?

4.1 School-Sponsored Activities: Who Participates and in What Activity

Table 10 summarizes 10th-grade student participation in various school-sponsored activities during the sophomore year of high school. The highest rate of participation was for sports. Over half (55 percent) of 10th-grade students played sports, either on intramural or

[28] The National Education Longitudinal Study of 1988 (NELS:88) found that 79 percent of 10th-graders had seven (35 percent) or fewer (44 percent) class periods, with class periods typically 40–55 minutes in length (Ingels et al. 1992, appendix G). The Education Longitudinal Study of 2002 (ELS:2002) records similar data (BYA08, BYA09).

[29] Extracurricular activities are by definition school sponsored, and analysis was restricted to school-sponsored activities. It is important to note that some of these same activities may take place under nonschool sponsorship or take place spontaneously. For example, 36 percent of the sophomore cohort reported playing sports either weekly or every day in a nonschool context.

interscholastic teams. Music-related activities such as band, orchestra, chorus, or choir were the next most popular choice, with 22 percent of the students involved in one or more of these activities. The lowest participation rate was for student government, with less than 7 percent of students indicating they took part.

Table 10. Percentage of high school sophomores who participated in various school-sponsored activities: 2002

Activity	Percent
Academic club	8.4
Band, orchestra, chorus, choir	21.5
Hobby club	9.5
National Honor Society (NHS) or other academic honor society	8.6
School play or musical	11.5
School yearbook, newspaper, literary magazine	7.5
Service club	11.2
Sports[1]	54.8
Student government	6.5
Vocational education club, vocational student organization (e.g., DECA,[2] VICA,[3] FFA,[4] FHA[5])	8.3

[1] Students were defined as sports participants if they indicated that they participated in at least one sport at the intramural or interscholastic level. Cheerleading, pompon (pompom), and drill team were not included in this category. Students were defined as sports nonparticipants if they did not participate in *any* sports or they indicated that their school did not offer sports.
[2] Distributive Education Clubs of America.
[3] Vocational Industrial Clubs of America.
[4] Future Farmers of America.
[5] Future Homemakers of America.
NOTE: See appendix A for the weighted response rates of all unimputed variables used in this analysis.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

4.1.1 Parental Education Level, Socioeconomic Status, and Extracurricular Participation

Table 11 provides a more in-depth summary of participation rates for 5 of the 10 activities listed in table 10 (and cheerleading as well) by various sociodemographic indicators, including highest level of parental education and socioeconomic status (SES). Two patterns are observed in extracurricular participation by SES and parental education level. For four of the six types of extracurricular activities, participation rates increased as SES quartile and parent education increased. The highest level of participation for academic clubs was among students from the highest SES quartile (13 percent) and students whose parents held graduate or professional degrees (14 percent). Six percent of students who were from the lowest SES quartile and whose parents were the least educated participated in academic clubs. A similar pattern may be observed for sports, for hobby clubs, and for music. The strong association between higher SES and higher sports participation is consistent with past national findings of the 1980s and 1990s (Rasinski et al. 1993, table 4.1). The opposite pattern of participation is seen in vocational clubs.[30] The contrast between academic and vocational clubs is not surprising, if we consider that the curriculum is stratified into academic and vocational tracks, whose enrollees generally reflect different backgrounds and educational trajectories.

[30] This same socioeconomic status (SES) pattern—consistently lower extracurricular participation by low-SES students, except in the area of vocational clubs, in which low-SES students are more likely to participate—is reported by O'Brien and Rollefson (1995) in their analysis of NELS:88 data. See also Rasinski et al. (1993), table 4.1.

Table 11. Percentage of high school sophomores who participated in various school-sponsored activities, by selected student and school characteristics: 2002

Selected student and school characteristics	Academic club	Sports	Cheer-leading	Hobby club	Music (band, orchestra, chorus, or choir)	Vocational education club or vocational student organization
Total	8.4	54.8	13.7	9.5	21.5	8.3
Sex						
Male	6.8	61.0	8.1	8.1	16.3	7.6
Female	9.9	48.5	19.2	10.9	26.8	9.1
Racial/ethnic group						
American Indian or Alaska Native	5.2	54.6	10.8	5.3	12.3	14.3
Asian or Pacific Islander	14.3	47.7	9.1	15.5	19.7	5.2
Black	7.3	55.0	18.5	7.8	21.6	7.9
Hispanic or Latino	6.1	48.3	12.3	8.0	13.0	5.4
More than one race	7.7	53.9	15.3	12.7	21.3	8.9
White	8.9	57.0	13.2	9.7	23.9	9.3
Socioeconomic status						
Lowest quartile	5.6	44.9	13.5	6.7	15.6	9.2
Middle two quartiles	7.2	54.9	14.2	8.8	21.6	8.6
Highest quartile	13.3	64.3	12.8	13.5	27.1	7.0
Parents' education						
High school or less	5.8	47.5	14.0	6.5	15.6	9.6
Some college	6.8	53.4	14.4	8.9	21.4	8.6
College graduation	9.9	60.2	12.8	10.8	24.6	7.3
Graduate/professional degree	14.0	62.7	12.8	14.0	27.4	7.2
Student's educational expectations						
High school or less	3.1	36.9	12.0	5.3	11.1	9.2
Some college	3.7	46.7	12.6	7.6	15.7	11.6
College graduation	5.8	57.7	13.4	8.4	21.1	7.3
Graduate/professional degree	14.4	61.0	14.7	13.0	27.1	8.6
Don't know	4.7	44.4	13.5	5.7	16.6	7.1
Native language[1]						
English	8.4	56.2	14.1	9.5	22.9	8.9
Non-English	8.3	45.8	11.2	9.3	12.9	5.1

See notes at end of table.

Table 11. Percentage of high school sophomores who participated in various school-sponsored activities, by selected student and school characteristics: 2002—Continued

Selected student and school characteristics	Academic club	Sports	Cheer-leading	Hobby club	Music (band, orchestra, chorus, or choir)	Vocational education club or vocational student organization
High school program[2]						
General	4.9	49.4	13.1	7.5	19.1	7.7
College preparatory	11.0	60.6	14.2	11.5	24.2	7.6
Vocational	3.9	46.4	13.4	7.2	17.2	14.5
Composite achievement test score in sophomore year						
Lowest quartile	4.3	47.7	15.0	6.4	15.4	8.8
Middle two quartiles	6.7	54.5	14.1	9.0	20.8	8.6
Highest quartile	15.5	62.3	11.6	13.4	28.7	7.4
Sophomore's school sector						
Public	8.1	53.2	13.8	8.9	21.2	8.8
Catholic	11.3	73.1	10.7	17.1	18.1	2.2
Other private	10.5	73.9	15.5	14.8	33.9	3.8
Region of sophomore's school						
Northeast	7.6	59.3	14.5	11.2	20.8	4.9
Midwest	6.8	57.9	13.7	8.8	27.5	8.0
South	10.8	52.7	15.4	9.8	21.4	11.5
West	7.0	50.9	10.4	8.5	15.8	7.0
Urbanicity of sophomore's school						
Urban	8.7	52.7	12.9	10.7	18.9	5.3
Suburban	8.2	55.5	13.6	9.1	21.9	8.0
Rural	8.4	56.0	15.0	8.6	24.3	13.8

[1]The first language students learned to speak when they were children.
[2]Students' self-report of the type of high school program in which they participated.
NOTE: See appendix A for the weighted response rates of all unimputed variables used in this analysis. All race categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

4.1.2 Educational Expectations and Extracurricular Participation

Sophomores with higher educational expectations were more likely to participate in sports and in music. For example, 21 percent of sophomores who expected to attain only a 4-year college degree participated in activities in music in their sophomore year (table 11). A still higher proportion of students who expected to attain a graduate or professional degree (27 percent) participated in music as sophomores. In contrast, 10 percent of those who expected to attain a high school diploma or less participated in extracurricular music activities. Even greater proportions of those expecting to attain a 4-year degree participated in sports (58 percent), while of those with graduate or professional degree expectations, 61 percent were sophomore athletes. In contrast, 37 percent of the non-college-bound students were sophomore athletes.

4.1.3 High School Program, Tested Achievement, and Extracurricular Participation

High school sophomores enrolled in a college preparatory program were more likely to be sports participants (61 percent of academic track sophomores were athletes, compared to 49 percent of general and 46 percent of vocational track sophomores). Academic track sophomores were also more likely to participate in academic clubs, though the proportion of participants was relatively small for this group regardless of high school program (11 percent of those in a college preparatory program versus 5 percent of those in a general program and 4 percent in a vocational program). A similar pattern may be discerned when tested achievement is examined. Some 62 percent of sophomores in the top math/reading quartile were athletes, compared to 48 percent of those scoring in the lowest test quartile. For highest test quartile sophomores, the participation rate in academic clubs was 16 percent, compared to 4 percent for those in the lowest quartile.

4.1.4 Racial/Ethnic Group and Extracurricular Participation

Table 11 presents the distribution of participants across activities broken down by race and Hispanic ethnicity. In terms of sports participation, Whites and Blacks were more likely than Asians or Hispanics to be athletes (57 percent for Whites, 55 percent for Blacks, 48 percent for Asians, and 48 percent for Hispanics). Some differences, too, may be noted for academic and hobby clubs. Asian students participated at a higher rate (14 percent) in academic clubs than Blacks (7 percent), Hispanics (6 percent), or Whites (9 percent). Some 16 percent of Asians participated in hobby clubs, as contrasted to 8 percent of Hispanics, 8 percent of Blacks, and 10 percent of Whites. Blacks participated in cheerleading at a higher rate (18 percent) than American Indians, Asians, Hispanics, and Whites.

4.1.5 Sex and Extracurricular Participation

Previous research indicates females participate more often in school clubs and groups than males (Bae et al. 2000; Eccles and Barber 1999; Jordan and Nettles 2000). This pattern may also be discerned with 2002 sophomores. Across all categories of extracurricular activities, females participated at a higher rate than males, except in sports. Males were more likely to participate in sports than females (61 percent versus 49 percent), though females were more likely to participate in a related activity, cheerleading (18 percent of females, and 8 percent of males, participated).

4.1.6 School Characteristics and Extracurricular Participation

There were some differences in the rate at which students participated in sports and other extracurricular activities by school type and geographic location, as the following examples illustrate (table 11). About one-third (34 percent) of students in other private schools (i.e., not Catholic-affiliated schools) reported participating in music, while 18 percent of Catholic school students and 21 percent of public school students did so. Public school 10th-graders reported participating at a higher rate (9 percent) in vocational education activities when compared to their counterparts in Catholic (2 percent) and other private schools (4 percent). This finding is not surprising given that few private schools offer vocational programs (Alt and Peter 2002).

Public schools had the lowest rate of sports participation, with over half of the 10th-grade class (53 percent) participating in sports programs at either the intramural or interscholastic level.

In contrast, 73 percent of Catholic school students and 74 percent of other private school students participated. Schools in the West had fewer student athletes than schools in the Northeast and Midwest and lower music participation than any other region. The largest differences were between the West and the Northeast in sports (51 percent for the West versus 59 percent for the Northeast) and between the West and the Midwest in music (16 percent for the West versus 28 percent for the Midwest).

4.2 High School Sports Offerings for Male and Female Sophomores

Since the 1972 passage of Title IX, increasing emphasis has been placed on the equality of sports opportunities across gender. The intent of Title IX is to provide equality in *all* educational programs in all educational institutions receiving federal funding.[31] Given the applicability of this legislation to secondary schools, it may be of special interest not only to examine students' sports opportunities overall, but also to compare the sports opportunities of male and female 10th-graders, and how such opportunities may vary by school type. Past research that examined opportunities available for various SES groups across affluent and poor schools (O'Brien and Rollefson 1995) indicates that the substantial differences between various subgroups' rates of extracurricular participation are largely unrelated to differences in availability of extracurricular activities at the school level. However, this research did not investigate opportunities specifically for males and females. As we have seen, females have lower rates of sports participation in high school than do males. (At 10th grade in 2002, 61 percent of males, and 49 percent of females, were athletes.) This leads to the question of whether females participated at lower rates regardless of sports offerings or whether females participated at lower rates because they have fewer opportunities to participate. It therefore seems fitting to compare schools' sports offerings for males and females.

4.2.1 Sports Programs Offered to Males and Females by School Type

Table 12 shows the proportion of schools offering various sports programs by school type and sex of program. While most data in this report are taken from the student questionnaire,[32] information about schools' sports offerings derives from school principal reports, as recorded on the school administrator questionnaire. Given variations in school size, the proportion of students being offered a particular program may differ from the proportion of schools offering them; student-level data are therefore reported later in this chapter.

The majority of American high schools with 10th-graders provided opportunities for sports participation: 97 percent of schools offered programs for males, and 97 percent offered programs for females (table 12). Of course, this does not mean that all students who wished to

[31] Title IX has typically been associated with equal opportunity for males and females in sports at the collegiate level, but it also applies (with some exceptions, admissions practices among them) to secondary schools in the United States (Title IX, Education Amendments of 1972, Title 20, U.S.C., §1681-1688). In addition, secondary school sports offerings may be influenced by developments and trends in collegiate sports. In recent years at the collegiate levels, there has been substantial growth in sports programs for female students (U.S. General Accounting Office 2001).
[32] In addition to student and school report data, some parent questionnaire data are also employed in this report. Information such as parent's highest level of education, family composition, and the elements that were used to derive the SES composite are derived primarily or solely from parent reports.

Table 12. Percentage of high schools offering various sports to male and female students, by school type: 2002

Sport	Total		Public schools		Catholic schools		Other private schools	
	Male students	Female students	Male students	Female students	Male students	Female students	Male students	Female students
Baseball	75.7	1.5	82.8	1.3	100.0	6.3	45.5	1.6
Softball	6.6	77.5	1.8	82.7	4.3	82.5	24.5	57.4
Basketball	96.1	92.6	98.3	95.5	99.7	98.0	87.4	80.7
Football	74.0	7.3	83.5	9.6	88.7	0.7	36.8	0.5
Soccer	48.8	46.1	48.1	46.5	78.4	86.2	45.8	36.3
Swim team	28.3	29.1	30.7	31.4	56.0	57.7	14.4	15.0
Ice hockey	9.3	4.0	10.0	4.9	41.0	5.7	0.8	0.5
Field hockey	1.9	8.8	0.7	7.8	5.7	17.5	5.7	10.6
Volleyball	13.3	74.6	9.5	75.4	29.3	80.5	24.0	70.5
Lacrosse	7.2	6.4	6.7	6.5	26.7	10.1	5.1	5.3
Tennis	43.6	45.2	46.9	49.0	79.1	72.4	24.7	25.6
Cross-country	58.5	60.4	65.0	68.6	91.6	79.4	28.4	26.4
Track	79.7	80.8	86.0	87.3	88.4	85.9	55.2	55.9
Golf	63.0	47.7	67.8	52.0	97.2	67.1	39.2	28.1
Gymnastics	1.7	8.6	1.7	10.3	0.0	11.7	1.8	2.0
Wrestling	46.3	11.0	54.9	12.6	53.7	10.7	13.5	5.3
Cheerleading	29.9	81.0	36.9	86.6	28.3	90.2	4.5	58.5
Pompom (pompon), drill team	5.5	30.1	7.2	35.3	0.0	29.0	0.5	11.2
Other	8.7	8.8	7.1	8.7	30.4	27.7	10.5	5.2
No sports offered	2.6	2.9	1.2	2.1	0.0	0.0	8.2	6.6

NOTE: See appendix A for the weighted response rates of all unimputed variables used in this analysis.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

participate in sports could do so, since there may have been limited slots available on teams or within programs.

Of the 18 sports and 1 "other" category reported, 11 showed a statistically and substantively significant difference between the percentage of high schools offering that sport for males versus for females. These sports were baseball, softball, football, ice hockey, field hockey, volleyball, golf, gymnastics, wrestling, cheerleading, and pompom/drill team. Baseball, football, ice hockey, golf, and wrestling were offered more often to males. For females, softball, field hockey, volleyball, gymnastics, cheerleading, and pompom/drill team were offered more often.

The largest difference was in baseball, which was offered to males in 76 percent of high schools and to females in less than 2 percent of high schools. The largest difference in favor of a female program was for softball, which was offered to females in 78 percent of high schools and to males in 7 percent of high schools. Very few schools did not offer any sports to males or females (about 3 percent, respectively), and statistical or substantive differences were not detected between the proportion of schools not offering male or female programs.

Within each school type, the patterns of sports offerings to male students and female students were similar to the overall findings (see table 12). Public schools showed differences in the male and female program offerings for the same 11 sports as in the overall findings reported above, and the specific sports offered more often to males or more often to females were also the same. The largest differences were again observed in baseball (83 percent for males versus 1 percent for females) and softball (2 percent for males versus 83 percent for females).

For Catholic schools, the same 11 sports plus 1 showed substantive and statistical differences in offerings to males and females, the addition being lacrosse, which was offered to males more often (27 percent for males versus 10 percent for females). The largest difference was again in baseball, favoring males (100 percent of high schools reported offering baseball for males, versus 6 percent for females), and the largest difference favoring females was again in softball (4 percent for males and 83 percent for females). None of the participating Catholic schools reported offering no sports.

For other private schools, there were only five sports in which there was both a statistical and a substantive difference between the percentages of high schools offering programs for males and for females. These sports were baseball, softball, football, volleyball, and cheerleading. The same pattern as in the overall and other within-school comparisons held for which sports high schools offered more to males or females. In contrast to the other findings, the largest difference in sports offerings by sex of program was in cheerleading, which was offered as a males' program in only 5 percent of high schools but as a females' program in 59 percent of high schools. The largest difference favoring male programs was again baseball (46 percent for males and less than 2 percent for females).

4.2.2 Comparison of Public, Catholic, and Other Private School Sports Offerings for Males and Females

When comparing the proportions of schools offering sports across school types, more Catholic schools offer sports programs for their male students than public schools or other

private schools, for certain sports. Compared to public schools, more Catholic schools offered programs for males in 7 sports: baseball, swim team, ice hockey, volleyball, tennis, cross-country, and golf. Compared to other private schools, more Catholic schools offered programs for males in 11 sport categories: baseball, softball, basketball, football, swim team, ice hockey, tennis, cross-country, golf, cheerleading, and other sports. Only in softball was there both a substantive and a statistical difference indicating that another school sector—in this case other private schools—more often offered programs for males than Catholic schools (25 percent of other private schools and 4 percent of Catholic schools offered softball to males).

Comparing public schools to other private schools also reveals that more public schools offer eight sports to males: baseball, football, swim team, ice hockey, tennis, cross-country, golf, and cheerleading. There is no sports category for which more other private schools offer programs for males than public schools (or Catholic schools, as shown above).

For programs offered to females, Catholic schools show similarly higher percentages of sports offerings. In 5 sport categories, more Catholic schools offer programs for females than public schools: soccer, swim team, field hockey, tennis, and "other" sports. In the proportion of schools with football programs for females and no sports programs for females, there were more public schools than Catholic schools, though the percentages of schools in these 2 sports categories are low (9.6 percent of public schools and less than 1 percent of Catholic schools offer football; 2 percent of public schools and no Catholic schools offer no sports programs for females). In comparison to other private schools, more Catholic schools offer programs for females in 12 sport categories: softball, basketball, soccer, swim team, tennis, cross-country, track, golf, gymnastics, cheerleading, pompom/drill team, and "other" sports.

Comparing public schools to other private schools completes the picture showing that other private schools offer fewer programs across the board: for female students, more public schools than non-Catholic private schools offer 10 sports. These sports are softball, football, swim team, tennis, cross-country, track, golf, gymnastics, cheerleading, and pompom/drill team.

4.2.3 Sophomore Access to Various Sports Programs

Because of variations in school size, with smaller schools less likely to offer the full range of sports, school-level offerings look more favorable when viewed in terms of student coverage. For example, even if less than half of all schools offered a sport to students, if that half represents larger schools, a majority of students would have access to the program. Table 13 summarizes the proportion of *students* attending schools in which a particular sport was offered to male students and to female students.

Table 13. Percentage of high school sophomores who attended schools offering various sports to male and female students, by school type: 2002

	Total		Public		Catholic		Other private school	
Sport	Male students	Female students	Male students	Female students	Male students	Female students	Male students	Female students
Baseball	94.5	3.1	95.0	3.1	100.0	4.7	74.4	1.0
Softball	3.8	94.0	3.4	95.0	8.2	91.0	9.8	68.6
Basketball	98.9	97.5	99.0	97.7	99.0	97.0	96.1	93.7
Football	93.9	8.6	95.4	9.2	93.7	1.2	50.7	1.8
Soccer	83.7	81.6	83.7	81.6	89.5	92.6	77.1	68.5
Swim team	62.2	63.0	62.6	63.3	72.6	75.3	37.9	39.9
Ice hockey	17.0	7.0	16.2	7.3	48.1	3.9	2.4	1.8
Field hockey	2.3	13.9	2.2	13.4	4.0	20.7	2.2	20.6
Volleyball	22.8	85.9	22.5	86.0	40.5	86.6	11.8	80.9
Lacrosse	13.9	13.6	13.0	13.3	34.2	18.4	17.5	19.0
Tennis	79.1	80.3	79.6	81.1	85.9	80.9	55.0	58.0
Cross-country	88.4	88.5	88.9	89.5	96.9	92.3	64.4	58.5
Track	94.7	94.7	95.6	95.5	95.1	93.6	70.3	71.1
Golf	87.0	68.2	87.3	68.5	98.1	74.2	67.5	53.0
Gymnastics	4.3	19.4	4.5	20.1	0.0	15.1	2.1	2.9
Wrestling	74.4	15.2	76.2	15.8	68.1	9.0	29.4	3.8
Cheerleading	43.1	93.4	44.6	94.4	30.7	89.8	16.3	68.0
Pompom (pompon), drill team	12.5	53.2	13.4	55.4	0.0	33.0	0.7	12.8
Other	14.7	18.5	14.0	18.3	35.1	33.2	12.9	7.8
No sports offered	0.4	0.9	0.3	0.9	0.0	0.0	2.8	2.0

NOTE: See appendix A for the weighted response rates of all unimputed variables used in this analysis.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

Contrasting the overall results with the school proportions presented in table 12, the same 11 sports that showed significant differences in high school program offerings between males and females show significant differences in student access to programs, with the addition of the other sports category. At the same time, only 3 categories of sports out of 40—male softball and no sports for males or females—had smaller percentages of sophomores attending schools with the programs than schools that offered the programs (compare tables 12 and 13).

For six sports, the majority of students attended schools with both male and female programs. Nearly all sophomores attended schools that offered basketball and track to both males and females (99 percent for male basketball and 98 percent for female basketball; 95 percent for both male and female track). In addition, the large majority of students attended schools that offered the following programs for both males and females (percentages are male and female programs, respectively): soccer (84 and 82), swim team (62 and 63), tennis (79 and 80), and golf (87 and 68). Among these, only for golf was there a statistically significant difference in the proportion of sophomores attending schools offering male versus female programs.

Additionally, some sports programs showed majority access for one sex but not the other. Baseball (95 percent of sophomores attended schools with male programs, compared to 3 percent

female), football (94 percent to 9 percent), and wrestling (74 percent to 15 percent) all favored males. Softball (94 percent of sophomores attended schools with female programs, compared to 4 percent male), volleyball (86 percent to 23 percent), cheerleading (93 percent to 43 percent), and pompom/drill team (53 percent to 13 percent) all favored females.

When examining the results across school sectors, most of the same findings apply. A similar set of 11 sports show significant differences in student access to male and female programs among public schools and Catholic schools. The differences are that public schools and Catholic schools show no statistical difference in the proportion of students without access to sports (less than 1 percent of public school students had no access to sports for males or females, and no Catholic school students had no access to sports for males or females), and Catholic schools show a statistical and substantive difference in its lacrosse offerings (34 percent of students had access to male lacrosse versus 18 percent of students with access to a female program). In fact, for baseball, 100 percent of Catholic students had access to a male program. Among other private school students, the same set of sports as in the overall findings show significant differences between student access to male and female programs, minus gymnastics and ice hockey, the differences between which were statistically insignificant. Also within public schools and Catholic schools, the same sports as for all students had majorities of sophomores having access to both sex programs, while for other private schools, only for basketball, soccer, and track were the substantively significant majorities statistically different from 50 percent.

4.3 Level of Sports Participation

Table 14 provides a summary of sports participation by level (intramural, junior varsity, varsity, varsity captain) based on various student and school characteristics (the four levels of participation are *not* mutually exclusive). As noted in the discussion above, the table illustrates that female students were less likely to participate in sports. About half (52 percent) of Asian 10th-graders indicated that they did not participate in sports at any level. In contrast, White and Black sports nonparticipants were a minority of their groups. Asians (18 percent) and Hispanics (17 percent) were less likely to be varsity sports participants than were Black (27 percent) or White (30 percent) sophomores.

Socioeconomic status is related to participation in junior varsity and varsity sports. Students from homes in the highest SES group were the most likely to be involved in sports at these levels. However, no difference by SES was detected in the likelihood of being a varsity captain (5–6 percent).

