

Appendix A

Technical Notes and Glossary

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A.1 Overview of the Technical Appendix

The National Center for Education Statistics (NCES) of the U.S. Department of Education has collected longitudinal data for more than 30 years. Starting in 1972 with the National Longitudinal Study of the High School Class of 1972 (NLS-72) and continuing to the most recent study, the Education Longitudinal Study of 2002 (ELS:2002), NCES has provided longitudinal and trend data to education policymakers and researchers that link secondary school educational achievement and experiences with important downstream outcomes, such as entry into the labor market and postsecondary educational access and attainment.

The first section of this appendix gives further information about the design and content of the three studies whose data are drawn upon in this report: High School and Beyond (HS&B), the National Education Longitudinal Study of 1988 (NELS:88), and ELS:2002.

This section is followed by discussions of sampling, weighting, response rates, quality of estimates, and standard errors. Next, an account is offered of the statistical procedures employed. In addition, this appendix provides a listing of the specific variables used in the analyses in this report.

A.2 NCES High School Longitudinal Studies Program

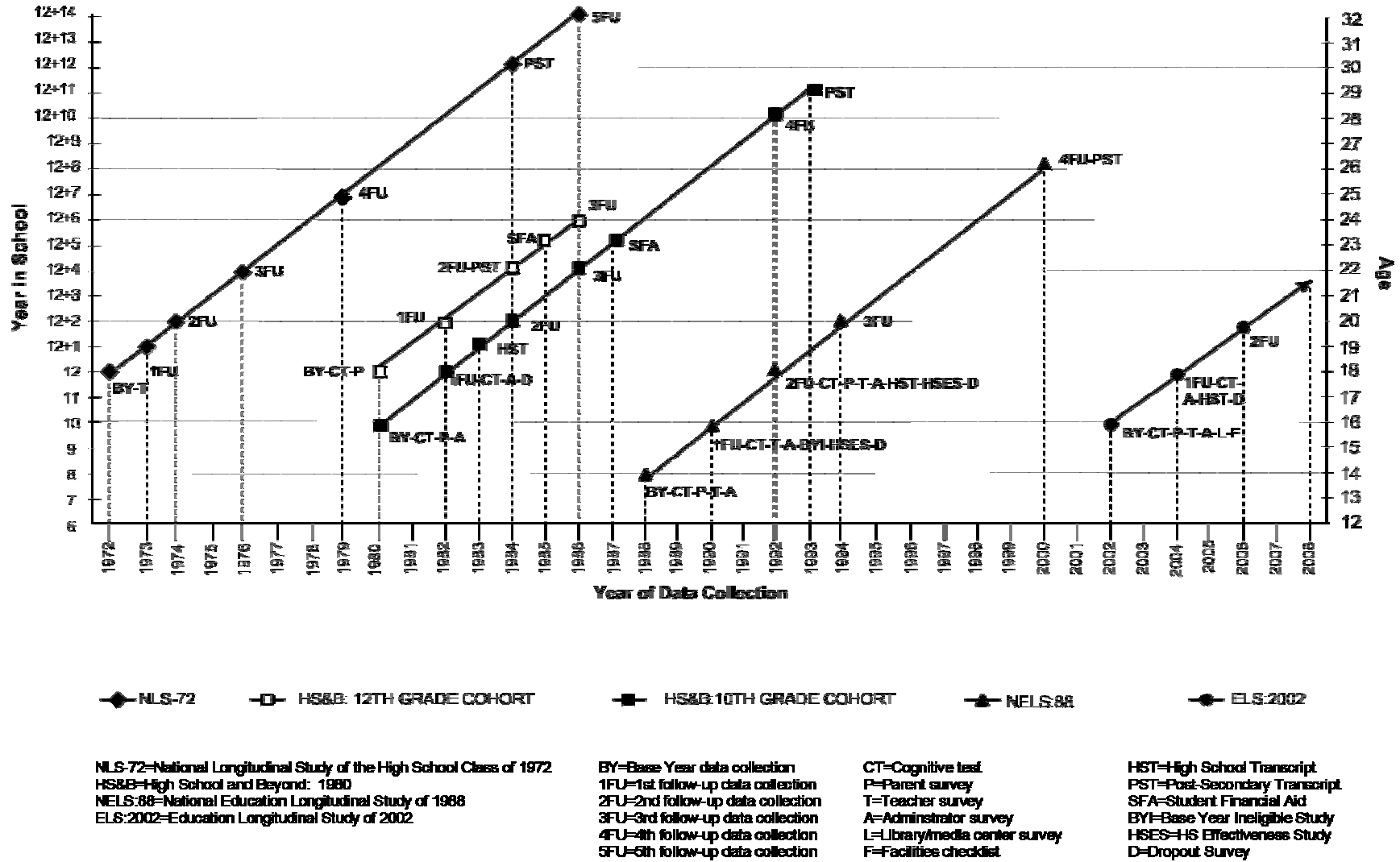
In response to its mandate to “collect and disseminate statistics and other data related to education in the United States” and the need for policy-relevant, nationally representative longitudinal samples of elementary and secondary students, NCES instituted the National Education Longitudinal Studies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