Table 14. Percentage of high school sophomores who participated in one or more intramural or interscholastic sports, by selected student and school characteristics: 2002

Selected student and school characteristics	Did not participate[1]	Intramural	Junior varsity	Varsity	Varsity captain
Total	45.2	33.0	28.2	26.5	5.2
Sex					
Male	39.0	38.5	32.5	30.0	6.1
Female	51.5	27.5	23.9	23.0	4.3
Racial/ethnic group					
American Indian or Alaska Native	45.4	40.8	24.9	28.1	3.0
Asian or Pacific Islander	52.3	29.5	25.6	18.1	2.5
Black	45.0	39.6	26.1	26.5	7.3
Hispanic or Latino	51.7	35.3	26.4	17.4	4.7
More than one race	46.1	33.8	25.6	22.5	5.1
White	43.1	30.9	29.6	29.7	5.0
Socioeconomic status					
Lowest quartile	55.1	32.3	23.0	18.5	4.8
Middle two quartiles	45.1	34.1	28.3	25.9	5.5
Highest quartile	35.7	31.3	33.1	35.7	5.0
Parents' education					
High school or less	52.5	32.8	25.0	19.3	5.4
Some college	46.6	33.6	28.2	24.5	5.1
College graduation	39.9	33.8	29.5	33.0	5.0
Graduate/professional degree	37.4	30.7	31.8	34.2	5.2
Student's educational expectations					
High school or less	63.1	28.0	15.5	14.9	5.1
Some college	53.4	34.9	24.9	16.3	5.8
College graduation	42.3	35.4	30.3	28.2	4.9
Graduate/professional degree	39.0	32.5	31.9	31.9	5.4
Don't know	55.6	28.0	20.6	20.7	4.7
Native language[2]					
English	43.8	32.9	28.9	28.3	5.2
Non-English	54.2	33.6	23.8	15.5	5.0
High school program[3]					
General	50.6	31.9	25.0	22.9	4.3
College preparatory	39.4	33.8	31.9	30.9	6.0
Vocational	53.7	33.2	22.1	18.6	4.4
Composite achievement test score in sophomore year					
Lowest quartile	52.3	38.2	24.5	18.7	6.9
Middle two quartiles	45.5	34.8	27.5	26.4	4.2
Highest quartile	37.7	24.3	33.2	34.3	5.3
Sophomore's school sector					
Public	46.8	32.7	27.6	25.2	5.1
Catholic	27.0	35.5	41.6	37.2	4.1
Other private	26.1	37.0	26.2	49.7	9.0

See notes at end of table.

Table 14. Percentage of high school sophomores who participated in one or more intramural or interscholastic sports, by selected student and school characteristics: 2002—Continued

Selected student and school characteristics	Did not participate[1]	Intramural	Junior varsity	Varsity	Varsity captain
Region of sophomore's school					
Northeast	40.7	34.9	31.7	29.6	5.1
Midwest	42.1	31.2	32.9	27.4	5.1
South	47.3	32.2	23.8	28.0	5.6
West	49.1	34.5	26.9	21.0	4.8
Urbanicity of sophomore's school					
Urban	47.3	33.3	25.2	23.9	5.0
Suburban	44.5	32.9	30.3	26.4	5.3
Rural	44.0	32.7	27.2	30.6	5.1

[1]Students were defined as nonparticipants if they did not participate in *any* sports or they indicated their school did not offer sports.
[2]The first language students learned to speak when they were children.
[3]Students' self-report of the type of high school program in which they participated.
NOTE: See appendix A for the weighted response rates of all unimputed variables used in this analysis. All race categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

Students with the highest educational expectations (graduate or professional degree) and those who expected to graduate from college were less likely to be sports nonparticipants than sophomores who expected to complete only some college or high school or less. Specifically, 63 percent of those in the high school or less category were nonathletes, as well as 53 percent of those who expected to attend college but not graduate. Some 42 percent of sophomores who expected to graduate from college but go no further were nonathletes, and 39 percent of those who expected to obtain a graduate or professional degree were nonparticipants. Sophomores scoring in the highest test quartile had the lowest rates of nonparticipation (38 percent compared to 52 percent for the lowest quartile), and they had higher rates of participation in junior varsity and varsity than in intramural sports (33 percent and 34 percent versus 24 percent). The pattern was reversed for students scoring in the lowest test quartile: the participation rate was 38 percent in intramural and 19 percent in varsity sports. This finding is consistent with previous research, indicating that there is an interaction between level of sports participation and achievement scores (Broh 2002).

4.4 Athletes Versus Other Extracurricular Activity Participants: How They Are Alike, How They Differ

Table 15 compares 10th-grade athletes to "other extracurricular" participants on a number of student characteristics, and compares nonparticipants to participants in each category as well. In addition, the final column of the table captures sophomores who were double nonparticipants, that is, they participated neither in school sports nor in other extracurricular activities. Overall, more than half of 2002 sophomores participated in sports (55 percent), and more than half participated in other extracurricular activities (55 percent). Just over one-fifth (22 percent) participated in neither school sports nor extracurricular activities.

Table 15. Percentage of high school sophomores participating in sports and extracurricular activities, by selected student characteristics: 2002

Selected student characteristics	Participants in sports[1]	Nonparticipants in sports	Participants in extracurricular activities [2]	Nonparticipants in extracurricular activities	Double nonparticipants (nonparticipants in sports or extracurricular activities[3])
Total	54.8	45.2	54.5	45.5	22.3
Expect to earn 4-year degree or higher	77.6	64.3	78.5	64.1	54.5
Expect to go directly to college	76.3	65.2	76.9	64.8	57.8
Highest test quartile	29.0	21.2	31.9	17.4	14.1
Highest socioeconomic status quartile	29.4	19.8	30.4	19.0	14.4
Never cut class	69.9	66.8	72.7	63.4	60.8
Like school a great deal	24.4	22.1	28.1	18.0	17.0
Rate good grades as very important	53.7	46.7	57.3	42.7	39.7
Currently employed	26.5	24.5	25.8	25.4	24.5
Want to participate in college sports	65.9	26.3	47.0	51.2	26.9
Hope to get an athletic scholarship	78.9	54.4	70.3	76.7	54.8

[1] Students were defined as school sports participants if they indicated that they participated in at least one sport at the intramural or interscholastic level. Cheerleading, pompom (pompon), and drill team were not included in this category. Students were defined as sports nonparticipants if they did not participate in *any* sports or they indicated that their school did not offer sports.
[2] Students were defined as extracurricular participants if they indicated that they participated in at least one extracurricular activity other than school sports. Cheerleading, pompom (pompon), and drill team were included in this category.
[3] Students were defined as nonparticipants in sports and extracurricular activities if they were nonparticipants in both pursuits.
NOTE: Details may not sum to totals because of rounding. See appendix A for the weighted response rates of all unimputed variables used in this analysis.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

When compared to school sports nonparticipants, school athletes were more likely to be from the highest SES group (29 percent versus 20 percent) and to be among the highest scorers on achievement tests (29 percent versus 21 percent). Athletes indicated at a higher rate their intention to obtain a bachelor's degree or higher (78 percent versus 64 percent), an expectation to go directly to college after high school (76 percent versus 65 percent), and that good grades were very important (54 percent versus 47 percent). The same patterns are found when comparing "other extracurricular" participants to "other extracurricular" nonparticipants.

A comparison of athletes and other extracurricular participants shows that the two groups are very similar. For example, the majority of both groups indicated an intention to obtain a bachelor's degree or higher and to enroll in college directly after high school. The proportion of students in the highest SES quartile was 29 percent for sports participants and 30 percent for other extracurricular participants, a difference that was neither statistically nor substantively significant.

4.5 Intense Extracurricular Participators: How They Differ From Their 10th-Grade Peers

For the purposes of this report, high-intensity extracurricular participation was based on the number of hours students reported spending in such activities weekly. Sophomores whose reported time was above 75 percent that of their peers (9 hours or more per week spent in extracurricular activities) were considered high-intensity participants. Table 16 compares high-intensity participants to all 10th-grade students on several student characteristics. The majority of all 10th-graders indicated a desire to earn a bachelor's degree or higher (72 percent), expected to go to college directly after high school (72 percent), and never cut class (68 percent). High-intensity participants endorsed each of these student characteristics in a larger proportion than the sample as a whole, with 87 percent reporting an intention to earn a bachelor's degree or higher, 83 percent expecting to enroll in college immediately after high school, and 74 percent never cutting class. These high-intensity participants were more likely to be in the highest SES quartile (37 percent) than were sophomores as a whole (25 percent).

More high-intensity extracurricular participants were from the highest achievement test score group (37 percent) compared to the total sample (25 percent).

Table 16. Percentage of high school sophomores and high-intensity extracurricular participants, by selected student characteristics: 2002

Selected student characteristics	All sophomore students	High-intensity (top quartile) extracurricular participants[1]
Expect to earn 4-year degree or higher	71.6	86.5
Expect to go directly to college	71.6	83.0
Highest test quartile	25.0	37.2
Highest socioeconomic status quartile	25.0	37.1
Never cut class	68.4	74.0
Like school a great deal	23.6	26.9
Rate good grades as very important	50.7	58.6
Currently employed	25.6	24.5

[1]Students were defined as high-intensity extracurricular participants if they spent 9 hours (or more) per week participating in extracurricular activities.
NOTE: See appendix A for the weighted response rates of all unimputed variables used in this analysis.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

4.6 Summary

This chapter began by posing six related questions. First, what does the research literature suggest about the value and importance of extracurricular activities? Second, what proportion of 2002 10th-graders participated in extracurricular activities, and how were these participants distributed across the various extracurricular options? Third, what proportions of public, Catholic, and other private schools offered various sports (overall, and to male versus female students), and what proportion of students were enrolled in schools offering these opportunities? Fourth, at what level—intramural, junior varsity, varsity, varsity captain—did sophomore athletes participate in their sports? Fifth, how did 10th-grade sports participants compare—in background, expectations and attitudes, and school behaviors—to participants in nonsports extracurricular activities? Sixth, how did the educational expectations, achievements, and other characteristics of students who devoted above-average amounts of time to extracurricular activities compare to those of sophomores as a whole?

As to the first question, a highly developed research literature suggests that extracurricular participation in most activities, including sports, is positively associated with social and intellectual development. The second question was about the incidence of participation overall and by subgroup (table 11). Sports was the activity most often participated in; over one-half of all sophomores were high school athletes. Across all types of activities, females participated more than their male counterparts, except in sports. Participation rates differed based on school type. Sophomores attending non-Catholic private schools were more likely to participate in music than their peers at Catholic or public schools. There was also a considerable difference in sports participation rates among school types. Approximately 75 percent of private school students (both Catholic and other private) indicated participation in sports at some level, while over one-half of the public school students reported the same. As SES and parents' education rose, participation rates in academic clubs, sports, hobby clubs, and music increased. The opposite pattern was true for vocational clubs.

The third question pertained to sports offerings to male and female students by schools of different types and to the proportions of students offered the various sports opportunities. Overall, nearly all high school sophomores attended schools offering sports (100 percent attended schools offering sports to male students, and 99 percent attended schools offering sports to female students) (table 13). Participation rates nevertheless varied by sex (as well as by school type, racial/ethnic group, and SES) (table 11). This finding raised the question of what proportion of students attend schools offering various sports to males and females. A few sports showed large disparities between the proportion of students who attended schools that offered them to males and the proportion that offered them to females. In particular, baseball (95 percent of sophomores attended schools with male programs, compared to 3 percent with female programs), football (94 percent to 9 percent), and wrestling (74 percent to 15 percent) were more available to males. For female programs, softball (94 percent of sophomores attended schools with female programs, compared to 4 percent with male programs), volleyball (86 percent to 23 percent), cheerleading (93 percent to 43 percent), and pompom/drill team (53 percent to 13 percent) were more available. Other sports that had significant differences between access to male and female programs, but whose availability was more limited, include ice hockey (with greater access to male programs, 17 percent to 7 percent), field hockey (with greater access to female programs, 14 percent to 2 percent), and gymnastics (also with greater access to female programs, 19 percent to 4 percent) (table 13). These disparities mirror collegiate athletic programming. Sports offered primarily or solely for one sex at the collegiate level displayed the same pattern at the secondary school level (National Collegiate Athletic Association 2002).

The fourth question pertained to participation at the intramural, junior varsity, varsity, and varsity captain levels (table 14). Intramural participants were less likely than junior varsity and varsity sports participants to score in the highest achievement test quartile. They were also less likely than varsity athletes to fall in the highest SES quartile. Nevertheless, no measurable differences were found in the proportions of students from each of the three SES groups who were varsity captains (at 5–6 percent for each SES group).

The fifth question asked how athletes differ from nonathletes and how other extracurricular participants differ from extracurricular nonparticipants (table 15). Athletes were more likely than nonathletes to be in the highest SES quartile (29 percent versus 20 percent); likewise, other extracurricular participants were more likely than other sophomores to fall in the highest SES quartile (30 percent versus 19 percent). Athletes were more likely than sports nonparticipants to score in the highest test quartile (29 percent versus 21 percent). In addition, sophomores who engaged in extracurricular activities other than sports were more likely to score in the highest test quartile than those who did not (32 percent versus 17 percent). Athletes were more likely than sports nonparticipants to expect to earn a 4-year degree or higher (78 percent for athletes versus 64 percent for nonparticipants), and nonsport extracurricular participants were likewise more likely to hold this educational expectation than their nonparticipating counterparts (79 percent versus 64 percent).

The sixth question asked about intensity of participation: How did sophomores who devoted an exceptional number of hours to extracurricular activities compare to the 10th-grade norm in terms of their academic behaviors (table 16)? Although there is a suggestion in the research literature that too much extracurricular participation may be detrimental to academic success, a comparison of the top quartile of extracurricular participants to the norm for all

sophomore students did not show this to be so in terms of measures such as test performance and behaviors such as cutting class. High-intensity participants (9 hours or more per week) were more likely to expect to earn a 4-year degree or higher (87 percent versus 72 percent for the 10th-grade norm), more likely to expect to go directly to college (83 percent compared to 72 percent for all sophomores), more likely to perform in the highest test quartile (37 percent versus 25 percent for the norm), more likely to never cut class (74 percent versus 68 percent), and more likely to rate good grades as very important (59 percent versus 51 percent for sophomores as a whole).

The associations demonstrated in this report between positive educational status (e.g., higher tested achievement) and extracurricular participation do not establish a causal relationship between the two. For example, simple crosstabulations cannot tell us whether extracurricular participants do better because of their extracurricular endeavors or because they tend more often to be from higher SES backgrounds, to have higher educational expectations, and to be more likely, among many other things, to attend private schools or affluent public schools. Indeed, the high value placed on sports and other extracurricular activities by college admissions offices, especially at highly selective institutions, provides a strong participatory incentive to students in the college track, and may account for much of the association between extracurricular participation and high educational expectations and achievement. A further factor that may inflate the apparent positive relationship between extracurricular participation and positive academic outcomes is that some schools may prohibit students with low grades from participating in some or all extracurricular activities. The ELS:2002 database provides information that will support needed further investigation of the possible impact of extracurricular activities, using multivariate controls and data from multiple timepoints.

Chapter 5
Sophomores' Time Use

5.1 Introduction

As discussed in chapter 4, many students spend a portion of their time outside the classroom engaging in a variety of extracurricular activities. However, extracurricular activities are just one of many ways in which high school students choose to spend their time outside the classroom. This chapter explores how 10th-grade students in 2002 used their time outside of class and the percentage of students who engaged in each of several after-class activities. School-sponsored extracurricular activities, reading for pleasure, working for pay, doing homework, and using the computer are all examined, as are the characteristics of the students and the schools that they attended. The structure of the discussion is as follows. Section 5.2 reports on sophomores' time use in extracurricular activities, reading, homework, and working for pay. Section 5.3 reports more expansively on time spent in homework. Finally, section 5.4 describes sophomores' computer use. Comparisons between means have been tested for both statistical significance and substantive significance. Findings are reported only if they meet the double criteria of statistical significance at .05 and substantive significance at an effect size of .20 or higher.[33]

Researchers have intensively studied the activities of high school students outside of instructional time in the classroom (Csikszentmihalyi 1977; Larson and Seepersad 2003). A wide variety of activities, including working for pay, participating in extracurricular activities and school-sponsored clubs and sports, reading for pleasure, doing homework, and using a computer have all been examined for their relationship to positive and negative student outcomes. Researchers have looked at student performance, as measured by test scores, grades, high school graduation rates, and college entrance and graduation rates, as well as dropping out of school and substance abuse (Broh 2002; Cooper et al. 1999; Marsh and Kleitman 2002; Warren, LePore, and Mare 2000).

Although findings vary somewhat across studies, participation in school-sponsored sports and extracurricular activities, and reading and doing homework outside of school, tend to be positively associated with academic performance, expectations, and self-esteem. Further, these activities tend to be negatively associated with dropping out of school, absenteeism, and substance abuse (Broh 2002; Glenn 1994; Hofferth and Sandberg 2000; Marsh 1992; Marsh and Kleitman 2002; McNeal 1995). The case of employment in high school is somewhat more complicated. Some studies show moderate levels of employment to be associated with positive academic outcomes, while other studies have uncovered negative associations (Lillydahl 1990; Marsh 1991; Oettinger 1999; Rothstein 2001; Schoenhals, Tienda, and Schneider 1998; Steel 1991; Warren, LePore, and Mare 2000). Regardless of whether working in high school promotes or is detrimental to academic achievement, the evidence that it contributes positively to later

[33] Appendix B supplies standard deviations for all estimates of mean time reported. These may be used to compute effect sizes for any relationship presented in the chapter 5 tables. In addition, the number of observations for each estimate is reported in the appendix B tables, for the benefit of readers who might want to calculate effect sizes using the pooled standard deviation. Additional information on magnitude of effect measures may be found in appendix A.

labor market outcomes is less equivocal (Carr, Wright, and Brody 1996; Rothstein 2001; Ruhm 1997).

5.2 Sophomores' Time Use: Extracurricular Activities, Reading for Pleasure, Homework, and Working for Pay

The Education Longitudinal Study of 2002 (ELS:2002) sophomores were asked about how they used their time in various activities outside of school hours. Table 17 displays the average number of hours high school sophomores reported spending on four activities.[34] Sophomores spent 5 hours per week in school-sponsored extracurricular activities such as sports or school clubs, 3 hours reading for pleasure,[35] and about 6 hours doing homework. Of course, some students did not participate in these activities at all. The percentage of students reporting zero hours participation per week was 39 percent for extracurricular activities, 28 percent for reading for pleasure, and 7 percent for out-of-school homework.[36] Students who were employed (some 39 percent of sophomores did paid work in the 2001–02 academic year[37]) worked an average of 15 hours per week during their sophomore year.

5.2.1 Differences in Time Use by Sex

Time use differed by student and school characteristics. Female students spent more time doing homework outside of school than male students in 2002 (6 hours for females compared with 5 hours for males, on average). Of students who were employed during the school year, male sophomores spent more time working for pay than did their female peers (17 hours per week for males versus 13 hours per week for females). There were no measurable differences in hours per week spent on extracurricular activities; both males and females spent about 5 hours on these activities.

[34] These four activities do not, of course, capture the totality of students' out-of-school time use. Nonschool sports, chores around the house, volunteering, religious participation, and many other activities are not captured in this analysis. Also notably absent are accounts of time spent in watching television and in playing computer games. While the ELS:2002 contained items to measure hours of time use in these activities, there is some concern about the reliability of these estimates. They have, therefore, not been included in this report. (For a discussion, see appendix A.) It should be noted that many other out-of-school activities are inquired about in the ELS:2002 base-year questionnaire, though the metric for responses is not typically hours (e.g., response categories offer frequencies, such as "once or twice a week," etc.). ELS:2002 out-of-school activity questions include items about nonschool sports, sports lessons, nonschool classes, volunteering, working on hobbies, and visiting or talking with friends. Conclusions reached on the basis of the four activities analyzed in this chapter need to take into account the essential qualification that many other potentially important activities are left out.

[35] Time spent reading was intended to include only reading for pleasure; students were instructed to exclude time spent on school-assigned reading or any type of schoolwork-related reading.

[36] Data for these estimates are not shown in tables in this report. The source is the weighted response percentage for variables BYS42, BYS43, and BYS34B in appendix G of the *ELS:2002 Base Year Data File User's Manual* (Ingels et al. 2004).

[37] Data for this estimate are not shown in tables in this report. The source is the weighted response percentage for variable BYWORKSY in appendix G of the *ELS:2002 Base Year Data File User's Manual* (Ingels et al. 2004).

Table 17. Average number of hours per week spent by high school sophomores on various activities outside of school, by selected student and school characteristics: 2002

	Average number of hours per week spent on the following activities			
	School-sponsored extra-curricular activities	Additional reading not assigned by school	Doing homework outside of school	Working for pay[1]
Total	4.6	2.7	5.7	15.0
Sex				
Male	4.7	2.6	5.1	16.7
Female	4.5	2.9	6.3	13.4
Racial/ethnic group				
American Indian or Alaska Native	3.3	2.6	5.8	16.8
Asian or Pacific Islander	3.5	2.7	8.2	12.0
Black	3.7	3.0	4.9	17.0
Hispanic or Latino	3.2	2.8	5.5	17.9
More than one race	4.3	3.2	5.8	14.6
White	5.2	2.6	5.8	14.4
Socioeconomic status				
Lowest quartile	3.0	2.7	4.7	17.4
Middle two quartiles	4.5	2.7	5.4	15.4
Highest quartile	6.2	2.8	7.3	12.3
Parents' education				
High school or less	3.3	2.5	4.7	17.1
Some college	4.4	2.8	5.3	15.6
College graduation	5.5	2.7	6.4	14.0
Graduate/professional degree	5.9	2.9	7.3	11.8
Native language[2]				
English	4.8	2.7	5.6	14.8
Non-English	3.0	3.0	6.3	16.9
Student's educational expectations				
High school or less	1.9	2.2	3.1	20.1
Some college	2.6	2.3	4.1	16.9
College graduation	4.9	2.5	5.5	14.7
Graduate/professional degree	5.8	3.2	7.2	13.7
Don't know	3.1	2.7	4.9	15.7
High school program[3]				
General	3.8	2.5	4.8	16.0
College preparatory	5.5	2.9	6.7	13.7
Vocational	3.1	2.9	4.6	17.6

See notes at end of table.

Table 17. Average number of hours per week spent by high school sophomores on various activities outside of school, by selected student and school characteristics: 2002—Continued

	Average number of hours per week spent on the following activities			
	School-sponsored extra-curricular activities	Additional reading not assigned by school	Doing homework outside of school	Working for pay[1]
Composite achievement test score in sophomore year				
Lowest quartile	2.9	2.5	4.0	17.6
Middle two quartiles	4.5	2.6	5.6	15.8
Highest quartile	6.2	3.3	7.6	11.7
Sophomore's school sector				
Public	4.4	2.7	5.5	15.3
Catholic	6.6	2.4	8.0	11.8
Other private	6.1	2.8	8.4	11.4
Region of sophomore's school				
Northeast	4.9	2.7	6.0	14.3
Midwest	5.1	2.7	5.6	15.2
South	4.4	2.6	5.1	15.8
West	4.1	2.9	6.5	14.3
Urbanicity of sophomore's school				
Urban	4.1	2.9	6.1	15.1
Suburban	4.8	2.7	5.7	14.7
Rural	4.9	2.7	5.1	15.6

[1]This analysis is limited to those students who worked during the 2001–02 school year. Current school year work status information was available for 84.3 percent of the students. In addition, 81.7 percent of students who had ever held a job for pay reported the number of hours they worked each week. Readers are cautioned that both these estimates fall below the National Center for Education Statistics (NCES) weighted item response standard of 85 percent. Missing data have not been explicitly accounted for in the data.
[2]The first language students learned to speak when they were children.
[3]Students' self-reports of the type of high school program in which they participated.
NOTE: See appendix A for the weighted response rates of all unimputed variables used in this analysis. All race categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

5.2.2 Differences in Time Use by Racial/Ethnic Group

There were also racial/ethnic differences in time use. White sophomores reported spending more time in extracurricular activities than did Black, Hispanic, Asian, or American Indian sophomores (about 5 hours, compared with about 3–4 hours). Asians reported spending more time on homework, averaging 8 hours per week on homework outside of school, compared with 5–6 hours spent by other racial/ethnic groups. Blacks reported spending less time on homework outside of school (5 hours) than did Asians (8 hours), Whites (6 hours), or Hispanics (6 hours).

5.2.3 Differences in Time Use by Socioeconomic Status

Socioeconomic status (SES) also was associated with time use, particularly with respect to working for pay. Sophomores from the lowest SES quartile who were employed during the school year spent more time working for pay than did employed sophomores in the highest SES quartile; low-SES students spent 17 hours working each week on average. In comparison, high-SES students worked 12 hours each week. The average number of hours worked per week was negatively associated with SES—the lower a student's family SES, the more he or she worked. Students in the lowest SES quartile spent less time participating in school-sponsored extracurricular activities than did their peers in the middle or highest quartiles. Lowest SES quartile students also spent less time on homework than did highest SES quartile students.

5.2.4 Differences in Time Doing Homework by Parental Education Level

More parental education translated into more time spent on homework outside of school, which ranged from 5 hours weekly for students whose parents had a high school diploma or less to 7 hours for children of parents with a graduate or professional degree.

5.2.5 Differences in Time Use by Educational Expectations

Sophomores' own educational expectations were also associated with extracurricular participation and time spent on homework. The time spent on both extracurricular activities and homework increased as 10th-graders' educational expectations increased. Sophomores who expected to attain no more than a high school diploma spent, on average, 2 hours per week on school-sponsored extracurricular activities and 3 hours per week on homework. Sophomores who expected to earn a graduate or professional degree spent nearly 6 hours in school-sponsored activities and 7 hours studying. Among sophomores who worked for pay, those who expected to complete college or attain a graduate or professional degree worked fewer hours than those who did not anticipate attending or completing college. On average, 10th-graders who expected only to complete high school (or less) worked 20 hours per week during the school year; those who expected to attend but not complete college worked 17 hours weekly.

5.2.6 Differences in Time Use by School Sector

The type of high school in which the 10th-grader was enrolled was also associated with time use outside of school. Catholic and other private school students spent more time on homework (8 hours versus 6 hours weekly), compared with public school students. Employed public school sophomores also spent more time working for pay (15 hours per week for public school students versus 12 for Catholic and 11 for other private school students.

5.3 Sophomores' Time Use: Homework

The previous section examined some aspects of the use of time outside of school by 10th-graders in 2002. Homework is one of the more important activities students do outside the classroom, as research has generally shown strong positive associations between time spent on homework and academic performance (Walberg 2002). However, as Cooper (1989) notes, homework involves complex interactions of multiple influences, and its value may be affected by student characteristics, home environment, subject matter, and grade level. This section will explore in more detail the time that 10th-graders in 2002 dedicated to homework in mathematics,

English, and all homework combined. The emphasis of this discussion is on homework done outside of school and total hours of homework. If one assumes that the amount of in-school homework reflects teacher control or administrative policy, then out-of-school homework may be of particular interest as a more likely source of differences among the various predictive factors.

However, these results should be interpreted with caution. Students did not report on the content or amount of the homework they were assigned, so differences in the amount or the level of difficulty of homework assigned to students could be related to the time necessary to complete the homework. Similarly, the survey did not provide any guidance about how homework was defined, and the work that students considered homework likely differed between students.

5.3.1 Differences in Homework Completed Overall and by Sex

Sophomores reported spending approximately 10 hours per week on homework in all subjects, 5 hours in school and 6 hours outside of school (table 18).[38] Of this total, students spent about 5 hours weekly on mathematics homework and about 4 hours on English homework.[39]

Overall, the amount of time students spent on homework in school was quite consistent across students. Although some differences by student characteristics were detected, the predominant pattern showed remarkable consistency in the time spent doing homework in school. Thus, the differences in total time spent on homework (shown in the first column in table 18) between various student groups resulted from the time that students committed to homework outside of school. That is, most differences in the time spent on homework overall were due to differences in the time spent on homework outside of school.

5.3.2 Differences in Homework Completed by Racial/Ethnic Group

Asian sophomores spent more time studying than did other racial/ethnic groups, with the exception of American Indians. (The sample size for American Indians is small. Therefore, there were no discernible differences in time spent studying overall between Asian and American Indian 10th-graders.) Asians averaged 13 hours per week on homework for all subjects, compared with 9–11 hours weekly for Black, White, and Hispanic sophomores.

5.3.3 Differences in Homework Completed by Student Educational Expectations

Total time spent on homework in all subjects increased along with student expectations. Students who expected, at most, to graduate from high school or to obtain a general equivalency diploma (GED) spent about 7 hours each week studying. On the other hand, sophomores who expected to complete a 4-year degree but go no further studied 10 hours per week, and students who intended to earn a graduate or professional degree spent 12 hours weekly on homework.

[38] Hours spent on homework per week in school and out of school do not sum to overall hours due to rounding and respondent error.

[39] In some cases, the amount of time students reported spending on mathematics and English homework exceeded the total time spent on homework in all subjects. These were separate items in the questionnaire, and this disparity may indicate that students underestimated the total time they spent on homework. A similar reporting inconsistency is found in the NELS:88 data.

Table 18. Average number of hours per week high school sophomores spent on homework in and out of school, by subject and selected student and school characteristics: 2002

Selected student and school characteristics	All subjects			Mathematics			English		
	Total	In school	Out of school	Total	In school	Out of school	Total	In school	Out of school
Total	10.4	4.7	5.7	4.9	2.4	2.5	4.2	1.9	2.3
Sex									
Male	9.6	4.5	5.1	4.6	2.3	2.3	3.9	1.8	2.1
Female	11.3	5.0	6.3	5.3	2.5	2.8	4.5	2.1	2.5
Racial/ethnic group									
American Indian or Alaska Native	10.9	5.0	5.8	4.1	2.0	2.1	4.5	2.3	2.2
Asian or Pacific Islander	12.7	4.5	8.2	5.7	2.4	3.4	5.4	2.1	3.2
Black	9.0	4.1	4.9	5.0	2.4	2.7	4.2	1.9	2.3
Hispanic or Latino	10.2	4.6	5.5	5.6	2.7	2.9	4.9	2.3	2.7
More than one race	10.3	4.5	5.8	5.2	2.5	2.7	4.1	1.9	2.2
White	10.7	4.9	5.8	4.7	2.4	2.4	4.0	1.9	2.1
Socioeconomic status									
Lowest quartile	9.5	4.8	4.7	5.1	2.6	2.5	4.3	2.2	2.2
Middle two quartiles	10.1	4.8	5.4	4.9	2.5	2.4	4.1	2.0	2.2
Highest quartile	11.9	4.6	7.3	4.9	2.2	2.8	4.2	1.7	2.6
Parents' education									
High school or less	9.5	4.8	4.7	4.8	2.5	2.3	4.1	2.1	2.1
Some college	10.2	4.9	5.3	5.1	2.6	2.5	4.2	2.0	2.2
College graduation	10.9	4.5	6.4	5.0	2.3	2.7	4.2	1.8	2.4
Graduate/professional degree	11.8	4.5	7.3	4.9	2.2	2.8	4.3	1.7	2.6
Native language[1]									
English	10.4	4.8	5.6	4.8	2.4	2.5	4.1	1.9	2.2
Non-English	10.8	4.5	6.3	5.8	2.7	3.1	5.1	2.2	2.9
Student's educational expectations									
High school or less	7.0	4.0	3.1	4.3	2.3	2.0	3.6	2.0	1.6
Some college	8.9	4.8	4.1	4.7	2.7	2.1	4.0	2.2	1.9
College graduation	10.2	4.8	5.5	5.0	2.5	2.6	4.2	2.0	2.3
Graduate/professional degree	12.1	4.9	7.2	5.3	2.4	2.9	4.5	1.9	2.6
Don't know	9.3	4.4	4.9	4.3	2.2	2.2	3.7	1.8	2.0
High school program[2]									
General	9.5	4.7	4.8	4.7	2.4	2.3	4.0	2.0	2.0
College preparatory	11.4	4.8	6.7	5.2	2.4	2.8	4.4	1.9	2.5
Vocational	9.0	4.4	4.6	4.8	2.4	2.4	4.1	2.0	2.1

See notes at end of table.

Table 18. Average number of hours per week high school sophomores spent on homework in and out of school, by subject and selected student and school characteristics: 2002—Continued

Selected student and school characteristics	All subjects			Mathematics			English		
	Total	In school	Out of school	Total	In school	Out of school	Total	In school	Out of school
Composite achievement test score in sophomore year									
Lowest quartile	8.3	4.3	4.0	5.1	2.7	2.5	4.4	2.3	2.2
Middle two quartiles	10.4	4.8	5.6	4.9	2.4	2.5	4.2	2.0	2.2
Highest quartile	12.5	4.9	7.6	4.9	2.2	2.7	4.1	1.6	2.5
Sophomore's school sector									
Public	10.2	4.7	5.5	4.9	2.4	2.5	4.2	2.0	2.2
Catholic	12.4	4.5	8.0	5.1	2.1	3.1	4.6	1.7	2.9
Other private	13.4	5.0	8.4	5.3	2.3	3.0	4.7	1.8	2.9
Region of sophomore's school									
Northeast	9.3	3.3	6.0	4.5	1.9	2.6	3.8	1.5	2.4
Midwest	11.6	6.0	5.6	5.2	2.8	2.4	4.4	2.3	2.1
South	9.4	4.2	5.1	4.6	2.2	2.4	3.8	1.8	2.1
West	11.7	5.2	6.5	5.7	2.7	3.0	4.9	2.2	2.7
Urbanicity of sophomore's school									
Urban	10.6	4.5	6.1	5.2	2.4	2.8	4.6	2.0	2.6
Suburban	10.4	4.7	5.7	4.9	2.4	2.5	4.1	1.9	2.2
Rural	10.3	5.1	5.1	4.7	2.5	2.2	4.0	2.0	2.0

[1]The first language students learned to speak when they were children.
[2]Students' self-reports of the type of high school program in which they participated.
NOTE: See appendix A for the weighted response rates of all unimputed variables used in this analysis. All race categories exclude Hispanic
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

5.3.4 Differences in Homework Completed by Tested Achievement

Consistent with prior research, student achievement, as measured by test scores, was associated with time spent on homework (Aksoy and Link 2000; Campbell, Hombo, and Mazzeo 2000; Hoffer, Rasinski, and Moore 1995). In the present study, 10th-graders who scored in the lowest quartile on a composite achievement test committed 8 total hours per week to homework, while students who scored in the middle quartiles spent 10 hours weekly on homework. Those in the highest achievement quartile spent 13 hours a week on homework.

5.3.5 Differences in Homework Completed by School Sector

Finally, school sector was associated with homework time. Students in Catholic and other private schools spent more time on homework than did students in public schools (12 hours for Catholic and 13 hours for other private school sophomores versus 10 hours for public school sophomores).

5.4 Sophomores' Computer Use

In 2002, 10th-graders were asked to report on the availability of computers and how often they used them in various locations, including at home, in school, at a public library, and at a friend's house. Students were also asked to report the number of hours each day that they spent using computers, either at school or at home. Finally, they were asked how often they used a computer at any location for fun, for schoolwork or assignments, and for learning things of interest on their own. Table 19a presents the percentage of students with computer access at home or in school and, for students with access in a given location, the percentage distribution of the frequency of computer use. Table 19b presents the same information for computer access at a public library or a friend's house. Table 20 presents the average number of hours 10th-graders reported spending each day using a computer. Those students who indicated that they used a computer at least once per week for fun, schoolwork, or independent learning are included in the final three columns of table 20.

Students must have access to computers to use them, so this section will begin with a brief overview of the availability of computers to the 10th-grade students in the study. Overall, sophomores had considerable access to computers in 2002. Nearly 90 percent had a computer available at home (table 19a). Computers were even more widely available at school, with 98 percent of students reporting access to a computer at school. However, at least weekly use was less often reported in the school setting (34 percent of those who had access to computers at school) than at home. Eighty-two percent of those who had a computer available at home used it there once or twice a week. One-third of students who reported having computer access at school used it weekly, but about one-quarter reported never using the computer at school. This may indicate a lack of free time in which to access a computer, students' preference for using a computer at home instead of at school, or difficulty gaining access to computers at school. Computer availability at a public library or at a friend's house was widespread, but students were unlikely to use a computer at a public library (73 percent of those with access reported never using a library computer). Similarly, over one-third of those with friends who had a computer never used the friend's computer; an additional 21 percent used it less than once a week at their friend's house. In general, 10th-grade students had access to computers in many locations, but only those who had computers in their homes were likely to spend time on the computer every week (82 percent home use, 34 percent school use, 6 percent library use, 21 percent friend's house use).

There were variations in computer access by student characteristics. Most notably, parents' education, native language, educational expectations, and school sector reflected the greatest differences in home computer access. While three-quarters of sophomores (74 percent) in the lowest SES quartile had a computer at home, almost all (98 percent) of the students in the highest SES quartile had access to a computer at home. Students in the highest SES quartile were also more likely to use their home computers at least once a week than were students in the lowest SES quartile (90 percent versus 72 percent). In fact, students whose family SES fell in the highest quartile had more access to computers in every location examined in the 2002 study than did students in the lowest quartile.

Table 19a. Percentage of high school sophomores who reported that computers were available at home or at school according to frequency of using computers at those locations, by selected student and school characteristics: 2002

Selected student and school characteristics	Computer available at home	Percent who used computer at home[1]			Computer available at school	Percent who used computer at school[2]		
		Never	Less than once a week	At least once or twice a week		Never	Less than once a week	At least once or twice a week
Total	88.8	4.7	13.0	82.4	98.0	26.3	40.2	33.5
Sex								
Male	89.4	5.6	12.5	81.9	97.2	26.6	37.3	36.1
Female	88.2	3.8	13.4	82.8	98.8	25.9	43.0	31.1
Racial/ethnic group								
American Indian or Alaska Native	77.9	8.6	13.9	77.5	97.0	27.6	32.1	40.3
Asian or Pacific Islander	93.8	2.8	8.5	88.7	98.0	29.3	39.3	31.4
Black	78.8	9.4	18.5	72.1	97.2	27.7	36.7	35.6
Hispanic or Latino	77.7	8.2	19.2	72.7	96.2	33.8	35.2	31.0
More than one race	88.2	5.9	16.4	77.7	97.4	27.7	37.5	34.8
White	93.8	3.0	10.6	86.4	98.7	23.8	42.6	33.7
Socioeconomic status								
Lowest quartile	74.4	8.8	19.0	72.1	96.8	27.1	37.8	35.1
Middle two quartiles	91.3	4.6	13.2	82.2	98.3	26.8	40.1	33.0
Highest quartile	97.7	1.6	8.1	90.3	98.6	24.4	42.6	33.1
Parents' education								
High school or less	78.8	8.1	16.8	75.1	97.1	26.4	38.9	34.7
Some college	89.3	4.7	13.5	81.8	98.2	26.8	40.5	32.7
College graduation	94.9	3.1	11.2	85.7	98.6	25.4	41.4	33.2
Graduate/professional degree	96.0	1.8	9.1	89.1	98.4	26.2	40.0	33.9
Native language[3]								
English	90.3	4.5	12.6	82.9	98.4	25.6	40.8	33.6
Non-English	79.2	6.2	15.4	78.4	95.4	30.7	36.2	33.1
Student's educational expectations								
High school or less	75.5	13.6	21.2	65.3	95.4	34.0	36.7	29.4
Some college	83.1	7.6	17.7	74.7	97.7	29.1	37.3	33.7
College graduation	89.5	4.1	12.6	83.4	98.2	25.9	41.1	33.0
Graduate/professional degree	93.4	2.5	10.4	87.2	98.7	22.9	41.3	35.8
Don't know	85.4	6.5	14.4	79.2	97.3	31.0	38.7	30.3
High school program[4]								
General	86.8	5.8	13.9	80.2	97.7	29.0	38.2	32.8
College preparatory	91.1	3.1	11.6	85.3	98.5	24.3	41.9	33.8
Vocational	85.0	8.6	16.3	75.2	96.7	26.1	39.2	34.7

See notes at end of table.

Table 19a. Percentage of high school sophomores who reported that computers were available at home or at school according to frequency of using computers at those locations, by selected student and school characteristics: 2002—Continued

Selected student and school characteristics	Computer available at home	Percent who used computer at home[1]			Computer available at school	Percent who used computer at school[2]		
		Never	Less than once a week	At least once or twice a week		Never	Less than once a week	At least once or twice a week
Composite achievement test score sophomore year								
Lowest quartile	77.7	10.6	20.3	69.1	95.3	31.7	36.3	32.1
Middle two quartiles	90.0	4.1	12.8	83.1	98.7	27.1	40.1	32.8
Highest quartile	97.0	1.1	7.7	91.2	99.3	19.7	44.1	36.3
Sophomore's school sector								
Public	88.1	4.9	13.4	81.8	98.0	26.4	40.7	32.9
Catholic	98.3	1.2	6.8	92.0	98.6	26.2	40.3	33.5
Other private	95.2	4.5	11.0	84.5	97.4	22.6	25.3	52.1
Region of sophomore's school								
Northeast	93.3	3.1	9.7	87.2	97.7	27.4	37.9	34.6
Midwest	89.1	4.3	12.9	82.8	98.8	18.7	42.6	38.7
South	86.7	5.5	13.2	81.3	97.9	29.2	39.8	30.9
West	87.8	5.2	15.5	79.3	97.6	29.1	39.9	31.0
Urbanicity of sophomore's school								
Urban	86.8	5.5	13.7	80.9	96.9	31.0	35.8	33.2
Suburban	89.7	4.6	12.2	83.3	98.5	25.0	42.8	32.2
Rural	89.5	3.7	13.9	82.3	98.3	22.4	40.1	37.5

[1]Percent of sophomores who have a computer available at home.
[2]Percent of sophomores who have a computer available at school.
[3]The first language students learned to speak when they were children.
[4]Students' self-reports of the type of high school program in which they participated.
NOTE: See appendix A for the weighted response rates of all unimputed variables used in this analysis. All race categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

Table 19b. Percentage of high school sophomores who reported that computers were available at a public library or friend's house according to frequency of using computers at those locations, by selected student and school characteristics: 2002

Selected student and school characteristics	Computer available at public library[3]	Percent who used computer at public library[1]			Computer available at friend's house	Percent who used computer at friend's house[2]		
		Never	Less than once a week	At least once or twice a week		Never	Less than once a week	At least once or twice a week
Total	95.2	73.2	21.0	5.8	96.3	39.3	39.4	21.4
Sex								
Male	94.3	74.5	19.8	5.7	95.8	37.9	39.0	23.1
Female	96.2	71.8	22.3	5.9	96.8	40.6	39.7	19.7
Racial/ethnic group								
American Indian or Alaska Native	91.7	67.4	11.8	20.9	97.3	43.5	35.4	21.2
Asian or Pacific Islander	97.0	61.0	32.4	6.6	97.2	39.8	39.8	20.4
Black	95.4	65.1	24.3	10.6	93.2	50.7	30.0	19.4
Hispanic or Latino	93.4	68.0	22.8	9.2	93.4	48.2	33.2	18.6
More than one race	95.8	69.0	22.5	8.5	96.5	38.9	36.4	24.7
White	95.6	77.5	19.1	3.4	97.6	34.5	43.2	22.3
Socioeconomic status								
Lowest quartile	93.0	68.5	22.5	9.1	93.9	45.1	36.1	18.8
Middle two quartiles	95.4	74.8	19.9	5.4	96.2	40.2	38.1	21.8
Highest quartile	97.1	74.3	22.0	3.6	98.6	32.2	44.9	23.0
Parents' education								
High school or less	93.5	71.8	20.8	7.4	94.3	42.9	36.9	20.2
Some college	95.2	74.4	20.0	5.6	96.2	40.9	38.4	20.7
College graduation	96.3	72.0	22.8	5.3	97.8	36.0	40.4	23.6
Graduate/professional degree	96.8	74.4	21.2	4.4	97.5	34.4	44.1	21.5
Native language[4]								
English	95.5	75.0	20.0	5.0	96.7	37.8	40.3	21.9
Non-English	93.8	61.7	27.5	10.8	93.7	48.9	33.2	17.9
Student's educational expectations								
High school or less	90.7	73.7	18.4	7.9	91.2	49.2	31.9	18.9
Some college	93.0	74.2	19.9	5.9	95.7	42.9	35.3	21.9
College graduation	95.5	73.6	20.7	5.7	96.7	37.0	40.9	22.1
Graduate/professional degree	96.9	71.5	22.7	5.8	97.5	36.4	41.7	21.9
Don't know	94.3	76.3	19.0	4.7	94.8	47.0	34.8	18.2
High school program[5]								
General	94.3	76.4	18.2	5.5	95.2	42.0	37.5	20.5
College preparatory	96.3	71.3	23.0	5.7	97.3	36.6	41.9	21.6
Vocational	93.8	70.5	22.1	7.4	95.1	42.5	34.1	23.4

See notes at end of table.

Table 19b. Percentage of high school sophomores who reported that computers were available at a public library or friend's house according to frequency of using computers at those locations, by selected student and school characteristics: 2002—Continued

Selected student and school characteristics	Computer available at public library[3]	Percent who used computer at public library[1]			Computer available at friend's house	Percent who used computer at friend's house[2]		
		Never	Less than once a week	At least once or twice a week		Never	Less than once a week	At least once or twice a week
Composite achievement test score in sophomore year								
Lowest quartile	90.9	67.6	22.1	10.2	91.8	47.0	31.7	21.4
Middle two quartiles	96.0	74.9	19.9	5.3	97.2	39.2	39.0	21.8
Highest quartile	98.0	74.8	22.3	2.9	98.8	32.6	47.0	20.4
Sophomore's school sector								
Public	95.2	73.0	21.1	5.9	96.1	39.8	39.0	21.2
Catholic	97.2	75.6	21.2	3.3	98.6	29.9	45.7	24.4
Other private	95.1	74.3	20.1	5.5	97.8	38.6	40.4	21.1
Region of sophomore's school								
Northeast	95.6	73.1	21.9	5.0	96.8	32.8	40.7	26.5
Midwest	94.7	71.4	22.3	6.3	96.3	36.7	43.3	20.0
South	95.7	74.4	20.1	5.5	96.3	40.7	37.7	21.6
West	95.0	73.3	20.4	6.3	95.8	45.2	36.5	18.3
Urbanicity of sophomore's school								
Urban	95.1	67.4	24.6	8.1	95.1	41.4	37.1	21.6
Suburban	95.6	74.8	20.4	4.7	96.8	38.5	39.6	21.9
Rural	94.5	77.6	17.3	5.1	96.5	38.1	42.2	19.8

[1]Percent of sophomores who have a computer available at a public library.
[2]Percent of sophomores who have a computer available at a friend's house.
[3]For activities other than catalog searches.
[4]The first language students learned to speak when they were children.
[5]Students' self-reports of the type of high school program in which they participated.
NOTE: See appendix A for the weighted response rates of all unimputed variables used in this analysis. All race categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

Table 20. Average number of hours per day high school sophomores used a computer for school or nonschoolwork and percentage who reported using a computer at least once or twice per week for various purposes, by selected student and school characteristics: 2002

Selected student and school characteristics	Average number of hours a day using computer for		Percentage using a computer at least once or twice per week for		
	School-work	Nonschool-work	Fun	Schoolwork or assignments	Learning things of interest to me on my own
Total	1.2	2.2	74.0	47.9	42.4
Sex					
Male	1.1	2.3	74.7	42.6	45.3
Female	1.2	2.1	73.3	53.2	39.4
Racial/ethnic group					
American Indian or Alaska Native	1.1	2.2	71.5	39.8	37.3
Asian or Pacific Islander	1.4	2.5	80.3	61.9	51.2
Black	1.4	2.2	61.7	42.4	44.3
Hispanic or Latino	1.3	2.1	60.8	42.2	39.6
More than one race	1.1	2.3	70.4	45.6	42.1
White	1.1	2.2	80.0	49.9	42.1
Socioeconomic status					
Lowest quartile	1.2	2.1	59.9	38.3	37.8
Middle two quartiles	1.1	2.3	75.5	45.6	41.8
Highest quartile	1.2	2.2	84.7	61.6	47.9
Parents' education					
High school or less	1.1	2.1	63.5	38.8	37.5
Some college	1.1	2.2	74.0	45.4	42.1
College graduation	1.2	2.2	80.4	53.5	45.0
Graduate/professional degree	1.2	2.2	82.8	60.7	47.5
Native language[1]					
English	1.1	2.2	75.5	47.9	42.4
Non-English	1.4	2.3	64.3	47.7	41.9
Student's educational expectations					
High school or less	0.9	1.9	52.0	20.2	28.6
Some college	1.0	2.2	64.9	34.4	38.5
College graduation	1.2	2.2	76.6	47.4	41.8
Graduate/professional degree	1.3	2.2	79.8	61.7	48.3
Don't know	1.0	2.1	70.0	35.0	37.3
High school program[2]					
General	1.0	2.2	71.9	39.8	37.8
College preparatory	1.2	2.2	77.2	55.7	45.2
Vocational	1.2	2.3	66.4	39.6	45.2

See notes at end of table.

Table 20. Average number of hours per day high school sophomores used a computer for school or nonschoolwork and percentage who reported using a computer at least once or twice per week for various purposes, by selected student and school characteristics: 2002—Continued

Selected student and school characteristics	Average number of hours a day using computer for		Percentage using a computer at least once or twice per week for		
	School-work	Nonschool-work	Fun	Schoolwork or assignments	Learning things of interest to me on my own
Composite achievement test score in sophomore year					
Lowest quartile	1.2	2.1	57.4	36.1	36.3
Middle two quartiles	1.2	2.3	76.0	45.9	42.1
Highest quartile	1.1	2.1	86.1	63.0	48.7
Sophomore's school sector					
Public	1.1	2.2	73.2	46.4	42.1
Catholic	1.3	2.2	88.2	68.3	48.4
Other private	1.3	2.0	77.3	62.0	42.7
Region of sophomore's school					
Northeast	1.3	2.5	81.2	54.6	46.1
Midwest	1.1	2.1	74.7	47.4	40.5
South	1.1	2.2	72.7	43.0	42.4
West	1.2	2.1	69.4	50.2	41.2
Urbanicity of sophomore's school					
Urban	1.3	2.2	71.8	50.4	44.5
Suburban	1.1	2.2	74.8	48.0	42.0
Rural	1.0	2.2	75.2	43.8	40.0

[1]The first language students learned to speak when they were children.
[2]Students' self-reports of the type of high school program in which they participated.
NOTE: See appendix A for the weighted response rates of all unimputed variables used in this analysis. All categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

On average, the 10th-graders in the survey used a computer for about 1 hour daily for schoolwork and an additional 2 hours daily for nonschoolwork, as shown in table 20. Three-quarters (74 percent) used a computer at least once a week for pleasure; 48 percent used a computer once a week or more for schoolwork; and 42 percent indicated that they used a computer for learning things of interest to them at least once each week. Clearly, computer use is a major part of the daily life of most 10th-grade students.

5.4.1 Differences in Computer Use by Sex

Research on sex differences in computing is inconsistent, with some studies showing a difference in proficiency, and some detecting no differences (Volman and van Eck 2001; Freeman 2004). The ELS:2002 data show that more female sophomores than male sophomores (53 percent versus 43 percent) reported using a computer to do schoolwork. In terms of hours per day spent on the computer doing schoolwork, the mean for females was 1.2 hours and for males 1.1 hours, a difference that was statistically but not substantively significant. Females

were less likely than males to use a computer on a weekly basis to learn things of interest to them (39 percent versus 45 percent).