NCES (and ELS:2002) are authorized by section 406(b) of the General Education Provisions Act of 1994, enacted as part of the Improving America’s Schools Act of 1994 and amended by the Education Sciences Reform Act of 2002. The Education Sciences Reform Act of 2002 replaced the former Office of Educational Research and Improvement (OERI) with the Institute of Education Sciences (IES), of which NCES is now a part.

The high school longitudinal studies program consists of three completed studies: NLS-72, HS&B, and NELS:88. In addition, base-year data for ELS:2002, the fourth longitudinal study in the series, are now available. Taken together, these studies describe (or will describe) the educational experiences of students from four decades—the 1970s, 1980s, 1990s, and 2000s—and also provide bases for further understanding of the correlates of educational success in the United States. Figure A-1 includes a temporal presentation of these four longitudinal education studies and highlights their component and comparison points. The figure does not

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

A-4



identify all future follow-up points for ELS:2002; final decisions have yet to be made concerning them. However, the general expectation is that ELS:2002 sophomores will be followed until about age 30.

A.2.1 High School and Beyond (HS&B)

The Education Longitudinal Studies program began over 30 years ago with the implementation of the National Longitudinal Study of 1972 (NLS-72).¹ The second in the series of NCES longitudinal studies was launched in 1980. HS&B included one cohort of high school seniors comparable to the NLS-72 sample; however, the study also extended the age span and analytical range of NCES longitudinal studies by surveying a sample of high school sophomores. Base-year data collection took place in the spring term of the 1979–80 academic year with a two-stage probability sample. More than 1,000 schools served as the first-stage units, and 58,000 students within these schools were the second-stage units. Both cohorts of HS&B participants were resurveyed in 1982, 1984, and 1986; the sophomore group also was surveyed in 1992.² In addition, to better understand the school and home contexts for the sample members, data were collected from teachers (a teacher comment form in the base year asked for teacher perceptions of HS&B sample members), principals, and a subsample of parents. High school transcripts were collected for a subsample of sophomore cohort members. As in NLS-72, postsecondary transcripts were collected for both HS&B cohorts; however, the sophomore cohort transcripts cover a much longer time span (to 1993).

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

A.2.2 National Education Longitudinal Study of 1988 (NELS:88)

NELS:88 represents an integrated system of data that tracked students from junior high or middle school through secondary and postsecondary education, labor market experiences, and marriage and family formation. Because ELS:2002 repeats so many of its innovations and design features, it will be useful to provide a detailed round-by-round picture of NELS:88.