5.4.2 Differences in Computer Use by Racial/Ethnic Group

Racial/ethnic differences emerged as well. White and Asian students were more likely than Hispanic, Black, or American Indian students to use computers once weekly for schoolwork or assignments. As shown in table 19a, racial/ethnic groups did not have equal access to computers. In 2002, 79 percent of Black and 78 percent of Hispanic sophomores had a computer at home, compared with 94 percent of White and Asian sophomores. Furthermore, nearly all 10th-graders had access to a computer at school. There was little variation by race. Proportions with school computer access were 99 percent (White sophomores), 97 percent (Black sophomores), and 96 percent (Hispanic sophomores). While the difference between White students and Black and Hispanic students was statistically significant, it was not substantively significant, supporting the finding of little variation in access.

5.4.3 Differences in Computer Use by Parental Education Level

The frequency with which students used computers for fun and for schoolwork or assignments varied by parents' education (table 20). Sophomores whose parents had college or advanced degrees were more likely than students whose parents were less educated to use computers on at least a weekly basis at home, school, or someplace else for fun (80–83 percent versus 64–74 percent, respectively) and for schoolwork (54–61 percent versus 39–45 percent, respectively). Students whose parents' highest level of educational attainment was a high school diploma or less were less likely than those with more educated parents to use the computer regularly for learning things on their own (38 percent versus 42–48 percent, respectively). A similar pattern is evident in computer ownership, as shown in table 19a.

5.4.4 Differences in Computer Use by Native Language

Students whose first language was not English were less likely to use a computer for fun on a weekly basis than were native-English speakers (table 20). About three-quarters (76 percent) of 10th-graders whose first language was English reported using the computer for fun every week, compared with 64 percent of non-native-English speakers. However, there were no discernible differences between native- and non-native-English speakers in terms of weekly computer use for schoolwork (both 48 percent) or for independently learning things of interest (both 42 percent).

5.4.5 Differences in Computer Use by Educational Expectations

Tenth-graders in 2002 used computers differently based on their educational expectations. The higher the level of education the student aspired to attain, the more likely the student was to use a computer once or twice each week for fun or for schoolwork. Among 10th-graders who expected to attain a high school diploma or less, 52 percent used a computer for fun, compared with 65 percent who expected to attend some college, 77 percent who anticipated that they would complete college, and 80 percent who intended to complete a graduate or professional degree. One-fifth of 10th-graders surveyed who expected to achieve no more than high school completion used a computer weekly for school assignments, while between 34 and

47 percent of students expecting to attend or complete college did so, and 62 percent of students who expected to earn a graduate or professional degree did so.

5.4.6 Differences in Computer Use by Tested Achievement

A similar pattern was detected in composite achievement test scores in 10th grade. The higher a sophomore's score on the achievement test, the more likely he or she was to use the computer for fun, for schoolwork or assignments, and for learning things of interest independently. Among sophomores who scored in the lowest quartile on the achievement test, 57 percent used a computer for fun once per week, 36 percent used a computer for schoolwork, and 36 percent used a computer for learning things of interest independently. In contrast, 86 percent of students scoring in the highest quartile used a computer for fun, 63 percent for schoolwork, and 49 percent for learning independently.

5.5 Summary

This chapter has focused on how high school sophomores used their time outside of regular school hours in the 2001–02 school year. Specifically, five activities were examined: school-sponsored extracurricular activities, reading not assigned by the school, doing homework, working for pay while in school and computer use. Those who were employed worked an average of 15 hours per week. Students spent about 5 hours per week on homework in school and 6 hours outside of school. Homework time varied by characteristics such as sex, racial/ethnic group, parents' level of education, student expectations, high school program, and achievement test scores. Students also spent 1 hour daily using the computer for schoolwork and 2 hours for nonschoolwork.

As was the case with homework time, however, the percentage of 10th-graders who reported using a computer at least once weekly for fun, schoolwork, or independent learning varied considerably by student characteristics. Although nearly universally available to sophomores at school, the availability of computers at home varied greatly (e.g., availability of a computer at home ranged from 79 percent for those whose parents' highest educational attainment was high school or less to 89 percent for "some college," 95 percent for college graduates, and 96 percent when a parent had a graduate or professional degree).

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Chapter 6
Tested Achievement—the Reading and Mathematics Proficiency of the High School Sophomore Class of 2002

The Education Longitudinal Study of 2002 (ELS:2002) assessment battery measured 10th-grade students' achievement status in two key areas, reading and mathematics.

The focus of this chapter is the tested achievement in reading and mathematics of 10th-graders in the spring term of 2002, using measures of student subject matter *proficiency*. Various proficiency levels are defined to form a hierarchy that provides measures of what students can do, in terms of specific demonstrated skills, knowledge, and other cognitive behaviors indicative of subject matter mastery.

6.1 Probabilities of Proficiency

In earlier chapters of this report, a composite test score—combining results in assessments of mathematics and reading—was employed to help analyze a number of ELS:2002 questionnaire items. The composite test score divided the sophomore cohort into quartiles of high, medium (two combined quartiles), and low performance. The quartile scores are normative, that is, they demonstrate how 10th-graders (or particular subgroups of 10th-graders) compare with their peers (or other subgroups of 10th-graders).

In contrast, the test score reported in this chapter, called a proficiency score, is a criterion-referenced measure, that is, it indicates specific skills students have or, put another way, whether they have mastered a particular body of curricular material.[40] The proficiency levels, by identifying a student's mastery of specific instances of knowledge and skills that mark ascending critical points on the developmental growth curve, serve a dual function. First, they provide an interpretation, in terms of what the student can or cannot do, of what a particular attained score means. Additionally, when information is gathered at more than one timepoint (as will be the case for ELS:2002 mathematics), they provide a basis for measuring and understanding achievement gain.

The proficiency scores are presented separately for mathematics and reading. For each subject, distinct levels of skills are arrayed in a hierarchy. For example, there are three proficiency levels in reading. The lowest level of reading skill, level 1, represents simple reading comprehension. Sophomores proficient at this level demonstrate skill in simple reading comprehension, including reproduction of detail or the author's main thought. Sophomores not proficient at this level typically cannot comprehend an 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.

[40] For further explanation of the composite test quartile and the reading and mathematics proficiency scores, see the glossary for this report (appendix A). For additional detail, and information about test development, item response theory (IRT) scaling, and psychometric properties of the scores, see Ingels et al. (2004).

In mathematics, there are five proficiency levels. The lowest, level 1, represents the ability to perform simple arithmetical operations on whole numbers. Level 2 is the ability to carry out simple operations with decimals, fractions, powers, and roots. Level 3 is the ability to perform simple problem solving, requiring an understanding of low-level mathematical concepts. Level 4 is the understanding of intermediate-level mathematical concepts and/or having the ability to formulate multistep solutions to word problems. Level 5 is the highest level of proficiency and reflects skill in solving complex multistep word problems and/or the ability to demonstrate knowledge of material found in advanced mathematics courses.

This chapter examines the following five basic questions:

- What proportion of sophomores, overall and by subgroup, have achieved mastery at each of the three levels of reading proficiency?
- What proportion of sophomores, overall and by subgroup, have achieved mastery at each of the five levels of mathematics proficiency?
- To what extent do racial/ethnic differences in test results persist, when SES is taken into account?
- To what extent do racial/ethnic differences persist, when educational expectations are taken into account?
- How greatly do males and females within racial/ethnic groups differ in their achievement?

All comparisons have been tested both for statistical significance (with a probability criterion of .05) and for substantive significance (with an effect size criterion of .20).[41] An effect size, or standardized mean difference, employs a metric of standard deviation units. Appendix A contains further information about measures of substantive significance.

6.2 Results in Reading Proficiency Overall and by Various Characteristics

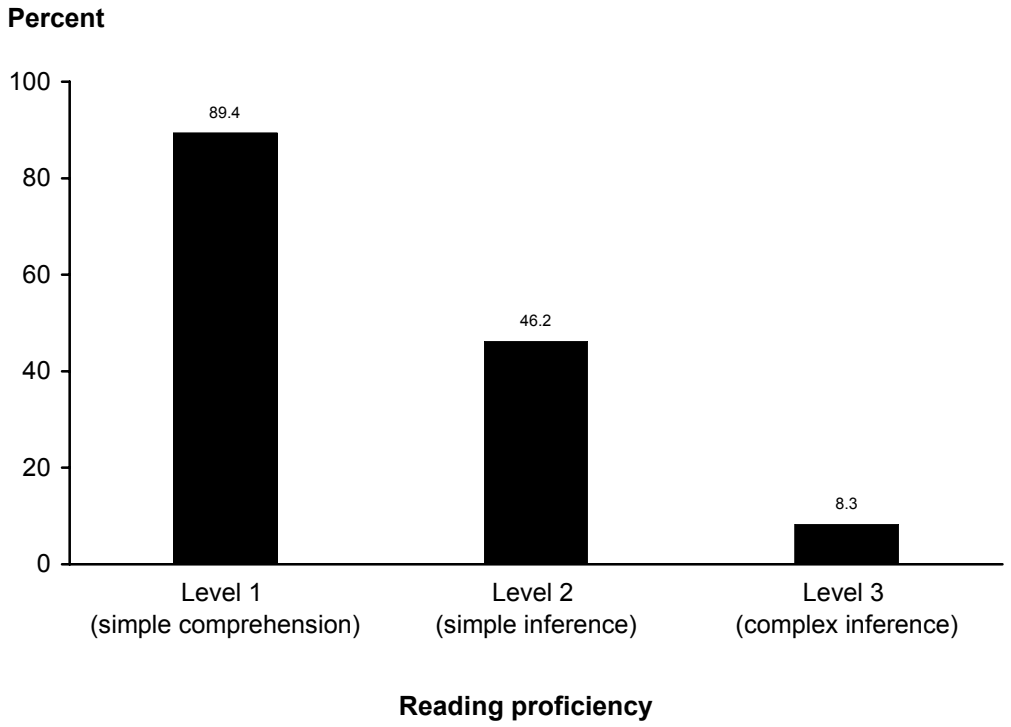
6.2.1 Reading Differences Overall

Figure 25 illustrates the reading proficiency of 2002 high school sophomores. (Note that the three columns are not additive across; each column makes a statement about the entire cohort.) Table 21 shows the percentage of 10th-graders demonstrating proficiency in reading, both overall and by various student, family, and school characteristics. Overall, 89 percent of sophomores showed mastery of simple reading comprehension, including reproduction of detail and/or the author's main thought. (In turn, 11 percent of spring term 2002 high school sophomores were unable to demonstrate even simple reading comprehension.) Under half (46 percent) of 10th-graders were at level 2 (ability to make relatively simple inferences beyond the

[41] Appendix B supplies standard deviations for all estimates of mean achievement. These may be used to compute effect sizes for any relationship presented in the chapter 6 tables. In addition, the number of sample observations for each estimate is reported in the appendix B tables, for the benefit of readers who might want to calculate effect sizes using the pooled standard deviation.

author's main thought and/or understand and evaluate abstract concepts).[42] Eight percent of sophomores were able to demonstrate mastery at level 3 (ability to make complex inferences or evaluative judgments that require piecing together multiple sources of information from the passage).

Figure 25. Percentage of high school sophomores, by demonstrated reading proficiency: 2002



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

The following sections discuss differences in reading proficiency levels according to important student background and school characteristics. Some differences between males and females were detected. The data show discernible patterns of differences in a number of areas, particularly differences by racial/ethnic group, SES (and, relatedly, parental education), student educational expectations, native language, family composition, high school program, and school sector.

[42] Because nearly 90 percent of students are proficient at level 1 reading, commentary is directed toward performance at levels 2 and 3, except to point out some instances in which a particular subgroup has a comparatively large proportion of individuals who fall *below* level 1 (simple comprehension).

Table 21. Percentage of high school sophomores demonstrating proficiency in specific reading knowledge and skills, by student, family, and school characteristics: 2002

Selected student, family, and school characteristics	Level 1[1]	Level 2[2]	Level 3[3]
Total	89.4	46.2	8.3
Sex			
Male	87.6	44.2	8.1
Female	91.3	48.2	8.5
Racial/ethnic group			
American Indian or Alaska Native	85.7	32.1	1.0
Asian or Pacific Islander	90.6	47.1	9.4
Black	81.6	25.3	1.8
Hispanic or Latino	79.2	28.0	2.8
More than one race	90.7	43.6	7.2
White	93.9	56.3	11.4
Socioeconomic status			
Lowest quartile	80.7	26.2	2.5
Middle two quartiles	90.4	45.2	6.3
Highest quartile	96.2	68.0	17.9
Parents' education			
High school or less	83.5	30.5	3.0
Some college	89.8	43.6	6.1
College graduation	92.5	56.2	11.5
Graduate/professional degree	94.5	65.0	17.7
Student's educational expectations			
High school or less	69.8	15.5	0.8
Some college	82.7	27.1	2.1
College graduation	91.6	46.4	7.3
Graduate/professional degree	95.2	61.9	13.6
Don't know	84.0	34.2	5.6
Native language[4]			
English	91.5	49.2	9.0
Non-English	76.8	27.6	3.8
Family composition			
Mother and father	91.9	52.1	10.6
Mother or father and guardian	87.5	41.4	6.0
Single parent (mother or father)	86.0	37.9	5.1
Other[5]	82.3	29.9	3.2
High school program[6]			
General	87.1	38.5	4.8
College preparatory	92.6	55.6	12.1
Vocational	83.1	29.3	2.8

See notes at end of table.

Table 21. Percentage of high school sophomores demonstrating proficiency in specific reading knowledge and skills, by student, family, and school characteristics: 2002—Continued

Selected student, family, and school characteristics	Level 1[1]	Level 2[2]	Level 3[3]
Sophomore's school sector			
Public	88.9	44.5	7.6
Catholic	97.6	68.3	15.6
Other private	94.8	65.0	17.6
Region of sophomore's school			
Northeast	91.7	52.3	10.3
Midwest	90.5	48.6	9.0
South	89.3	44.1	7.6
West	86.6	42.0	7.0
Urbanicity of sophomore's school			
Urban	86.9	42.0	7.9
Suburban	90.3	47.9	8.5
Rural	91.2	48.2	8.3

[1]Simple reading comprehension, including reproduction of detail and/or author's main thought.
[2]Ability to make relatively simple inferences beyond the author's main thought and/or understand and evaluate abstract concepts.
[3]Ability to make complex inferences or evaluative judgments that require piecing together multiple sources of information from the passage.
[4]The first language students learned to speak when they were children.
[5]Other includes two guardians, female guardian only, male guardian only, and guardian who lives with the student less than half of the time.
[6]Students' self-report of the type of high school program in which they were enrolled.
NOTE: Proficiency is reported at the group level by calculating the mean of the probability scores in the given area. Since the means are in decimal form on a 0 to 1 scale, they represent the proportions of members of a subgroup falling within a proficiency level and have been treated as percentages in the presentation above. All race categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

6.2.2 Reading Differences by Sex

Females were statistically more likely to be proficient in reading at levels 1 and 2, although the differences were not substantively significant (table 21). About 91 percent of females demonstrated proficiency at level 1 (simple reading comprehension) versus 88 percent of males; at level 2 (simple inference), about 48 percent of females demonstrated proficiency in reading and 44 percent of males did so.

6.2.3 Reading Differences by Racial/Ethnic Group

Whites and Asians were more likely than Blacks or Hispanics to be proficient in reading at all three levels (table 21). All 12 relationships showed a statistically significant difference, as well as a substantive difference. Effect sizes ranged from .32 to .83.[43] At level 2, some 56 percent of White and 47 percent of Asian sophomores were proficient, compared to 25 percent of Black and 28 percent of Hispanic sophomores. At level 3 (complex inference), attained by only 8 percent of sophomores, Asian 10th-graders were four times more likely to be proficient than

[43] Generally speaking (see Cohen [1988] and Seastrom [2003]), .20 is regarded as the threshold for a small effect, .50 for a medium effect, and .80 for a large effect.

were Black 10th-graders (9 percent for Asians, 2 percent for Blacks). Three percent of Hispanic sophomores showed mastery at the level of complex inference in reading, compared to 11 percent for Whites.

6.2.4 Reading Differences by SES and Parental Education Level

Level of family SES is associated with reading results (table 21). Some 26 percent of sophomores from the lowest SES quartile were proficient at level 2 (simple inference), compared to 68 percent of sophomores from the highest SES quartile. At level 3 (complex inference), the difference between the low and high SES quartiles was 15 percentage points, from 3 percent (low) to 18 percent (high). Parental education is one of the components of SES, so it is no surprise to see similar patterns when highest level of parental education is considered. Sophomores whose parents completed high school or less were less than half as likely to be proficient at drawing simple inferences in reading than were sophomores with a parent who held a graduate or professional degree (31 percent for high school or less, 65 percent for graduate/professional degree).

6.2.5 Reading Differences by Students' Educational Expectations

Students with higher educational expectations were more likely to be proficient in reading at higher levels (table 21). For example, those who expected to complete college and go no further were more likely to be proficient in complex inference (reading level 3) than those who expected to attend college but to receive less than a 4-year degree (7 percent versus 2 percent). Those who expected to go on to get a postbaccalaureate graduate or professional degree were more likely to be proficient at level 3 than were those sophomores who expected to stop with a high school diploma or equivalency certificate or less (14 percent versus 1 percent).

6.2.6 Reading Differences by Native Language and Family Composition

Sophomores whose first language was not English were less likely to be proficient at various levels of reading than were sophomores whose native language was English (table 21). About half (49 percent) of those whose first language was English were proficient at level 2 (simple inference), compared to about 28 percent of those whose native language was not English. At level 1 (simple comprehension), where 92 percent of the native-English-speaking cohort were proficient, just 77 percent of sophomores from a non-English home language background were proficient. This means that 23 percent of 10th-graders from a non-English background had not mastered the lowest proficiency level, simple English-language reading comprehension.

Tenth-graders from single-parent households scored lower in reading than 10th-graders from families with two biological parents present. For example, 52 percent of sophomores living in traditional mother-father families were proficient at level 2 (simple inference), compared to 38 percent of those from a single-parent family.

6.2.7 Reading Differences by High School Program and Sector

Program and sector differences were detected. Some 56 percent of sophomores in college preparatory programs were proficient in making simple inferences (level 2) on the basis of their reading, compared to 29 percent in the vocational track. Students in Catholic and other

private schools were more likely to be proficient than students in public schools. For example, at level 2 (simple inference), 68 percent of Catholic and 65 percent of other private school 10th-graders were proficient, as compared to 45 percent of public school 10th-graders.

6.3 Results in Mathematics Proficiency Overall and by Various Characteristics

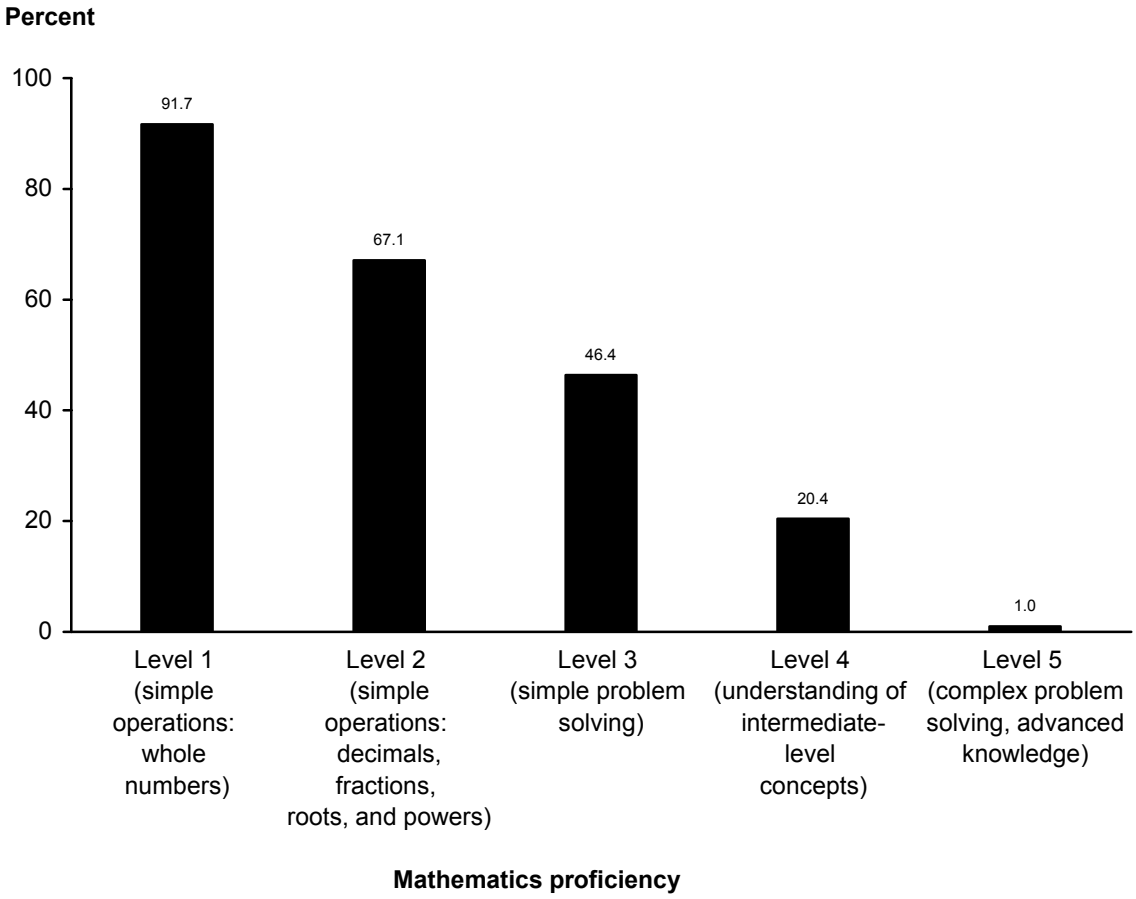
6.3.1 Mathematics Differences Overall

Figure 26 illustrates the mathematics proficiency of 2002 sophomores. Table 22 shows the percentage of 10th-graders demonstrating various levels of proficiency in mathematics, by various student, family, and school characteristics. Overall, 92 percent of sophomores were able to perform simple arithmetical operations on whole numbers. (In turn, 8 percent of 2002 sophomores were unable to perform simple arithmetical operations on whole numbers.) About two-thirds (67 percent) could perform simple operations with decimals, fractions, powers, and roots. Fewer than half (46 percent), however, could perform simple problem solving that involved the understanding of low-level mathematical concepts. At level 4, one-fifth (20 percent) were proficient, that is, could understand intermediate-level mathematical concepts and/or demonstrate ability to formulate multistep solutions to word problems. Level 5 involves solving complex multistep word problems and mastery of material found in advanced mathematics courses. Since few sophomores have yet taken advanced courses (such as precalculus and calculus), it is not surprising that few showed mastery at this level—just 1 percent of sophomores were proficient at level 5.

At the level of the various subgroups that represent selected student, family, and school characteristics, there are many differences. It may be of interest to focus in particular on two proficiency levels: level 3 (ability to perform simple problem solving, requiring an understanding of low-level mathematical concepts, a skill level reached by 46 percent of the cohort) and level 4 (understanding of intermediate-level mathematical concepts and/or having the ability to formulate multistep solutions to word problems, a skill level achieved by 20 percent of the cohort).[44]

[44] Since level 1 math was achieved by about 92 percent of the cohort and level 2 by 67 percent, the levels do not distinguish high achievers. Level 5, on the other hand, was reached by 1 percent of the cohort and therefore tells us only about the most extraordinarily talented of mathematics students. Commentary is therefore directed at levels 3 and 4, which also provide rough parallels to reading levels 2 and 3. Level 5 in mathematics will become more important to analysis (both of status and gain) in the 2004 round, when most cohort members were seniors and many had taken advanced math coursework.

Figure 26. Percentage of high school sophomores, by demonstrated mathematics proficiency: 2002



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

Table 22. Percentage of high school sophomores demonstrating proficiency in specific mathematics knowledge and skills, by student, family, and school characteristics: 2002

Selected student, family, and school characteristics	Level 1[1]	Level 2[2]	Level 3[3]	Level 4[4]	Level 5[5]
Total	91.7	67.1	46.4	20.4	1.0
Sex					
Male	91.7	68.4	48.0	22.4	1.4
Female	91.6	65.7	44.7	18.5	0.6
Racial/ethnic group					
American Indian or Alaska Native	90.2	53.4	27.8	5.1	0.1
Asian or Pacific Islander	95.2	77.6	60.2	31.7	4.0
Black	83.8	42.3	19.4	4.7	0.1
Hispanic or Latino	83.7	46.9	25.5	8.8	0.3
More than one race	90.6	65.4	41.7	16.4	0.7
White	95.5	77.9	58.0	27.0	1.2
Socioeconomic status					
Lowest quartile	84.5	46.4	25.1	7.6	0.2
Middle two quartiles	92.5	67.8	44.7	17.7	0.5
Highest quartile	97.1	86.2	70.9	38.7	2.6
Parents' education					
High school or less	87.4	52.0	29.5	9.8	0.2
Some college	91.6	65.9	42.9	16.4	0.4
College graduation	94.3	76.1	56.6	27.4	1.2
Graduate/professional degree	95.6	82.9	68.8	38.0	3.1
Student's educational expectations					
High school or less	77.6	32.4	13.2	3.1	0.0
Some college	85.7	48.3	23.9	6.5	0.1
College graduation	93.6	70.1	47.5	19.4	0.6
Graduate/professional degree	95.9	80.9	63.1	31.7	1.9
Don't know	87.5	54.4	32.9	12.7	0.6
Native language[6]					
English	93.0	69.9	49.0	21.7	0.9
Non-English	83.8	49.7	30.1	12.6	1.1
High school program[7]					
General	89.6	59.2	36.3	13.6	0.4
College preparatory	94.3	76.4	57.5	27.7	1.5
Vocational	87.1	51.2	29.8	10.6	0.3
Family composition					
Mother and father	93.8	73.6	53.7	25.4	1.3
Mother or father and guardian	90.6	62.8	39.5	15.3	0.5
Single parent (mother or father)	88.6	57.0	36.3	14.1	0.6
Other[8]	84.3	49.1	27.9	8.3	0.6

See notes at end of table.

Table 22. Percentage of high school sophomores demonstrating proficiency in specific mathematics knowledge and skills, by student, family, and school characteristics: 2002—Continued

Selected student, family, and school characteristics	Level 1[1]	Level 2[2]	Level 3[3]	Level 4[4]	Level 5[5]
Sophomore's school sector					
Public	91.2	65.6	44.6	19.4	0.9
Catholic	97.9	86.4	68.4	31.8	1.3
Other private	96.3	83.1	67.2	35.3	2.6
Region of sophomore's school					
Northeast	93.0	72.7	53.8	24.8	1.0
Midwest	92.5	68.6	48.2	21.9	0.9
South	91.4	65.5	43.8	18.2	0.9
West	90.3	63.2	42.2	18.8	1.1
Urbanicity of sophomore's school					
Urban	89.2	60.8	40.4	17.5	0.9
Suburban	92.6	69.5	49.5	22.0	1.0
Rural	93.3	70.4	47.5	21.0	0.8

[1]Math level 1: Simple arithmetical operations on whole numbers: essentially, single-step operations that rely on rote memory.
[2]Math level 2: Simple operations with decimals, fractions, powers, and roots.
[3]Math level 3: Simple problem solving, requiring the understanding of low-level mathematical concepts.
[4]Math level 4: Understanding of intermediate-level mathematical concepts and/or having the ability to formulate multistep solutions to word problems.
[5]Math level 5: Proficiency in solving complex multistep word problems and/or the ability to demonstrate knowledge of mathematics material found in advanced mathematics courses.
[6]The first language students learned to speak when they were children.
[7]Students' self-report of the type of high school program in which they participated.
[8]Other includes two guardians, female guardian only, male guardian only, and guardian who lives with the student less than half of the time.
NOTE: Proficiency is reported at the group level by calculating the mean of the probability scores in the given area. Since the means are in decimal form on a 0 to 1 scale, they represent the proportions of members of a subgroup falling within a proficiency level and have been turned into percentages in the presentation above. All race categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

6.3.2 Mathematics Differences by Sex

In contrast to reading proficiency, males were statistically more likely to be proficient in mathematics at levels 2 through 4,[45] although the differences were not substantively significant. Sixty-eight percent of males demonstrated proficiency at level 2 (operations with decimals, fractions, roots, and powers), 48 percent at level 3 (mastery of simple problem solving), and 22 percent at level 4 (understanding of intermediate-level mathematical concepts). For females, the comparable percentages of proficiency were 66 percent at level 2, 45 percent at level 3, and 19 percent at level 4. Ninety-two percent of both females and males demonstrated proficiency at level 1 mathematics (simple arithmetic operations). The picture of male-female differences drawn from the ELS:2002 is consistent with that of prior nationally representative assessment

[45] Overall, at the highest level (5), 1.4 percent of males and 0.6 percent of females were proficient; however, owing to the tiny proportion of students who achieved this level, level 5 was not used in this analysis.

samples as described by Hedges and Nowell (1995). Hedges and Nowell note that while male and female test means in math are similar, male scores are more variable, with males more likely to fall in the tails of the distribution. Hence, males substantially outnumber females at the highest and lowest levels of performance, even though average performance is similar.

6.3.3 Mathematics Differences by Racial/Ethnic Group

When mathematics performance is considered in light of race and Hispanic ethnicity, Asian and White 10th-graders demonstrate greater likelihood of reaching level 3 or level 4 than do Black or Hispanic 10th-graders. Specifically, 60 percent of Asian sophomores and 58 percent of White sophomores were proficient at level 3 (mastery of simple problem solving), compared to 19 percent of Black sophomores and 26 percent of Hispanic sophomores. In terms of level 4 (understanding of intermediate-level mathematical concepts), 32 percent of Asians had reached this level as had 27 percent of Whites, compared to 5 percent of Blacks and 9 percent of Hispanics.

6.3.4 Mathematics Differences by SES and Parental Education Level

Proportions of sophomores proficient at level 3 increase with higher SES. Some 25 percent of 10th-graders in the lowest SES quartile were proficient in the simple problem-solving skills that mark level 3, while 45 percent of those in the two middle quartiles and 71 percent of those in the highest quartile were proficient. The same pattern is seen for level 4. Eight percent of sophomores in the lowest quartile were proficient at understanding intermediate-level mathematical concepts, while 18 percent of those in the middle quartiles and 39 percent of those in the highest SES quartile were proficient.

Similar results are seen for parent education. The likelihood of being proficient at level 4 (understanding of intermediate-level mathematical concepts) is 38 percent for students with a parent who holds a graduate or professional degree and 10 percent for students with parents whose educational attainment is marked by a high school diploma or less. Even the difference between having a parent with some college and a parent whose education ended with a 4-year college degree is quite marked: for example, level 4 proficiency can be attributed to 27 percent of sophomores with a parent whose highest attainment was a 4-year degree, compared to 16 percent for sophomores with a parent who attended college but did not graduate from a 4-year program.

6.3.5 Mathematics Differences by Students' Educational Expectations

Not surprisingly, higher probabilities of mathematics proficiency are systematically associated with higher educational expectations. In fact, 22 percent of those who aspired to a high school diploma or less did not display proficiency at level 1, that is, over one-fifth of sophomores with the lowest educational expectations were unable to perform simple arithmetical operations. Even for students who expected to complete some college (a 2-year diploma or qualification, or anything less than a 4-year degree), 14 percent failed to show level 1 proficiency, that is, they had not mastered simple arithmetical operations. At level 3, 13 percent of those who expected to get a high school diploma or less had achieved mastery of simple problem solving, as had 24 percent of those who expected to complete some college—compared to 48 percent of those who expected to graduate from college and 63 percent of those who expected to obtain a graduate or professional degree. At level 4, a similar pattern may be

observed. For example, 32 percent of those who expected a graduate or professional degree, compared to 7 percent of those who expected to complete some college but less than a 4-year degree, were proficient in understanding intermediate-level mathematical concepts. Again, while 32 percent of sophomores who expected to obtain a graduate or professional degree had mastered intermediate mathematical concepts, 3 percent of those who expected to complete no more than high school had done so.

6.3.6 Mathematics Differences by High School Program and Sector

Differences in mathematics achievement are also seen by school sector and locale. For example, at level 3 (simple problem solving), 45 percent of public school sophomores were proficient, contrasted to 68 percent of Catholic and 67 percent of other private school sophomores. At level 4 (understanding of intermediate-level mathematical concepts), 19 percent of public school 10th-graders were proficient, compared to 32 percent of Catholic and 35 percent of other private school sophomores.

6.3.7 Summary

The analyses above suggest three further areas for analysis, which will be pursued later in this chapter:

- The large observed mathematics proficiency differences by both racial/ethnic group and SES suggest the desirability of looking at these two covarying factors simultaneously.
- It may also be of interest to examine mathematics achievement in terms of racial/ethnic group and postsecondary education expectations simultaneously. Racial and ethnic differences in expectations would appear to be much smaller than racial differences in achievement. One would therefore want to know to what extent there are differences in achievement for different racial/ethnic groups within the same level of educational expectations.
- Although differences by sex in 10th-grade reading and mathematics achievement are not substantively significant (though statistically significant), it is of interest to determine whether there is an interaction between sex and racial/ethnic group.

Tables 25 through 30 investigate these three questions, using both reading and mathematics proficiency results. Before turning to those tables, tables 23 (reading) and 24 (mathematics) suggest some additional student behavioral factors that may be related to tested achievement.

6.4 Reading and Mathematics Achievement by Student Behaviors

6.4.1 Reading Results by Student Behaviors

Table 23 shows reading proficiency levels in relation to hours of outside reading per week, hours of English homework completed each week, importance placed on good grades, whether the student came to class with the required textbook and with homework completed, and whether the student cut classes in the first term of the school year. Students who did reading outside school not connected with their school assignments were more likely to be proficient in

Table 23. Percentage of high school sophomores demonstrating proficiency in specific reading knowledge and skills, by selected behavioral characteristics: 2002

Selected characteristics	Level 1[1]	Level 2[2]	Level 3[3]
Total	89.4	46.2	8.3
Hours of outside reading per week			
None	87.8	38.3	4.3
1–4	91.9	49.4	9.1
5 or more	92.2	56.6	13.6
Hours of English homework per week			
None	85.5	38.3	5.7
1–4	90.9	47.9	9.0
5 or more	91.6	49.8	8.9
Importance placed on good grades			
Not important	78.0	34.4	8.7
Somewhat important	87.4	38.9	5.2
Important	89.9	43.4	6.3
Very important	90.6	51.1	10.6
Ever come to class without books			
Usually	78.0	28.9	4.3
Often	80.6	34.4	7.0
Seldom or never	91.6	49.5	9.1
Ever come to class without homework done			
Usually	78.6	33.4	4.5
Often	86.0	38.7	6.5
Seldom or never	91.9	49.9	9.5
I cut or skipped classes first semester			
Never	91.0	50.7	10.2
1–2 times	87.0	39.1	4.8
3–6 times	87.5	37.1	5.1
7 or more times	79.2	27.5	3.7

[1]Simple reading comprehension, including reproduction of detail and/or author's main thought.
[2]Ability to make relatively simple inferences beyond the author's main thought and/or understand and evaluate abstract concepts.
[3] Ability to make complex inferences or evaluative judgments that require piecing together multiple sources of information from the passage.
NOTE: See appendix A for the weighted response rates of all unimputed variables used in this analysis.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

drawing simple and complex inferences from their reading. At level 2 (simple inference), 38 percent of those who did no outside reading were proficient, compared to 57 percent of those who read for 5 or more hours a week. At level 3 (complex inference), 4 percent of those who did not read outside of class were proficient, compared to 14 percent of those who read 5 hours or more. There were also differences in reading proficiency between students who, through various behaviors, showed motivation to learn and those who did not. For example, of those who usually came to class without their textbooks, 29 percent were proficient at level 2 (simple inference), compared to about half (50 percent) of those who seldom or never failed to bring their books. Further, about half (51 percent) of those who never skipped class (based on reports about the first semester of the year) were proficient at level 2 (simple inference), while 28 percent of those who skipped classes seven or more times were proficient.

6.4.2 Mathematics Results by Student Behaviors

Table 24 examines hours of math homework per week, importance placed on good grades, and some very basic indicators of student motivation, such as coming to class without books, coming to class without homework done, and skipping classes.[46]

There is a positive association between homework and mathematics achievement. Looking, for example, at level 3 (simple problem solving), 35 percent of those who did no homework per week, 46 percent of those who did 1–4 hours per week, and 53 percent of those who did 5 or more hours of homework per week were proficient. Level 4 shows the same pattern.[47]

Various measures of motivation—not skipping class, coming to class with homework done, coming to class with one's textbook—also show a positive relationship to proficiency in mathematics. At level 3 (simple problem solving), 30 percent of those who usually came to class without their textbooks were proficient, compared to 50 percent of those who seldom or never came to class without their books. Thirty-three percent of those who usually came to class without their homework done had achieved proficiency at level 3, compared to about half (50 percent) of those who seldom or never came to class without completed homework. Some 52 percent of those who never skipped class were proficient in simple problem solving, compared to 28 percent of those who skipped class seven or more times in the first semester.

[46] Note that hours spent doing homework may reflect any of several factors, including not only student motivation to learn, but also the differing amounts of time individual students need to achieve mastery of a concept and the amount of homework assigned. More difficult classes (in which the abler students are more likely to enroll) may assign more homework, and some schools or teachers may be more likely to make heavy homework assignments.

[47] Past research suggests that while hours of homework completed is generally strongly related to achievement, occasionally the relationship can be negative or not always strictly linear. It is possible, for example, that spending large numbers of hours doing homework sometimes may indicate having difficulty in a subject. (See, for example, Ingels et al. [1994] table 1.10 for mathematics achievement of high school sophomores and Green et al. [1995] table 4.4b for mathematics achievement of high school seniors; for a negative relationship between National Assessment of Educational Progress (NAEP) fourth-graders' achievement and time spent in homework, see Braswell et al. [2001].) For a further example, see table 21 of this report, for level 3 of reading proficiency. Of course, the relationship between English homework and reading proficiency is less clear-cut than the relationship between mathematics homework and math proficiency, because reading is a component of all school subjects, not just English, and reading skills may readily be honed outside of school as well. As Carbonaro and Gamoran (2002) point out, high school English has three foci—teaching writing, teaching literature, and teaching reading—though teaching reading is clearly subordinate and is more emphasized in elementary school. It should be noted that the Education Longitudinal Study of 2002 (ELS:2002) does contain a measure of each student's writing skills. Writing skills were not directly tested, but they were measured through the English teacher's report on the student.

Table 24. Percentage of high school sophomores demonstrating proficiency in specific mathematics knowledge and skills, by selected behavioral characteristics: 2002

Selected characteristics	Level 1[1]	Level 2[2]	Level 3[3]	Level 4[4]	Level 5[5]
Total	91.7	67.1	46.4	20.4	1.0
Hours of math homework per week					
None	88.1	56.1	34.5	13.7	0.3
1–4	92.3	66.9	45.8	20.3	0.9
5 or more	93.8	73.4	52.9	23.9	1.2
Importance placed on good grades					
Not important	84.6	54.6	34.4	17.4	0.5
Somewhat important	91.7	62.5	37.4	13.9	0.5
Important	92.0	64.8	41.9	16.1	0.6
Very important	92.2	71.0	52.8	25.5	1.3
Ever come to class without books					
Usually	83.6	47.9	29.8	12.2	0.5
Often	84.8	51.5	32.1	14.5	0.9
Seldom or never	93.4	70.8	49.9	22.5	1.1
Ever come to class without homework done					
Usually	85.1	52.8	33.0	13.3	0.5
Often	88.8	59.0	38.3	15.7	0.8
Seldom or never	93.4	71.0	50.4	23.0	1.1
I cut or skipped classes first semester					
Never	92.9	71.2	51.7	24.4	1.2
1–2 times	89.4	60.0	37.8	14.3	0.7
3–6 times	90.4	58.9	34.6	11.8	0.6
7 or more times	84.5	49.0	27.9	9.4	0.1

[1]Math level 1: Simple arithmetical operations on whole numbers: essentially, single-step operations that rely on rote memory.
[2]Math level 2: Simple operations with decimals, fractions, powers, and roots.
[3]Math level 3: Simple problem solving, requiring the understanding of low-level mathematical concepts.
[4]Math level 4: Understanding of intermediate-level mathematical concepts and/or having the ability to formulate multistep solutions to word problems.
[5]Math level 5: Proficiency in solving complex multistep word problems and/or the ability to demonstrate knowledge of material found in advanced mathematics courses.
NOTE: Proficiency is reported at the group level by calculating the mean of the probability scores in the given area. Since the means are on a decimal scale between 0 and 1, they represent the proportions of members of a subgroup falling within a proficiency level. See appendix A for the weighted response rates of all unimputed variables used in this analysis.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

6.5 Achievement by Racial/Ethnic Group and SES, Educational Expectations, and Sex

At this point, the chapter has answered the first two questions posed in its introduction: (1) What proportion of sophomores, overall and by subgroup, have achieved mastery at each of the three levels of reading proficiency? and (2) What proportion of sophomores, overall and by subgroup, have achieved mastery at each of the five levels of mathematics proficiency?

Three questions remain:

- What differences in test results are seen between racial/ethnic groups, when social class (SES) is also taken into account?
- What differences in test results are seen between racial/ethnic groups, when differences in educational expectations are taken into account?
- What differences in test results are seen for different racial/ethnic groups when we separately consider males and females within those groups?

The tables that follow explore racial/ethnic group, SES, and achievement; racial/ethnic group, educational expectations, and achievement; and racial/ethnic group, sex, and achievement, in reading and mathematics in 10th grade.

6.5.1 Racial/Ethnic Group, SES, and Achievement

Some of the disparities in achievement between racial and ethnic groups in contemporary American society may result from social and economic background factors. To make meaningful comparisons of achievement across groups, it is important to hold SES constant. Tables 25 and 26 present data on the tested achievement of 2002 sophomores who are Black, White, or Hispanic, controlling for SES.[48] (Because of their small sample sizes, Asians, American Indians, and multiracial sophomores are not included in these three-way tables.) From these data, it is apparent that considering SES diminishes differences between racial/ethnic groups, but that quite considerable differences nevertheless persist.

[48] There are more statistically powerful ways to control for socioeconomic status (SES), such as use of SES as a continuous variable within a regression analysis. However, past research that has employed highly sophisticated controls confirms the basic story told above: race remains an important factor even when SES is taken into account (see Jencks and Phillips [1998]). As to the specifically economic aspect of SES, moreover, “income plays a minor role in the (Black-White) test score gap” (Phillips et al., 1998, p. 138).

Reading proficiency will be examined first (see figure 27 and table 25), with a focus on those individuals who were proficient at level 2 (simple inference). Looking at the lowest SES quartile, we see that the proportion proficient was 17 percent for Blacks, 20 percent for Hispanics, and 37 percent for Whites. In other words, comparing individuals with similar social backgrounds, about double the proportion of low-SES Whites were proficient at level 2 as low-SES Blacks. White sophomores in the lowest SES quartile were also more likely to be proficient at this reading level than their Hispanic counterparts. For the middle two SES quartiles, proficiency in simple inference increased for all groups: 26 percent of Blacks, 33 percent of Hispanics, and 53 percent of Whites. As was the case for the lowest SES quartile, the proportion of proficient White 10th-graders was about double the proportion of proficient Black 10th-graders within the same SES grouping (middle quartiles). Whites of moderate social and economic backgrounds were also more likely to be proficient at this level than Hispanics in the middle two SES quartiles. For the high-SES group, 72 percent of Whites, compared to 45 percent of Blacks and 52 percent of Hispanics, were proficient at the simple inference tasks of level 2.

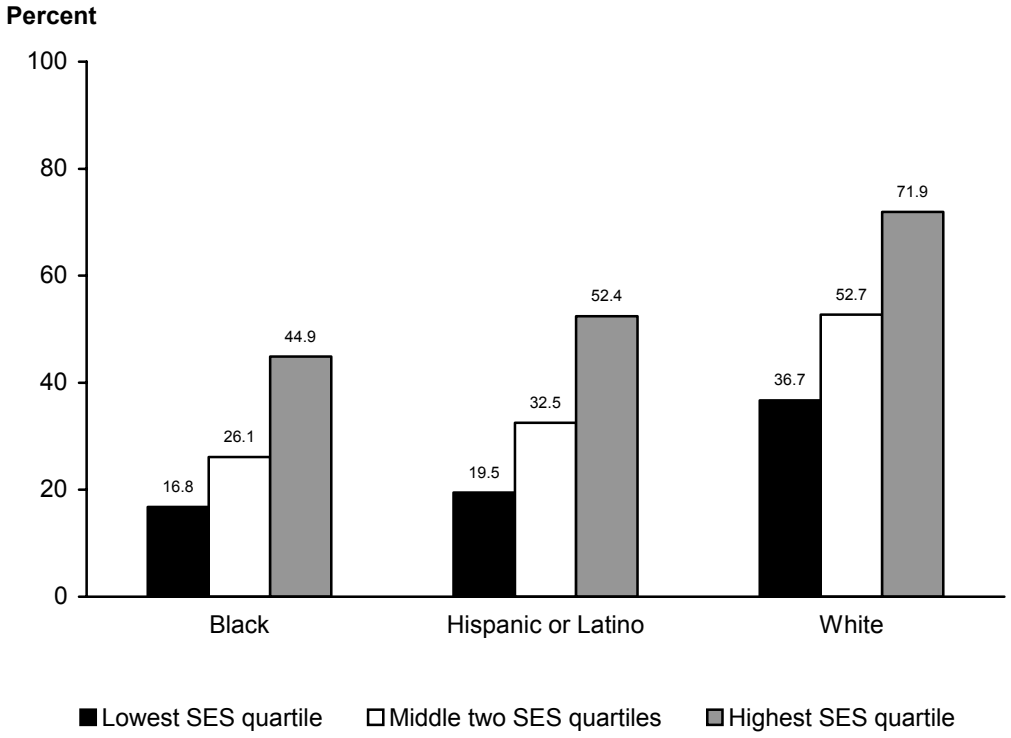
Mathematics proficiency at levels 1 through 4,[49] taking into account both racial/ethnic group (Black, Hispanic, and White) and SES, is reported in figure 28 and table 26. While a similar pattern may be seen at any of the levels, for simplicity's sake, it may be preferable to focus on two—level 3 (simple problem solving requiring an understanding of low-level mathematical concepts) and level 4 (understanding of intermediate-level mathematical concepts and/or having the ability to formulate multistep solutions to word problems).

At level 3 (simple mathematical problem solving), there were substantial differences among Blacks, Hispanics, and Whites in the lowest SES group: 12 percent of Blacks and 18 percent of Hispanics, compared to 36 percent of Whites, were proficient. For the middle SES quartiles, the proportions proficient at level 3 were 19 percent of Blacks and 30 percent of Hispanics, compared to 54 percent of Whites. In the highest quartile of SES, 42 percent of Blacks and 47 percent of Hispanics were proficient in level 3 mathematics, simple problem solving, compared to 76 percent of Whites. The overall pattern here is clear: racial/ethnic differences appear to persist, even when SES is taken into account.

At level 4 (understanding of intermediate-level mathematical concepts), essentially the same pattern repeats itself. In the lowest SES quartile, the proportion of Black sophomores who were proficient at level 4 was 3 percent; for Hispanics, the proportion was 5 percent. In contrast, for Whites, 11 percent were proficient. These differences were statistically significant, but too small to reach this report's criterion of substantive significance. In the middle SES quartiles, 23 percent of Whites as compared to 4 percent of Blacks and 10 percent of Hispanics were proficient. In the highest SES quartile, 14 percent of Blacks and 24 percent of Hispanics, compared to 42 percent of Whites, were proficient.

[49] Level 5 was not included in the analysis owing to the small numbers of sophomores, both overall and by subgroup, proficient at that level, as well as to the small sample sizes for high socioeconomic status Blacks and Hispanics. Only 1 percent of the sophomore cohort was proficient at level 5, and only 0.1 percent of Black and 0.3 percent of Hispanic sophomores demonstrated mastery of the knowledge and skills at this level.

Figure 27. Percentage of high school sophomores who achieved level 2 reading proficiency (simple inference), by socioeconomic status (SES) and selected racial/ethnic group: 2002



NOTE: All race categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

Table 25. Reading proficiency of high school sophomores, by socioeconomic status (SES) and selected racial/ethnic group: 2002

		2002 high school sophomores, percent		
SES quartile	**Racial/ethnic group**	**Level 1**	**Level 2**	**Level 3**
Lowest	Black	76.9	16.8	0.8
	Hispanic or Latino	72.9	19.5	1.3
	White	88.3	36.7	4.4
Middle	Black	82.6	26.1	1.3
	Hispanic or Latino	84.5	32.5	2.9
	White	93.5	52.7	8.3
Highest	Black	90.4	44.9	6.0
	Hispanic or Latino	89.8	52.4	9.7
	White	97.2	71.9	19.8

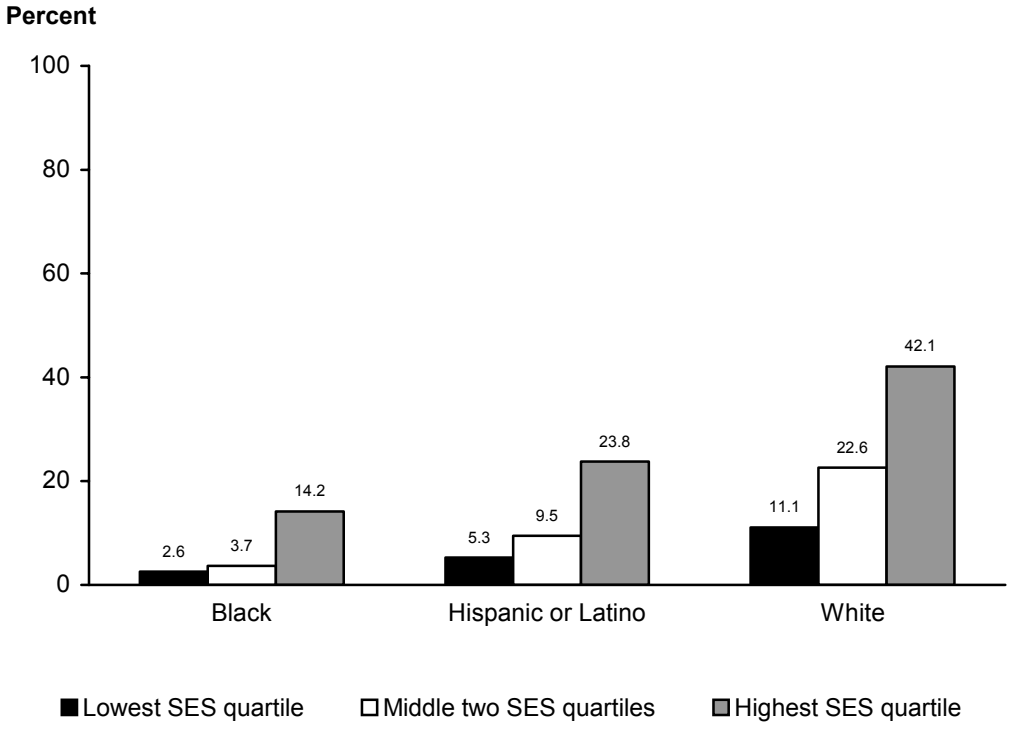
NOTE: All race categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

Table 26. Mathematics proficiency of high school sophomores, by socioeconomic status (SES) and selected racial/ethnic group: 2002

SES quartile	Racial/ethnic group	2002 high school sophomores, percent				
		Level 1	Level 2	Level 3	Level 4	Level 5
Lowest	Black	81.0	31.9	12.4	2.6	0.0
	Hispanic or Latino	78.5	37.7	17.8	5.3	0.3
	White	90.7	59.2	35.6	11.1	0.2
Middle	Black	84.0	44.1	18.5	3.7	0.1
	Hispanic or Latino	87.9	53.1	29.9	9.5	0.1
	White	95.5	76.2	53.8	22.6	0.5
Highest	Black	90.7	63.8	42.2	14.2	0.2
	Hispanic or Latino	93.4	68.6	47.1	23.8	1.0
	White	98.0	89.8	75.8	42.1	2.7

NOTE: All race categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

Figure 28. Percentage of high school sophomores who achieved level 4 mathematics proficiency (intermediate concepts), by socioeconomic status (SES) and selected racial/ethnic group: 2002



NOTE: All race categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

6.5.2 Racial/Ethnic Group, Educational Expectations, and Achievement

One striking fact about the sophomore cohort of 2002 is its very high level of educational expectations. Overall, 72 percent of the cohort expected to complete a 4-year college degree or higher. Indeed, 36 percent expected to go beyond a bachelor's degree and obtain a graduate or

professional degree. Eight percent did not expect to go on to postsecondary education in any form. While there were variations by subgroup, all groups appear to have had high expectations, as will be further analyzed in chapter 7 of this report. The question that is addressed in this section is whether Black, White, and Hispanic sophomores with the same levels of educational expectation showed similar proficiencies in reading and mathematics.

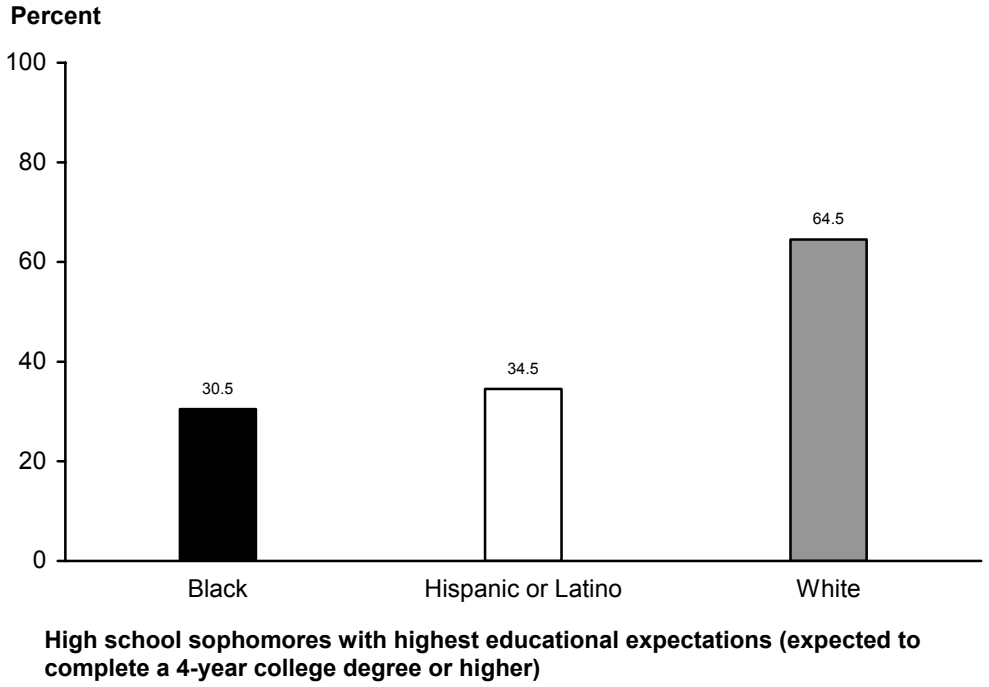
Table 27 shows differences in *reading proficiency* for Black, Hispanic, and White 10th-graders at three levels of educational expectation: high school or less, some college (including completion of a 2-year community college program), and college graduation or higher. Overall, less than half (46 percent) of the cohort was proficient at reading level 2, which indicates proficiency in making simple inference (table 21). Not surprisingly, few sophomores who expected to at most complete high school demonstrated mastery of level 2: those who did comprised 8 percent of Blacks, and 8 percent of Hispanics, compared to 21 percent of Whites. For those who expected to complete some college, but less than a 4-year degree, 16 percent of Black and 19 percent of Hispanic 10th-graders were proficient at level 2 in reading. In contrast, 34 percent of White sophomores were proficient. For students who expected to complete a 4-year baccalaureate program or go beyond it to obtain a graduate or professional degree, differences by racial/ethnic group remained substantial (see figure 29). At level 2 (simple inference), 31 percent of Blacks and 35 percent of Hispanics, compared to 65 percent of Whites, were proficient. At level 3 reading (complex inference), of those 10th-graders who expected to complete a 4-year college program or more, 2 percent of Blacks and 4 percent of Hispanics, compared to 14 percent of Whites, had achieved proficiency. From another perspective, based on the findings reported in table 27, about 13 percent of Black students and 16 percent of Hispanic students who expect to complete college or higher had not mastered basic reading skills at the level of simple comprehension (level 1), compared to 3 percent of White students expecting to complete college or higher.

Table 27. Differences in reading proficiency of high school sophomores, by level of educational expectations and racial/ethnic group: 2002

Educational expectations	Racial/ethnic group	2002 high school sophomores, percent		
		Level 1	Level 2	Level 3
High school or less[1]	Black	58.2	7.7	0.1
	Hispanic or Latino	61.0	8.2	0.1
	White	77.3	21.0	1.4
Some college[2]	Black	74.5	16.2	0.2
	Hispanic or Latino	72.7	19.4	1.8
	White	88.4	33.5	2.8
College graduation or higher[3]	Black	87.1	30.5	2.3
	Hispanic or Latino	84.2	34.5	3.7
	White	96.8	64.5	14.0

[1]High school or less includes sophomores who do not expect to complete high school, those expecting to complete a general equivalency diploma (GED), and those expecting to graduate from high school.
[2]Some college includes sophomores who expect to attend or complete a 2-year community college or vocational school and those expecting to attend a 4-year college, but not to complete a degree.
[3]College graduation or higher includes sophomores who expect their highest degree to be a 4-year college degree, master's degree, Ph.D., M.D., or other advanced degree.
NOTE: All race categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

Figure 29. Percentage of high school sophomores who achieved level 2 reading proficiency (simple inference), by selected racial/ethnic groups within the highest educational expectations group: 2002



NOTE: Excludes "American Indian or Alaska Native" and "More than one race." All race categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

At the same time, preparation, as measured by tested achievement, is in alignment with expectations within each racial group, notwithstanding the differences between racial groups. For example, at level 2 reading, 8 percent of Black sophomores who expected to at most complete high school were proficient, compared to 31 percent of Black sophomores who expected to complete college or higher. The comparable level 2 proficiency proportions for Hispanics were 8 percent (high school only) versus 35 percent (college or beyond), and for Whites 21 percent (high school only) versus 65 percent (college or beyond).

Table 28 shows differences in *mathematics proficiency* for Black, Hispanic, and White 10th-graders at three levels of educational expectation: high school or less, some college, and college graduation or higher. For simplicity's sake, comment is restricted to mathematics levels 3 (simple problem solving) and 4 (intermediate-level mathematical concepts). Overall, 46 percent of the cohort were proficient at level 3 (table 24). Not surprisingly, those who expected to complete only high school or less fell below the cohort norm of 46 percent: table 28 shows that 5 percent of Black, 4 percent of Hispanic, and 19 percent of White sophomores demonstrated proficiency at level 3 (simple problem solving). For those who expected to complete some college, but less than a 4-year degree, 8 percent of Blacks and 18 percent of Hispanics, contrasted to 30 percent of Whites, were proficient in mathematics at level 3. For those with the highest educational expectations, completing a 4-year degree or more, 24 percent of these Black sophomores were proficient at level 3, compared to 32 percent of Hispanic

sophomores and 68 percent of White sophomores. Again, for each educational expectations grouping, each racial/ethnic group showed statistically significant higher mathematics achievement as educational expectations ascended. Nevertheless, differences between racial/ethnic groups within a given educational expectation level were systematically observed.

Table 28. Differences in mathematics proficiency of high school sophomores, by level of educational expectations and selected racial/ethnic group: 2002

Educational expectations	Racial/ethnic group	2002 high school sophomores, percent				
		Level 1	Level 2	Level 3	Level 4	Level 5
High school or less[1]	Black	70.2	16.4	5.2	0.5	0.0
	Hispanic or Latino	68.9	19.7	4.3	0.9	0.0
	White	84.0	42.1	18.9	4.8	0.0
Some college[2]	Black	74.7	26.4	8.2	1.2	0.0
	Hispanic or Latino	81.4	38.2	17.9	5.0	0.0
	White	90.3	57.9	30.2	8.5	0.1
College graduation or higher[3]	Black	88.0	50.6	24.3	6.2	0.1
	Hispanic or Latino	87.5	55.2	32.4	11.6	0.4
	White	97.7	85.6	67.5	33.0	1.5

[1]High school or less includes sophomores who do not expect to complete high school, those expecting to complete a general equivalency diploma (GED), and those expecting to graduate from high school.
[2]Some college includes sophomores who expect to attend or complete a 2-year community college or vocational school and those expecting to attend a 4-year college, but not complete a degree.
[3]College graduation or higher includes sophomores who expect their highest degree to be a 4-year college degree, master's degree, Ph.D., M.D., or other advanced degree.
NOTE: All race categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

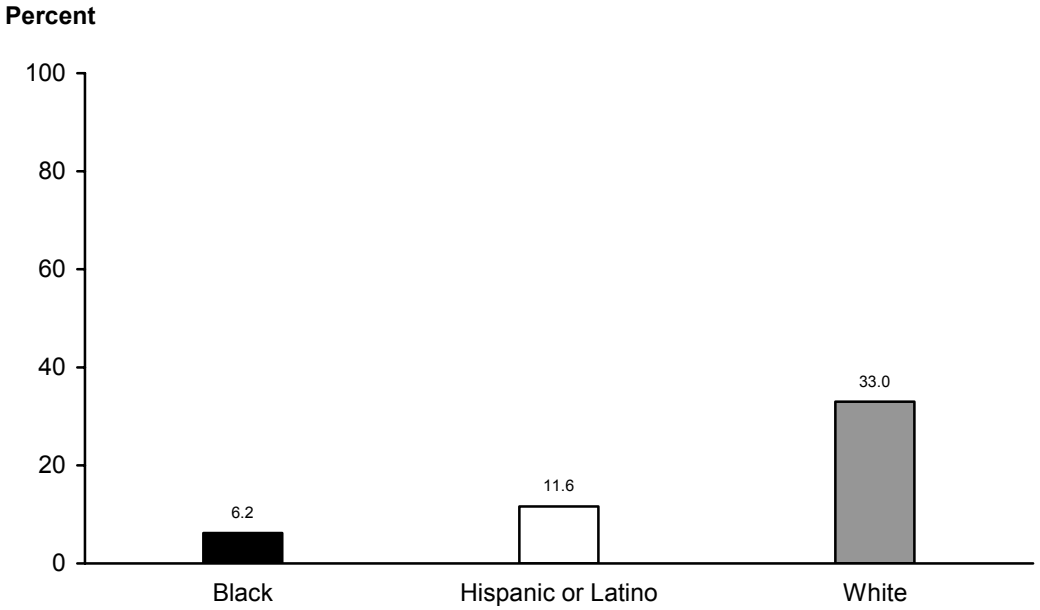
Examination of achievement at level 4 (intermediate-level mathematical concepts) confirms this pattern. As shown in figure 30, for example, for those with the highest expectations (completing a 4-year postsecondary program or more), level 4 mathematics proficiency was achieved by 6 percent of Black sophomores in the high educational expectation group, compared to 33 percent of White sophomores. While 33 percent of high-expectation White sophomores were proficient, 12 percent of high-expectation Hispanic sophomores were proficient at level 4.

6.5.3 Racial/Ethnic Group, Sex, and Achievement

At the postsecondary level, females currently enroll and graduate at higher levels than males (Freeman 2004). However, the discrepancy between male and female enrollments and degrees conferred is larger among Blacks than Whites[50] (Hoffman and Llagas 2003). A reasonable question to ask, then, is whether male and female high school students within different racial and ethnic groups differ in their tested achievement.

[50] For example, Integrated Postsecondary Education Data System (IPEDS) data show that, of the 111,307 bachelor's degrees conferred on Blacks in 2000–01, 38,103 were awarded to Black males and 73,204 (about 66 percent) to Black females (Snyder and Hoffman 2003, table 264).

Figure 30. Percentage of high school sophomores who achieved level 4 mathematics proficiency (intermediate concepts), by selected racial/ethnic groups within the highest educational expectations group: 2002



NOTE: Excludes "American Indian or Alaska Native" and "More than one race." All race categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

Tables 29 and 30 and Figures 31 and 32 show the 10th-grade reading and mathematics achievement of male and female Black, Hispanic, and White students. When Black males are compared to Black females in reading and mathematics, the one statistically significant difference is found at level 1 reading: 80 percent of Black male 10th-graders were proficient as compared to 83 percent of Black females, and here the effect size was only .11.

When Hispanic males and females are compared in reading, 82 percent of females and 77 percent of males were proficient at level 1 (simple comprehension); the effect size, however, was only .15, short of this report's criterion of substantive significance (.20). In terms of mathematics proficiency, Hispanic males (50 percent) performed better than their female counterparts (44 percent) at level 2 (simple operations with decimals, fractions, roots, and powers), though again the effect size does not show substantive significance.

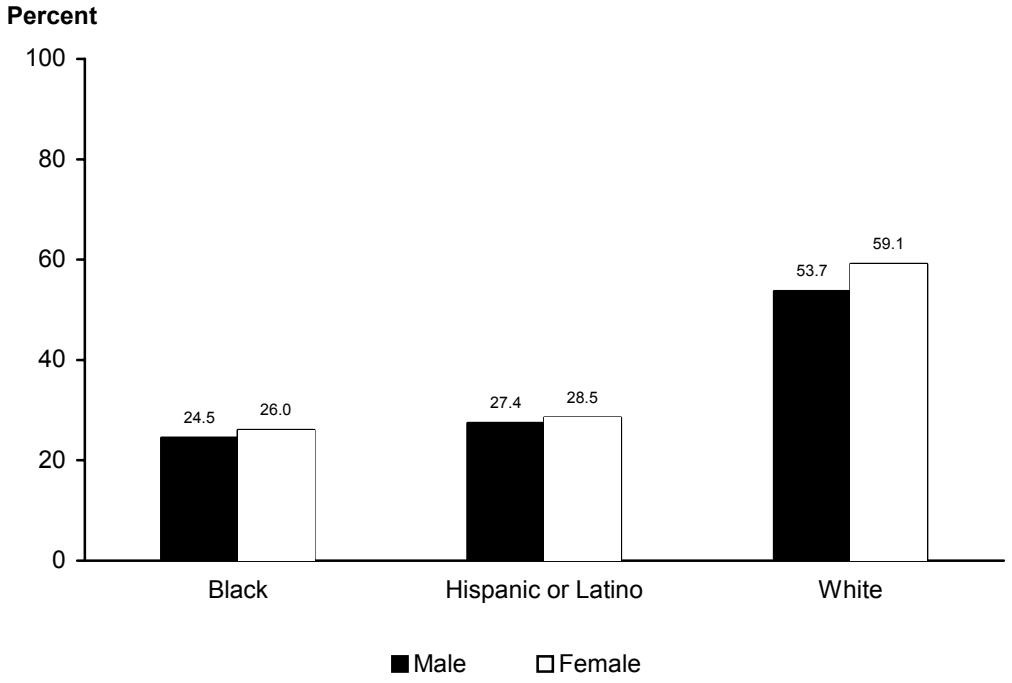
In comparison, White male and female 10th-graders show a pattern of systematic differences that point to a female advantage on reading tasks. However, that difference appears to be quite small. For Whites at level 1 (simple comprehension), 92 percent of males and 96 percent of females were proficient, a difference that was statistically but not substantively significant. At level 2 (simple inference), 54 percent of White males and 59 percent of White females were proficient, again statistically significant but falling well below the "meaningful small effect" substantive significance criterion of .20.

Table 29. Differences in reading proficiency of high school sophomores, by sex and selected racial/ethnic group: 2002

Sex	Racial/ethnic group	2002 high school sophomores, percent		
		Level 1	Level 2	Level 3
Male	Black	79.9	24.5	1.6
	Hispanic or Latino	76.6	27.4	2.9
	White	92.3	53.7	11.0
Female	Black	83.3	26.0	1.9
	Hispanic or Latino	81.8	28.5	2.6
	White	95.5	59.1	11.8

NOTE: All race categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

Figure 31. Percentage of high school sophomores who achieved level 2 reading proficiency (simple inference), by sex and selected racial/ethnic group: 2002



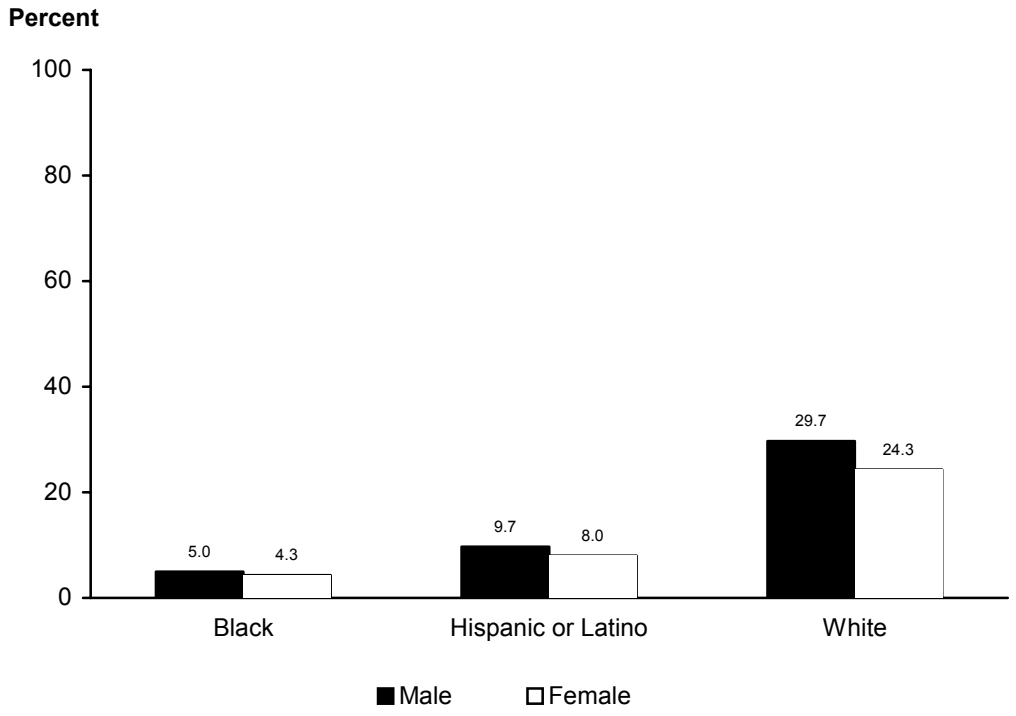
NOTE: Excludes “American Indian/Alaska Native” and “More than one race.” All race categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

Table 30. Differences in mathematics proficiency of high school sophomores, by sex and selected racial/ethnic group: 2002

Sex	Racial/ethnic group	2002 high school sophomores, percent				
		Level 1	Level 2	Level 3	Level 4	Level 5
Male	Black	84.4	44.6	21.3	5.0	0.1
	Hispanic or Latino	84.2	49.6	27.3	9.7	0.4
	White	95.3	78.6	59.6	29.7	1.7
Female	Black	83.1	39.9	17.4	4.3	0.1
	Hispanic or Latino	83.3	44.3	23.8	8.0	0.2
	White	95.8	77.2	56.3	24.3	0.6

NOTE: All race categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

Figure 32. Percentage of high school sophomores who achieved level 4 mathematics proficiency (intermediate concepts), by sex and selected racial/ethnic group: 2002



NOTE: Excludes "American Indian or Alaska Native" and "More than one race." All race categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

In mathematics, White males' advantage over White females is statistically significant only at higher levels but is still not substantively significant. At level 3 (simple problem solving), 60 percent of White males and 56 percent of White females were proficient. Likewise at level 4 (intermediate mathematical concepts), 30 percent of White males and 24 percent of White females were proficient.

In sum, comparing achievement by sex within racial/ethnic groups shows female advantage in reading and male advantage in mathematics for many but not all levels, similar to the overall findings by sex. Yet these differences are consistently modest, and none approach the criterion of substantive significance.

6.6 Summary

This chapter has addressed five major questions: First, what proportion of sophomores, overall and by subgroup, have achieved mastery at each of the three levels of reading proficiency? Second, what proportion have achieved mastery at each of the five levels of mathematics proficiency? Third, do racial differences still persist when SES is taken into account, and, if so, what is the magnitude of these differences? Fourth, do racial differences persist if educational expectations are taken into account? Fifth, how greatly do males and females within racial/ethnic groups differ in their achievement?

Some of the more important findings related to these questions are listed below.

6.6.1 Overall Results in Reading and Mathematics Achievement

Overall, in reading:

- 89 percent of sophomores had mastered the skills of simple reading comprehension;
- 46 percent were able to make relatively simple inferences beyond the author's main thought; and
- 8 percent could make complex inferences.

Overall, in mathematics:

- 92 percent of sophomores were able to perform simple arithmetical operations on whole numbers;
- 67 percent could perform simple operations with decimals, fractions, powers, and roots;
- 46 percent could perform simple problem solving that involved the understanding of low-level mathematical concepts;
- 20 percent could understand intermediate-level mathematical concepts and/or demonstrate ability to formulate multistep solutions to word problems; and
- 1 percent could solve complex multistep word problems and had mastered material found in advanced mathematics courses.

6.6.2 Proficiency Levels and Demographic Characteristics

An important area for investigation is the relationship between racial/ethnic group, SES, and achievement:

- Differences in proficiency were seen by SES; higher SES was associated with higher proficiency scores. For example, in mathematics, 8 percent of sophomores in the lowest quartile were proficient at understanding of intermediate-level mathematical concepts, while 18 percent of those in the middle quartiles and 39 percent of those in the highest SES quartile were proficient. Some 18 percent of sophomores in the highest SES quartile were proficient at the highest reading level (ability to make complex inferences), compared to 3 percent in the lowest SES quartile.
- Differences in proficiency were observed by racial/ethnic subgroup. For example, in mathematics, Asians were more likely than Blacks to be proficient in the understanding of intermediate-level mathematical concepts (32 percent compared to 5 percent). Some 27 percent of White sophomores had reached this level, as compared to 9 percent of Hispanics.
- In reading, Whites and Asians were more likely to be proficient than were Blacks or Hispanics. Some 56 percent of Whites and 47 percent of Asians were proficient at the level of simple inference, compared to 25 percent of Blacks and 28 percent of Hispanics. At the highest reading level (complex inference), 9 percent of Asian and 11 percent of White 10th-graders were proficient, compared to 2 percent of Blacks and 3 percent of Hispanics.
- Differences by racial/ethnic group persist, even when SES is taken into account. Whites were more likely to be proficient at various reading and mathematics levels than their Black or Hispanic peers, within each of the three SES groupings. For example, at the level of simple mathematical problem solving, within the lowest SES group, 12 percent of Blacks, 18 percent of Hispanics, and 36 percent of Whites were proficient. For the middle SES quartiles, the proportions proficient at this level were 19 percent of Blacks, 30 percent of Hispanics, and 54 percent of Whites. In the highest quartile of SES, 42 percent of Blacks, 47 percent of Hispanics, and 76 percent of Whites were proficient in simple problem solving. The same pattern—persistence of racial/ethnic differences within each SES category, with Whites showing higher achievement than Blacks or Hispanics—was also discernible in reading.

A further area for investigation is the alignment of sophomores' educational expectations for the future and their high school preparation for their future education. Since transcripts with information about high school coursetaking have not yet been collected for the cohort, the primary source of available information about academic preparation is tested achievement in mathematics and reading. The higher the students' expectations, the higher their test scores. This generalization is true both overall and within racial/ethnic subgroups (specifically, Whites, Blacks, and Hispanics). However, racial/ethnic differences in achievement persist within each main level of educational expectation:

- For example, 32 percent of 10th-graders who expected to obtain a graduate or professional degree had mastered intermediate mathematical concepts. In contrast, 7 percent of those who expected to complete some college but less than a 4-year degree had done so. At the same time, racial differences were apparent even within expectation levels.

- For example, among sophomores who expected to complete at least a 4-year degree, at reading level 2 (simple inference), 31 percent of Blacks, 35 percent of Hispanics, and 65 percent of Whites were proficient. Among sophomores who expected to complete at least a 4-year degree, at level 4 of mathematics (intermediate concepts), 6 percent of Blacks and 12 percent of Hispanics, contrasted to 33 percent of Whites, were proficient.

Differences in achievement of male and female students also were investigated. Some statistically significant differences were detected, showing a female advantage in reading and a male advantage in mathematics (e.g., at reading level 1, 77 percent of Hispanic males and 82 percent of Hispanic females were proficient, and at mathematics level 4, 30 percent of White males and 24 percent of White females were proficient). *However, these differences were not substantively significant*. Neither overall nor within racial/ethnic groups were sex differences large, compared to the differences found by racial/ethnic group and SES.

6.6.3 Tested Achievement and School Characteristics

Proficiency both in reading and mathematics was examined across a number of school characteristics, including school sector. Students from Catholic and other private schools were more likely to be proficient than were students from public schools:

- In *mathematics* at the level of understanding intermediate concepts, 19 percent of public school sophomores were proficient, compared to 32 percent of Catholic and 35 percent of other private school sophomores.
- In *reading*, students in Catholic and other private schools were more likely to be proficient than students in public schools. For example, 68 percent of Catholic and 65 percent of other private school 10th-graders were proficient at level 2 (simple inferences), compared to 45 percent of public school 10th-graders.

6.6.4 Tested Achievement and Student Engagement

Student engagement behaviors were positively associated with achievement. For example:

- Students who did more math homework were more proficient in simple problem solving (35 percent of those who did no homework, 46 percent of those who did 1-4 hours of math homework per week, and 53 percent of those who did 5 or more hours of math homework a week were proficient at this level).

- Students who cut class frequently were less likely to be proficient than those who never cut class. In reading, at level 2 (simple inference), 28 percent of those who skipped class seven or more times in the first term of the school year were proficient, compared to 51 percent of those who never skipped class.

Chapter 7
Values, Expectations, and Plans

This chapter describes the 2002 sophomore cohort in terms of their values, their educational and occupational expectations, and their perceptions of what parents and school personnel hoped they would do right after high school. These topics are considered together because they are complexly interrelated. The value placed on education and different aspects of work is often reflected in educational and occupational expectations. Many students' educational and occupational plans and expectations are also shaped by parents', teachers', and school counselors' expectations of them. The discussion that follows focuses on how male and female students and students from various racial and ethnic backgrounds differed or were similar in terms of their values, their educational and occupational expectations, and the guidance that they received from the adults in their lives.

7.1 Life Values

7.1.1 Education and Work

Most 10th-grade students placed great significance on their education and future work (see table 31).[51] In fact, being successful in one's line of work was the life value that was rated "very important" by the most students (86 percent). Almost as many reported that getting a good education was very important to them (83 percent). Despite this overwhelming emphasis on education and work, there were differences across subgroups in the proportion of students who adhered to this general consensus. Not surprisingly, a greater proportion of pupils who were enrolled in college preparatory programs (89 percent) and who had the highest educational expectations (94 percent) highly valued a good education than did their less academically oriented peers. Students with these characteristics (90 percent of those enrolled in college preparatory programs and 95 percent of those expecting a graduate or professional degree, as well as those who were most successful in school, as measured by their composite score on the Education Longitudinal Study of 2002 [ELS:2002] cognitive tests) (91 percent), also were more likely to place an emphasis on having a successful career than were their counterparts. Perhaps of greater interest (though all groups rate getting a good education highly, and differences between sex and race groups are modest) is that female sophomores (88 percent) were more likely than male sophomores (78 percent) and Black sophomores (90 percent) were more likely than White sophomores (80 percent) to rate a good education as very important.

[51] The Education Longitudinal Study of 2002 (ELS:2002) items related to values concerning education and work that are discussed in this chapter have affinities with certain items discussed in chapter 3, particularly reasons for going to school, including reasons having to do with future jobs and careers. Readers may wish to compare these discussions.

Table 31. Percentage of high school sophomores who reported that various life values related to education and work were very important to them, by selected student and school characteristics: 2002

Selected student and school characteristics	Getting a good education	Being successful in line of work	Becoming an expert in field of work	Having lots of money	Being able to find steady work	Having leisure time to enjoy own interests
Total	82.7	86.3	70.9	42.1	84.3	68.1
Sex						
Male	77.6	84.1	74.1	51.0	81.9	68.8
Female	87.9	88.5	67.6	33.3	86.7	67.4
Racial/ethnic group						
American Indian or Alaska Native	83.5	83.1	71.2	47.4	87.3	57.1
Asian or Pacific Islander	86.2	84.5	70.1	47.6	80.6	66.8
Black	90.0	88.2	80.1	60.4	85.1	67.8
Hispanic or Latino	85.4	83.2	72.8	45.5	80.7	61.1
More than one race	81.6	84.1	71.1	45.6	81.0	68.2
White	80.3	87.0	68.4	36.4	85.5	70.2
Socioeconomic status						
Lowest quartile	82.7	81.9	69.9	47.3	81.9	59.6
Middle two quartiles	81.8	86.9	71.9	42.6	84.6	69.0
Highest quartile	84.6	89.2	69.8	36.2	86.0	74.4
Parents' education						
High school or less	82.1	83.2	71.3	46.4	82.7	62.1
Some college	81.8	87.1	72.1	43.4	85.1	68.2
College graduation	83.7	86.8	68.2	37.0	84.8	70.9
Graduate/professional degree	84.6	88.9	71.2	39.1	84.6	74.1
Student's educational expectations						
High school or less	54.7	64.5	57.5	51.5	71.8	58.5
Some college	70.7	78.4	66.0	45.6	81.3	61.8
College graduation	85.2	88.0	68.2	41.7	85.2	69.3
Graduate/professional degree	93.8	94.5	80.1	39.5	89.1	72.0
Don't know	67.0	74.8	61.7	42.2	76.0	63.3
Native language[1]						
English	82.1	87.0	70.9	41.5	85.3	69.2
Non-English	86.6	81.7	70.9	46.0	77.8	61.0
High school program[2]						
General	75.5	81.4	66.0	42.9	81.3	65.2
College preparatory	89.0	90.4	73.6	39.9	86.7	70.5
Vocational	78.7	84.1	75.8	50.3	83.8	67.0

See notes at end of table.

Table 31. Percentage of high school sophomores who reported that various life values related to education and work were very important to them, by selected student and school characteristics: 2002—Continued

Selected student and school characteristics	Getting a good education	Being successful in line of work	Becoming an expert in field of work	Having lots of money	Being able to find steady work	Having leisure time to enjoy own interests
Composite achievement test score in sophomore year						
Lowest quartile	80.2	76.7	68.1	55.5	76.9	58.9
Middle two quartiles	82.0	88.2	73.0	42.2	87.1	69.5
Highest quartile	86.6	91.4	69.3	29.5	85.7	73.8
Sophomore's school sector						
Public	82.5	86.0	71.0	42.7	84.2	67.8
Catholic	86.8	92.2	70.4	36.1	88.2	72.4
Other private	83.6	86.5	67.5	33.7	81.6	70.5
Region of sophomore's school						
Northeast	82.2	87.5	69.6	44.9	84.9	69.8
Midwest	80.9	85.9	67.5	38.5	84.2	67.2
South	85.3	87.9	74.6	43.6	85.7	68.5
West	81.4	83.4	70.0	41.5	82.0	67.2
Urbanicity of sophomore's school						
Urban	85.2	86.4	73.8	45.6	83.2	68.4
Suburban	82.1	86.4	70.1	41.5	84.4	68.5
Rural	80.7	85.8	68.5	38.4	85.8	66.6

[1]The first language students learned to speak when they were children.
[2]Students' self-report of the type of high school program in which they participated.
NOTE: See appendix A for the weighted response rates of all unimputed variables used in this analysis. All race categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

In addition to evaluating the importance of work generally, students rated the importance of several aspects of work life: having a steady job, attaining expertise in one's field, having leisure time outside of work, and earning a lot of money. Of these, being able to find steady work was highly valued by the most students (84 percent). Becoming an expert in one's field of work and having leisure time to enjoy one's own interests were top priorities for about 70 percent of these sophomores (71 percent rated becoming expert in one's field as very important, and 68 percent rated having leisure time as very important). Forty-two percent rated having lots of money as very important.

Females were more concerned with finding steady work than their male peers (87 percent versus 82 percent rated this as very important). On the other hand, male sophomores placed much more emphasis on having a lot of money than their female classmates (51 percent versus 33 percent). White sophomores and their Black peers considered job stability a very important work attribute more often than Hispanic and Asian sophomores. White (70 percent), Black (68 percent), and Asian (67 percent) 10th-graders were more likely than Hispanic 10th-graders (61

percent) to place a premium on having leisure time. Black 10th-graders were more likely than their Asian, Hispanic, and White counterparts to report that having a lot of money was very important to them (60 percent versus 48 percent, 46 percent, and 36 percent, respectively). Likewise, Black sophomores placed greater weight on achieving expertise in their field of work than these other three groups of students (80 percent versus 70 percent, 73 percent, and 68 percent).

Educational expectations had a positive relationship with several work values, including finding steady work (rated as very important by 89 percent of those expecting to complete graduate work versus 72 percent of those not planning to do any postsecondary work), being successful in one's line of work (95 percent versus 65 percent), being an expert (80 percent versus 58 percent), and having leisure time (72 percent versus 59 percent). In contrast, students with the lowest academic ambitions (52 percent) were more likely than those who expected to complete a college degree (42 percent) or graduate work (40 percent) to rate having a lot of money as very important.

7.1.2 Family and Friends

Sophomores also evaluated the importance of values related to family and friends (see table 32). Approximately 80 percent of the students rated marrying and having a happy family life (76 percent), giving children better opportunities than they had (80 percent), and having strong friendships (83 percent) as very important. Although this cohort clearly valued family, less than half (47 percent) reported having children as very important. Female sophomores were more likely than their male classmates to rate becoming a parent as very important (50 percent versus 45 percent). It is also noteworthy that almost 40 percent (39 percent) more female students reported being successful in their line of work as very important than reported having children as very important. Sophomore females (and males) appeared to be more focused on their education and careers than on the possibility of parenthood. This does not mean that the importance of parenting was taken lightly. The majority reported that providing better opportunities to any children that they might have was very important to them (80 percent).

7.1.3 Community and Society

Of the life goals about which these sophomores were questioned, correcting social and economic inequalities was the least valued, with 19 percent indicating that it was very important to them (table 33). A related value, helping others in the community, was rated very important by 36 percent of the cohort. (A greater proportion of females than males reported that helping other people in their community was very important to them [43 percent versus 30 percent]). This difference is consistent with gender stereotypes that are supported by research findings that women are more likely than men to be concerned with the well-being of others (Beutel and Marini 1995). However, students who were more likely to be socially and/or economically disadvantaged themselves, such as Asian, Black, and Hispanic students (i.e., 22 percent of Asian, 29 percent of Black, and 29 percent of Hispanic students), students in the lowest socioeconomic status (SES) quartile (25 percent), and non-native-English speakers (30 percent) tended to place more value on correcting social and economic inequalities than students who were White (15 percent), relatively economically privileged (16 percent), and native-English speakers (18 percent).

Table 32. Percentage of high school sophomores who reported that various life values related to family and friends were very important to them, by selected student and school characteristics: 2002

Selected student and school characteristics	Finding right person to marry and having happy family life	Having children	Being able to give my children better opportunities than I've had	Having strong friendships
Total	76.4	47.4	80.3	82.8
Sex				
Male	73.4	45.1	78.9	79.3
Female	79.4	49.7	81.6	86.2
Racial/ethnic group				
American Indian or Alaska Native	71.3	36.5	87.8	83.1
Asian or Pacific Islander	76.9	42.1	79.6	85.5
Black	71.9	40.7	88.3	71.7
Hispanic or Latino	71.5	42.4	85.6	75.7
More than one race	71.0	44.8	77.8	81.7
White	79.1	50.8	77.2	86.9
Socioeconomic status				
Lowest quartile	71.4	43.5	83.6	76.0
Middle two quartiles	76.6	47.3	81.6	83.6
Highest quartile	80.9	51.2	74.4	87.7
Parents' education				
High school or less	73.3	46.2	82.9	79.0
Some college	75.6	47.0	82.5	82.1
College graduation	79.0	49.6	78.9	85.2
Graduate/professional degree	79.7	47.2	72.8	87.2
Student's educational expectations				
High school or less	63.9	40.5	72.3	70.3
Some college	70.0	40.3	76.9	76.0
College graduation	77.6	48.8	80.9	83.8
Graduate/professional degree	81.2	51.4	82.9	87.1
Don't know	70.5	39.8	78.0	79.8
Native language[1]				
English	76.8	48.1	79.7	83.9
Non-English	73.9	42.7	83.6	75.3
High school program[2]				
General	73.0	44.0	78.6	79.4
College preparatory	79.6	50.2	81.4	86.1
Vocational	73.4	45.9	81.1	79.0

See notes at end of table.

Table 32. Percentage of high school sophomores who reported that various life values related to family and friends were very important to them, by selected student and school characteristics: 2002—Continued

Selected student and school characteristics	Finding right person to marry and having happy family life	Having children	Being able to give my children better opportunities than I've had	Having strong friendships
Composite achievement test score in sophomore year				
Lowest quartile	70.4	44.2	80.6	73.8
Middle two quartiles	77.1	47.6	83.4	84.3
Highest quartile	80.7	50.0	73.6	88.0
Sophomore's school sector				
Public	75.9	46.8	80.7	82.2
Catholic	82.2	57.0	77.1	89.9
Other private	83.2	51.3	71.5	88.3
Region of sophomore's school				
Northeast	76.5	48.1	77.6	81.9
Midwest	76.7	47.9	78.2	84.9
South	77.9	48.5	83.8	82.0
West	73.8	44.7	79.4	82.4
Urbanicity of sophomore's school				
Urban	74.6	45.6	82.5	80.2
Suburban	77.1	48.6	79.4	83.6
Rural	77.3	47.1	79.2	84.6

[1]The first language students learned to speak when they were children.
[2]Students' self-report of the type of high school program in which they participated.
NOTE: See appendix A for the weighted response rates of all unimputed variables used in this analysis. All race categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

Table 33. Percentage of high school sophomores who reported that various life values related to community and society were very important to them, by selected student and school characteristics: 2002

Selected student and school characteristics	Living close to parents and relatives	Getting away from this area of the country	Helping other people in community	Working to correct social and economic inequalities
Total	29.7	21.3	36.3	19.4
Sex				
Male	28.0	21.5	29.9	18.7
Female	31.3	21.1	42.6	20.0
Racial/ethnic group				
American Indian or Alaska Native	27.2	27.3	29.4	26.6
Asian or Pacific Islander	38.8	14.4	38.2	21.5
Black	30.4	28.9	45.2	28.9
Hispanic or Latino	38.8	21.0	37.3	28.9
More than one race	25.4	24.1	36.0	16.5
White	26.9	19.8	34.0	14.8
Socioeconomic status				
Lowest quartile	35.2	22.7	38.7	25.2
Middle two quartiles	29.5	22.6	35.0	18.2
Highest quartile	24.8	17.4	36.6	16.0
Parents' education				
High school or less	35.2	22.4	37.4	22.7
Some college	28.8	22.6	34.7	18.9
College graduation	27.5	19.6	36.4	17.0
Graduate/professional degree	25.2	19.0	37.8	17.8
Student's educational expectations				
High school or less	35.7	27.3	29.0	20.2
Some college	31.3	22.5	27.9	16.7
College graduation	28.9	19.8	34.6	18.7
Graduate/professional degree	28.9	20.7	43.4	20.6
Don't know	28.9	23.0	30.5	19.1
Native language[1]				
English	27.6	21.6	35.4	17.6
Non-English	42.7	19.4	42.2	30.4
High school program[2]				
General	29.2	23.3	31.1	17.7
College preparatory	29.2	19.4	40.2	19.7
Vocational	33.8	23.4	36.1	24.0

See notes at end of table.

Table 33. Percentage of sophomores who reported that various life values were very important to them, by selected student and school characteristics: 2002—Continued

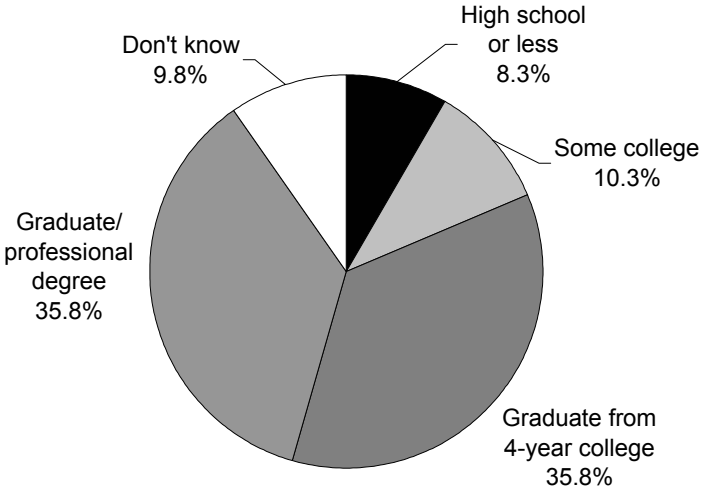
Selected student and school characteristics	Living close to parents and relatives	Getting away from this area of the country	Helping other people in community	Working to correct social and economic inequalities
Composite achievement test score in sophomore year				
Lowest quartile	40.7	27.1	41.9	28.8
Middle two quartiles	29.4	20.7	35.2	17.9
Highest quartile	20.0	17.0	33.3	13.6
Sophomore's school sector				
Public	29.7	21.9	36.1	19.6
Catholic	30.5	12.8	36.2	15.8
Other private	27.4	16.6	40.9	17.5
Region of sophomore's school				
Northeast	29.7	19.9	32.3	18.3
Midwest	27.8	21.2	33.9	16.8
South	29.2	22.4	40.5	20.4
West	32.2	20.8	35.8	21.3
Urbanicity of sophomore's school				
Urban	32.2	22.3	38.9	22.8
Suburban	29.9	20.5	35.3	18.6
Rural	25.4	21.8	34.8	16.1

[1]The first language students learned to speak when they were children.
[2]Students' self-report of the type of high school program in which they participated.
NOTE: See appendix A for the weighted response rates of all unimputed variables used in this analysis. All race categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

7.2 Students' Expectations for Educational Attainment

ELS:2002 sophomores were asked, "As things stand now, how far in school do you think you will get?" (This measure of educational expectations has been used throughout this report.) Given that the sophomore cohort, as a whole, highly valued education, it is not surprising that the overwhelming majority of these students had high expectations for their educational attainment (see figure 33).

Figure 33. High school sophomores' educational expectations: 2002



NOTE: Details may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

As shown in table 34 (see row showing totals), over one-third of sophomores expected that a 4-year college degree would be their highest degree (36 percent), another 20 percent planned to obtain a master's degree, and about one in six anticipated receiving an advanced degree, such as a Ph.D. (16 percent). Those enrolled in college preparatory programs were more likely to expect to receive a master's degree, Ph.D., or other advanced degree than other high school programs (46 percent for college preparatory students versus 25 percent for general program students and 26 percent for vocational program students). Similarly, within other student and school characteristic categories, some students were more likely to expect an advanced degree than others: private school students (51 percent) were more likely than public school students (35 percent); students scoring in the highest quartile on the ELS:2002 cognitive assessments (57 percent) were more likely than other quartiles (18 percent for the lowest quartile, 35 percent for the middle two quartiles); and students whose parents were themselves very highly educated (55 percent) were more likely than students whose parents were less educated (25 percent, 32 percent, and 40 percent of students whose parents had high school or less, some college, or a college degree, respectively).

In terms of demographic characteristics, females were more likely to have expectations of an advanced degree than males (42 percent of females versus 29 percent of males), and Asian students (45 percent) were more likely than Black (33 percent), Hispanic (28 percent), or White students (38 percent) to expect such a degree.

Table 34. Percentage of high school sophomores who expected to reach various highest levels of education, by selected student and school characteristics: 2002

Selected student and school characteristics	Less than high school	High school or GED[1]	Attend or complete 2-year community or vocational school	Attend college, but not complete 4-year degree	Graduate from college	Master's degree or equivalent	Ph.D., M.D., or other advanced degree	Don't know
Total	0.9	7.3	6.4	3.9	35.8	19.7	16.1	9.8
Sex								
Male	1.1	10.0	7.7	4.1	37.2	17.6	11.8	10.5
Female	0.8	4.6	5.2	3.7	34.4	21.9	20.4	9.2
Racial/ethnic group								
American Indian or Alaska Native	0.4	9.9	7.4	2.9	30.9	16.2	17.9	14.4
Asian or Pacific Islander	1.1	3.4	3.2	4.2	33.4	21.2	23.5	10.1
Black	1.4	8.2	5.6	6.0	37.3	15.2	17.9	8.5
Hispanic or Latino	1.7	10.0	6.1	6.0	35.0	15.6	12.6	13.0
More than one race	1.2	7.0	4.8	3.9	35.0	21.7	18.1	8.2
White	0.6	6.6	7.1	2.9	35.9	21.7	15.9	9.4
Socioeconomic status								
Lowest quartile	1.8	12.9	8.5	6.3	33.4	12.7	11.8	12.7
Middle two quartiles	0.8	7.1	7.4	3.7	37.2	18.9	14.4	10.4
Highest quartile	0.3	2.1	2.5	1.8	35.4	28.4	23.6	5.9
Parents' education								
High school or less	1.6	12.4	9.3	5.6	33.1	14.1	11.3	12.7
Some college	0.7	7.5	7.0	4.5	37.5	18.1	14.3	10.3
College graduation	0.7	3.9	4.6	2.4	40.1	23.9	16.4	7.9
Graduate/professional degree	0.6	2.8	2.9	1.8	30.8	27.1	27.6	6.4
Native language[2]								
English	0.8	7.1	6.6	3.6	36.1	20.2	16.2	9.5
Non-English	1.6	8.8	5.4	6.0	33.8	17.0	15.4	12.0
High school program[3]								
General	1.4	12.1	7.9	5.0	34.9	13.7	11.2	13.7
College preparatory	0.5	3.0	2.9	2.8	38.1	25.4	20.8	6.6
Vocational	1.2	10.6	17.6	5.2	28.2	14.7	10.9	11.6

See notes at end of table.

Table 34. Percentage of high school sophomores who expected to reach various highest levels of education, by selected student and school characteristics: 2002—Continued

Selected student and school characteristics	Less than high school	High school or GED[1]	Attend or complete 2-year community or vocational school	Attend college, but not complete 4-year degree	Graduate from college	Master's degree or equivalent	Ph.D., M.D., or other advanced degree	Don't know
Composite achievement test score in sophomore year								
Lowest quartile	3.0	17.6	9.2	7.9	30.1	9.2	8.3	14.6
Middle two quartiles	0.4	5.4	7.3	3.3	39.8	19.3	15.3	9.4
Highest quartile	0.0	1.0	2.1	1.1	33.4	31.2	25.4	5.9
Sophomore's school sector								
Public	1.0	7.8	6.8	4.1	35.8	19.1	15.4	10.1
Catholic	0.0	1.1	1.9	1.8	39.0	27.9	22.9	5.5
Other private	0.4	3.2	1.9	2.5	32.7	25.9	24.8	8.6
Region of sophomore's school								
Northeast	0.5	6.6	5.5	3.3	38.1	21.6	15.8	8.5
Midwest	0.8	7.6	7.6	3.6	35.4	21.0	14.6	9.5
South	1.1	7.0	6.0	3.9	36.0	18.7	18.2	9.1
West	1.2	8.1	6.6	4.8	34.0	18.4	14.7	12.3
Urbanicity of sophomore's school								
Urban	1.2	7.0	4.4	3.8	35.8	19.8	18.3	9.9
Suburban	0.9	7.0	6.8	4.0	35.8	20.2	15.5	9.9
Rural	0.9	8.7	8.6	4.0	35.9	18.3	14.0	9.8

[1]GED = general equivalency diploma.
[2]The first language students learned to speak when they were children.
[3]Students' self-report of the type of high school program in which they participated.
NOTE: Details may not sum to totals because of rounding. All race categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

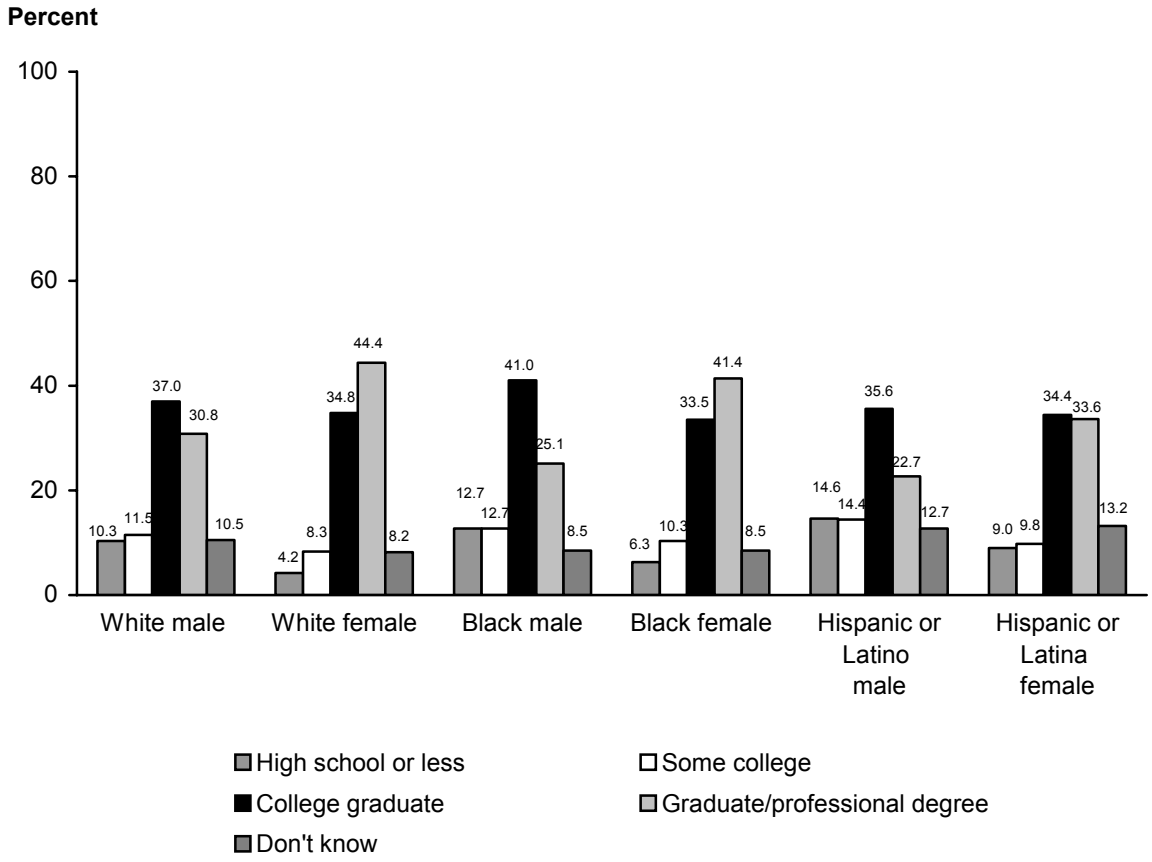
A small proportion of students expected to end their education with their high school diploma or a general equivalency diploma (GED) (7 percent) or less (1 percent). Female 10th-graders were less likely than their male classmates to report that they anticipated receiving no more than a high school degree (5 percent versus 11 percent). Also, Asian sophomores (5 percent) were less likely than Hispanic (12 percent) or Black (10 percent) sophomores to hold this expectation. Students with certain background characteristics and educational experiences were overrepresented. Sophomores from poorly educated families (14 percent of students whose parents did not advance beyond high school), enrolled in a general or vocational program (14 percent and 12 percent, respectively), struggling academically (21 percent of those scoring in the lowest quartile on the ELS:2002 cognitive tests), or attending public schools (9 percent) were more likely to report the lowest academic expectations. Nonetheless, a substantial proportion of students in all of these subgroups expected to complete a 4-year college degree or higher. For example, among those who scored in the lowest quartile on the ELS:2002 cognitive assessment, almost as many planned to receive a master's, Ph.D., or other advanced degree as expected to complete a high school diploma or less (18 percent versus 21 percent, a difference that was statistically but not, by the study's criterion of 5 percent, substantively significant).[52]

The gender gap in sophomores' educational expectations was quite pronounced, particularly at both ends of the spectrum. Nearly twice as many females as males expected to complete a Ph.D., M.D., or other advanced degree (20 percent versus 12 percent), whereas more than twice as many males as females expected to finish their education with a high school diploma or less (11 percent versus 5 percent). This gender gap existed for White, Black, and Hispanic students (see figure 34), regardless of SES[53] (see table 35) (except high-SES Blacks and middle-SES Hispanics). For example, among sophomores expecting to reach the highest level of educational attainment (graduate or professional degree), for the high-SES group, this expectation was held by 47 percent of White males compared to 57 percent of White females; by 40 percent of Black males, compared to 68 percent of Black females; and by 33 percent of Hispanic males, compared to 53 percent of Hispanic females (table 35).

[52] Readers are reminded that expectations are analyzed in terms of another kind of ELS:2002 test score, the probability of proficiency score, in chapter 6, and that that analysis explores the relationship between racial/ethnic group, educational expectations, and achievement. Among its findings was the unequal tested achievement of various racial groups within even the same expectation level (for example, in mathematics at level 3, the achievement of Blacks in the highest educational expectation group was lower than the tested achievement of Whites in the middle expectation group).

[53] This held true with two exceptions. A statistically significant difference in the proportion of Black male and Black female sophomores in the highest socioeconomic status quartile who expected to complete high school or less was not detected (7 percent versus 2 percent). Likewise, the proportion of Hispanic students from moderate social and economic backgrounds who expected to complete no more than high school was not found to differ by sex (11 percent versus 7 percent).

Figure 34. High school sophomores' educational expectations, by selected racial/ethnic group and sex: 2002



NOTE: Excludes "American Indian or Alaska Native" and "More than one race." All race categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

Table 35. Percentage of high school sophomores who expected to reach various highest levels of education, by selected racial/ethnic groups, sex, and socioeconomic status (SES): 2002

Racial/ethnic group and sex	SES	High school or less	Some college	College graduation	Graduate/ professional degree	Don't know
White male	All SES	10.3	11.5	37.0	30.8	10.5
	Low SES	23.6	18.4	30.7	15.2	12.2
	Mid SES	11.0	13.4	37.8	25.5	12.3
	High SES	2.9	5.1	38.5	46.8	6.6
White female	All SES	4.2	8.3	34.8	44.4	8.2
	Low SES	11.3	15.3	31.1	29.7	12.6
	Mid SES	4.1	9.7	36.5	41.1	8.6
	High SES	0.7	2.5	34.1	57.4	5.4
Black male	All SES	12.7	12.7	41.0	25.1	8.5
	Low SES	14.8	17.2	39.7	21.1	7.1
	Mid SES	12.9	10.2	42.8	23.4	10.7
	High SES	7.1	10.7	38.0	39.6	4.6
Black female	All SES	6.3	10.3	33.5	41.4	8.5
	Low SES	9.1	12.1	34.1	34.2	10.6
	Mid SES	5.4	9.9	36.1	41.1	7.5
	High SES	1.8	5.8	18.0	67.6	6.8
Hispanic or Latino male	All SES	14.6	14.4	35.6	22.7	12.7
	Low SES	18.8	16.2	32.2	17.0	15.9
	Mid SES	10.6	14.4	38.2	27.0	9.9
	High SES	10.5	6.2	41.5	32.9	8.9
Hispanic or Latina female	All SES	9.0	9.8	34.4	33.6	13.2
	Low SES	11.3	10.7	35.8	28.9	13.4
	Mid SES	7.4	9.5	33.3	35.2	14.6
	High SES	2.9	6.0	32.0	53.0	6.1

NOTE: Details may not sum to totals because of rounding. Excludes "American Indian or Alaska Native" and "More than one race." All race categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

ELS:2002 sophomores were also asked, "Do you plan to continue your education right after high school or at some time in the future?" As shown in table 36, overall, nearly three-quarters of sophomores planned to begin postsecondary education immediately following completion of high school (72 percent), 15 percent intended to resume their education after a 1-year delay, and a mere 2 percent intended to resume their education after more than 1 year. Students in certain subgroups were more likely to plan to continue their studies right away. Specifically, more students who were female (77 percent) than male (66 percent), enrolled in college preparatory programs (79 percent) than other programs (63 percent each of general and vocational program students), successful academically (84 percent) than scoring in lower percentiles (61 percent for lowest quartile and 69 percent for middle two quartiles) on the ELS:2002 cognitive assessments, attending Catholic (89 percent) or other private schools (80 percent) than public schools (70 percent), or who had very highly educated parents (83 percent) than other levels of education (between 62 percent and 79 percent) planned to continue their

education immediately after high school. In terms of race and ethnicity, Asian students (84 percent) were more likely to plan to continue their education immediately after high school than any other racial/ethnic group. Moreover, Asian (84 percent), Black (76 percent), and White students (72 percent) were all more likely than Hispanic students (67 percent) to plan to resume their education right after high school.

The majority of students reported that their parents, teachers, and school counselors wanted them to go to college immediately after high school (see table 37). Overall, over two-thirds believed their parents would like to see them attend college during the academic year following high school (72 percent for mothers, 68 percent for fathers). About 60 percent thought this was the opinion of their favorite teacher (63 percent) or counselor (62 percent). Very few students reported that these adults thought working full time, entering a trade school or apprenticeship, entering the military, or getting married should be their primary pursuit right after high school. Finally, it is noteworthy that a sizable proportion of sophomores did not appear to be receiving advice from these adults. Close to one in five students reported that their parents did not have an opinion or thought that the student should do what they (the student) wanted after finishing high school (16 percent for mothers, 18 percent for fathers). Even fewer students were receiving guidance in school. Almost one-third indicated that their favorite teacher (29 percent) or their counselor (30 percent) did not have an opinion or was leaving the decision up to them.

Table 36. High school sophomores' plans for education after high school, by selected student and school characteristics: 2002

Selected student and school characteristics	Plans to continue education right after high school	Plans to continue education after staying out of school for 1 year	Plans to continue education after staying out of school for over 1 year	Does not plan to continue education after high school	Don't know
Total	71.6	15.4	2.1	0.5	10.4
Sex					
Male	66.4	16.7	3.3	0.8	12.8
Female	76.5	14.3	0.9	0.3	8.1
Racial/ethnic group					
American Indian or Alaska Native	56.7	23.4	3.5	0.6	15.8
Asian or Pacific Islander	84.2	6.3	1.3	0.5	7.7
Black	75.7	14.7	1.3	0.7	7.6
Hispanic or Latino	66.5	16.9	2.5	0.7	13.4
More than one race	63.4	20.9	3.0	0.4	12.3
White	71.7	15.4	2.1	0.5	10.3
Socioeconomic status					
Lowest quartile	61.4	19.1	2.9	1.2	15.5
Middle two quartiles	69.4	17.1	2.1	0.5	10.9
Highest quartile	84.2	9.1	1.4	0.1	5.2
Parents' education					
High school or less	62.1	20.4	2.5	1.1	13.9
Some college	68.1	16.9	2.5	0.4	12.0
College graduation	79.0	11.3	1.6	0.4	7.7
Graduate/professional degree	82.9	10.5	1.1	0.1	5.5
Student's educational expectations					
High school or less	†	†	†	†	†
Some college	48.2	29.5	4.9	1.7	15.7
College graduation	73.3	16.7	2.1	0.2	7.8
Graduate/professional degree	85.1	10.1	1.1	0.1	3.6
Don't know	39.5	15.8	2.9	1.9	39.9
Native language[1]					
English	71.5	15.7	2.1	0.5	10.2
Non-English	71.7	13.4	2.1	1.0	11.8
High school program[2]					
General	62.9	18.3	2.6	0.9	15.4
College preparatory	79.1	12.6	1.5	0.2	6.6
Vocational	62.7	20.1	3.3	1.1	12.8
Composite achievement test score in sophomore year					
Lowest quartile	61.2	18.5	3.4	1.8	15.2
Middle two quartiles	69.6	18.0	1.9	0.3	10.2
Highest quartile	83.3	8.3	1.3	0.1	7.1

See notes at end of table.

Table 36. High school sophomores' plans for education after high school, by selected student and school characteristics: 2002—Continued

Selected student and school characteristics	Plans to continue education right after high school	Plans to continue education after staying out of school for 1 year	Plans to continue education after staying out of school for over 1 year	Does not plan to continue education after high school	Don't know
Sophomore's school sector					
Public	70.4	16.1	2.2	0.6	10.7
Catholic	88.8	6.6	0.5	0.1	4.0
Other private	79.5	9.9	0.6	0.0	10.0
Region of sophomore's school					
Northeast	75.5	14.1	2.3	0.6	7.6
Midwest	72.3	15.4	1.4	0.7	10.2
South	72.4	15.1	1.9	0.5	10.1
West	66.3	17.1	2.9	0.4	13.4
Urbanicity of sophomore's school					
Urban	73.3	14.4	1.8	0.6	9.9
Suburban	72.1	15.2	2.1	0.4	10.2
Rural	67.4	17.7	2.5	0.7	11.8

†Not applicable. Questionnaire respondents who indicated in question BYS56 that they did not plan to go on to postsecondary studies were routed past subsequent questions on postsecondary plans.
[1]The first language students learned to speak when they were children.
[2]Students' self-report of the type of high school program in which they participated.
NOTE: Detail may not sum to totals because of rounding. See appendix A for the weighted response rates of all unimputed variables used in this analysis. All race categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

Table 37. High school sophomores' reports of what parents and other adults thought was the most important thing for them to do right after high school: 2002

	Adults' opinions as reported by students, in percent			
Most important thing to do right after high school	Mother	Father	Favorite teacher	Counselor
Go to college	72.4	67.9	63.1	62.1
Get a full-time job	3.7	4.4	1.0	1.0
Enter a trade school or apprenticeship	1.8	1.9	1.2	1.4
Enter military service	1.5	2.7	0.9	0.6
Get married	0.5	0.5	0.2	0.1
They think I should do what I want	11.1	10.2	7.0	5.8
They have no opinion / I don't know their opinion	4.8	8.1	22.1	24.6

NOTE: Detail may not sum to totals because of rounding. See appendix A for the weighted response rates of all unimputed variables used in this analysis.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

7.3 Expectation for Occupation at Age 30

The ELS:2002 sophomores were asked to name the occupation they expected or planned to hold at age 30. Analysts grouped their verbatim responses into 17 occupational categories (see table 38). Two additional response categories were provided for students who did not plan to work at that age and for those who did not yet have occupational plans. Using these data, the following discussion describes the sophomore cohort in terms of their intentions to work at age 30, the clarity of their occupational goals, and the types of work they envisioned doing.

Table 38. Percentage of high school sophomores who expected to work in various occupational categories at age 30: 2002

Occupational category	Percent
Clerical	0.3
Craftsperson	2.7
Farmer, farm manager	0.1
Homemaker (without other job)	0.1
Laborer	0.4
Manager, administrator	1.9
Military	0.9
Operative	0.6
Professional I[1]	24.7
Professional II[2]	20.2
Proprietor or owner	2.1
Protective service	2.2
Sales	0.6
School teacher	1.6
Service	2.6
Technical	3.3
Other	0.5
Not planning to work at age 30	1.0
Don't know	34.3

[1]Professional I = Accountant, artist, registered nurse, engineer, librarian, writer, social worker, actor, actress, athlete, politician, but not including school teacher.
[2]Professional II = Clergy, dentist, physician, lawyer, scientist, college teacher.
NOTE: Detail may not sum to totals because of rounding. See appendix A for the weighted response rates of all unimputed variables used in this analysis.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

For many students, occupational goals had not yet crystallized. Some 34 percent of sophomores responded "I don't know" when asked to write in the name of the job or occupation they expected to have at age 30. Nevertheless, virtually all (99 percent) expected to work (other than homemaking) at that age, and almost two-thirds (65 percent) had a specific occupation in mind.

Among this latter group of students, about twice as many chose a profession as chose a nonprofessional occupation (45 percent versus 20 percent). Most professions require a graduate-level education, unlike nonprofessional occupations. As defined in ELS:2002, the Professional I category generally included jobs that required a master's degree or equivalent, while the Professional II category was composed of jobs for which a Ph.D., M.D., or other advanced

degree was needed. The sophomores listed occupations in the Professional I category more often than those in the Professional II category (25 percent versus 20 percent). None of the nonprofessional occupational categories garnered more than 5 percent of the students' responses.

As table 39 illustrates, no differences were detected in the proportion of females and males who did not plan to work at age 30 (both 1 percent). The surveyed females not only expect to be working at age 30, as a group they were more likely than their male counterparts to plan to pursue a professional occupation (52 percent and 37 percent, respectively).

Table 39. Percentage of high school sophomores who expected to work in various occupational categories at age 30, by sex: 2002

Occupational category	Female students	Male students
Clerical	0.4	0.1
Craftsperson	0.8	4.6
Farmer, farm manager	0.0	0.2
Homemaker (without other job)	0.2	0.0
Laborer	0.0	0.7
Manager, administrator	1.7	2.2
Military	0.2	1.7
Operative	0.1	1.1
Professional I[1]	23.9	25.5
Professional II[2]	28.5	11.6
Proprietor or owner	1.6	2.7
Protective service	1.2	3.3
Sales	0.3	0.8
School teacher	2.6	0.6
Service	4.6	0.4
Technical	2.2	4.5
Other	0.5	0.5
Not planning to work at age 30	0.9	1.1
Don't know	30.3	38.4

[1]Professional I = Accountant, artist, registered nurse, engineer, librarian, writer, social worker, actor, actress, athlete, politician, but not including school teacher.
[2]Professional II = Clergy, dentist, physician, lawyer, scientist, college teacher.
NOTE: Detail may not sum to totals because of rounding. See appendix A for the weighted response rates of all unimputed variables used in this analysis.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

This difference is consistent with the females' greater propensity to choose a profession for which a Ph.D., M.D., or other advanced degree is a necessary credential (29 percent for females versus 12 percent for males). Females and males were about equally likely to select a profession requiring a lesser amount of graduate-level education (24 percent for females and 26 percent for males, a difference that was neither statistically nor substantively significant). Furthermore, fewer females than males reported that they "did not know" what work they expected to be doing at age 30 (30 and 38 percent, respectively).

These gender effects were also observed when students of different racial/ethnic backgrounds were considered separately (see figure 35). Consistent with the overall pattern, White, Black, and Hispanic females (27, 36, and 26 percent, respectively) were more likely than

males in their racial/ethnic group (12, 12, and 9 percent, respectively) to expect to have a professional career requiring the highest level of education (Professional II). While no gender gap was detectable for White and Hispanic students choosing professional careers with relatively less demanding academic standards (Professional I), Black females were *less* likely than Black males to opt for a career in this category. Nonetheless, when professions at both levels were considered together, Black females still predominated over their male counterparts (58 percent and 42 percent, respectively). Finally, the finding that females on the whole were more certain of their plans for work at age 30 than males held true across racial and ethnic categories (30 percent of White females versus 37 percent of White males responded they did not know their plans, 22 percent of Black females versus 36 percent of Black males responded they did not know their plans, and 38 percent of Hispanic females versus 47 percent of Hispanic males reported they did not know their plans).

Figure 35. High school sophomores' occupational expectations, by selected racial/ethnic group and sex: 2002

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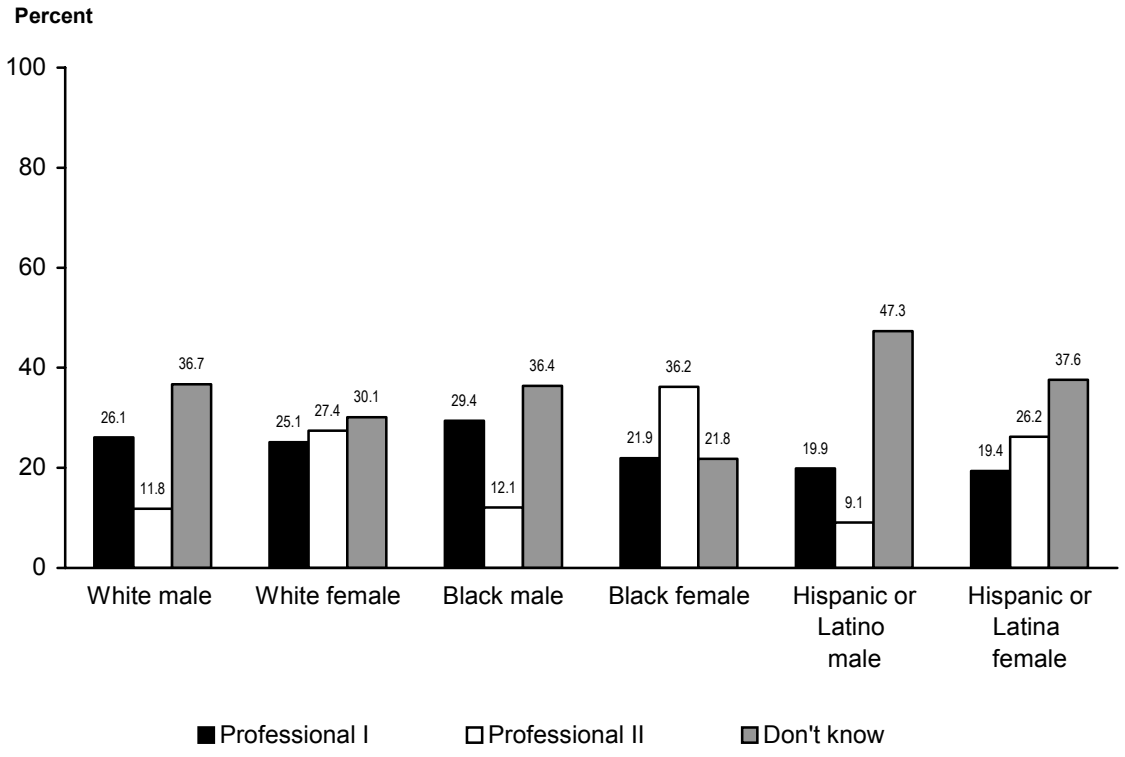

NOTE: See appendix A for the weighted response rates of all unimputed variables used in this analysis. Excludes "American Indian or Alaska Native" and "More than one race." All race categories exclude Hispanic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

Just as history suggests that many students will fall short of their educational goals, the distribution of occupations in the United States indicates that many students have unrealistic expectations for work. While almost half (45 percent) of all sophomores (and over two-thirds of those who identified a job of interest [70 percent]) expected to work as professionals at age 30,

only 20 percent of all workers 16 and older in the United States held professional jobs in 2000 (U.S. Census Bureau 2000).[54] Some sophomores will be deterred from pursuing a professional occupation by obstacles met on their path to a postsecondary degree. Others are unaware of the amount of education necessary for their chosen profession and will adjust their occupational plans when they learn how much postsecondary work is required. Future follow-ups with these sophomores will determine how often their occupational goals are met and identify factors contributing to their success.

7.4 Summary

The ELS:2002 sophomore cohort was asked to rate the worth of 14 aspects of life related to education, work, family, friends, and community. Most 10th-graders focused heavily on their schooling and work, with over 80 percent reporting that getting a good education and being successful in their line of work were very important to them. Female (88 percent) and Black (90 percent) students were more likely than male (78 percent) and White (80 percent) students to emphasize the importance of a good education.

In terms of work characteristics, having a steady job, gaining expertise, and enjoying leisure time to pursue other interests were considered very important to the majority of these sophomores (84, 71, and 68 percent, respectively). Fewer students rated having a lot of money as this important (42 percent). Students who had the most ambitious educational plans were more likely than their least academically motivated peers to consider steady work (89 percent versus 72 percent), expertise (80 percent versus 58 percent), and leisure (72 percent versus 59 percent) as very important. However, the opposite was true for money. Sophomores who did not plan to continue their education past high school were more likely than those who expected to complete a college, graduate, or professional degree to indicate that money was very important to them.

With respect to personal relationships, the roles of spouse and friend were very important to the vast majority of these 10th-graders (76 percent rated finding the right person to marry as very important and 83 percent reported having strong friendships as very important). Becoming a parent, however, was very important to less than half of them (47 percent). Nonetheless, should they become parents, the majority reported that providing better opportunities for their children was very important (80 percent). Community involvement (36 percent) and correcting injustices (19 percent) were not as highly valued by the cohort as a whole as a good education, success at work, and having a happy family.

[54] While there is not a one-to-one correspondence between occupations categorized as professions by the ELS:2002 and the U.S. Census Bureau (2000), considerable overlap allows for a reasonable comparison. The ELS:2002 Professional I and Professional II categories are almost entirely subsumed under the U.S. Census Bureau's Professional and Related Occupations category. Furthermore, the Professional and Related Occupations category in the U.S. Census Bureau's rubric is more inclusive than the ELS:2002's Professional I and Professional II categories combined. Therefore, 20 percent is probably a slight overestimate of the proportion of Professional I and Professional II occupations in the 2000 U.S. economy. Furthermore, the U.S. Census data provide a distribution of occupations of all workers aged 16 and older. Occupations among those aged 30 are likely to be more concentrated in the professions because most 30-year-olds have completed their education. In this respect, it is likely that the 2000 U.S. Census distribution of occupations somewhat underestimates the proportion of 30-year-olds holding professional occupations. Nonetheless, with these caveats in mind, the U.S. Census data serve as a useful reference point for comparison.

Consistent with the theme that this sophomore cohort is highly motivated with respect to education, the majority of these students expected to complete a 4-year degree or more and planned to begin their postsecondary work right after high school. Over one-third of sophomores (36 percent) expected that a 4-year college degree would be their highest degree, and as many expected to complete graduate work (36 percent). In contrast, fewer than 1 in 10 (7 percent) did not plan to continue their education after high school. Females were more likely to aim for a graduate or professional degree than males, as were Asian students relative to Black, Hispanic, and White students. Nevertheless, a majority in all sex and racial/ethnic groups expected, at minimum, to graduate from college with a 4-year degree (63–78 percent). Nearly three-quarters of these sophomores planned to continue their education right after high school (72 percent), while another 15 percent expected to resume their studies after 1 year or more.

Most parents, teachers, and school counselors appeared to share most of these students' belief that continuing their education after high school was important. At least two-thirds of the sophomores thought that their parents wanted them to attend college right after high school (72 percent for mothers, 68 percent for fathers). At least three-fifths reported that their favorite teacher (63 percent) or school counselor (62 percent) believed that college should be their primary pursuit upon graduation. Very few students were being encouraged by these adults to pursue other avenues, such as getting a full-time job, entering trade school, entering the military, or getting married. However, a good number of students did not appear to be receiving guidance from these adults. Some believed that these adults did not have an opinion, or they did not know what these adults wanted for them. Others reported that parents and school personnel believed that the students should do what they wanted to do. Nearly one in five sophomores were not receiving advice from parents as to what to do following high school (16 percent for mothers, 18 percent for fathers). An even larger proportion reported not getting guidance at school (29 percent for teachers, 30 percent for counselors).

Almost all of these sophomores (99 percent) planned to be working when they reached 30 years of age, but one-third (34 percent) reported that they "did not know" what their occupation would be. Yet the majority of those who had a career in mind saw a very bright future for themselves. About two-thirds of these students envisioned working in a profession that required a graduate degree (70 percent of the 65 percent who reported an expected occupation at age 30). No difference was found between females and males in their propensity to opt not to work at age 30 (both 1 percent). Female students were more likely than male students (29 percent versus 12 percent) to select a profession requiring a Ph.D. or another advanced degree, the highest level of graduate studies.

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