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

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

Data collection for NELS:88 was initiated with the 8th-grade class of 1988 in the spring term of the 1987–88 school year. Along with a student survey, NELS:88 included surveys of parents (base-year and second follow-up), teachers (base-year, first, and second follow-ups), and school administrators (base-year, first, and second follow-ups). The sample was also surveyed after scheduled high school graduation, in 1994 and 2000.³

A.2.2.1 NELS:88 base year

The NELS:88 base year (1988) successfully surveyed 24,599 students, out of some 26,432 selected 8th-graders, across 1,052 public, Catholic, and other private schools. In addition to filling out a questionnaire, students also completed assessments in four subjects (the NELS:88 achievement battery included tests in reading, mathematics, science, and social studies). The base year also surveyed one parent, two teachers, and the principal of each selected student. The base-year research instruments collected information about home, school, and individual factors that could serve as predictors for later outcomes (such as, viewed in terms of positive outcomes, graduating from high school, making a smooth transition into the workforce, or completing postsecondary education). Information collected in the base year included family income, parental education, and occupation; parental aspirations for their 8th-grader; the 8th-grader's educational and occupational aspirations and plans, school experiences, extracurricular activities, jobs and chores, television viewing, and reading; teacher perceptions of the 8th-grader's classroom performance and personal characteristics; curricular and instructional information about the classes in which teachers taught the 8th-grader; the teacher's own background and professional activities; and the principal's reports on the educational setting and environment of the school.

A.2.2.2 NELS:88 first follow-up

A first follow-up took place in 1990. At that time, student cohort members, their teachers, and their principals were resurveyed. The first follow-up presented three major new analytic opportunities: (1) longitudinal analysis of gains in tested achievement and the correlates of achievement gains, (2) identification of high school dropouts and investigation of why some students drop out of school and others persist, and (3) cross-cohort comparison (1990 NELS:88 high school sophomores could be compared to the HS&B sophomores in 1980).

Achievement Gain. One major goal of NELS:88 was to measure students' academic growth over time and to identify school and nonschool factors that are associated with academic achievement. The first follow-up tests were tailored to students' ability as measured in the base year; more difficult test forms were assigned to students with a higher ability estimate. The first follow-up, by retesting the 8th-grade NELS:88 cohort, was able to measure cognitive gains between 8th and 10th grades in mathematics, science, reading, and social studies. In turn, these

³ The entire compass of NELS:88, from its baseline through its final follow-up in 2000, is described in Curtin et al. (2002). More detailed information about the sophomore surveys of NELS:88 can be found in Ingels et al. (1992b, 1994). Outcomes for the 8th-grade cohort in 2000 are reported in Ingels et al. (2002). The most extensive documentation of the NELS:88 assessment battery is found in Rock and Pollack (1995a). The quality of NELS:88 data in the in-school rounds is examined in McLaughlin and Cohen (1997). The sample design is documented in Spencer et al. (1990). Eligibility and exclusion issues are addressed in Ingels (1996). NCES keeps an updated version of the NELS:88 bibliography on its website. The bibliography encompasses both project documentation and research articles, monographs, dissertations, and paper presentations employing NELS:88 data (see <http://nces.ed.gov/surveys/nels88/Bibliography.asp>).

gains could be related to the data collected on home and school correlates of achievement, starting in 1988.⁴

Correlates and Dynamics of School Disengagement and Dropping Out. Another major goal of the first follow-up was to study the educational trajectory of those who drop out of high school and to better understand the factors that help some at-risk students persist in their education. By beginning with the 8th grade, NELS:88 was able to capture the population of early dropouts—those who left school prior to spring term of 10th grade—as well as (in the second follow-up) later dropouts (who left after spring of 10th grade), as had been studied in HS&B.

Cross-Cohort Comparison. A third goal of the 1990 wave was to compare NELS:88 sophomores with the earlier cohort of high school sophomores studied in HS&B. To ensure comparability of the two samples, NELS:88 had to “freshen” the sophomore sample by giving a chance of selection to 1990 sophomores who had not been 8th-graders in 1988 (or had not been in the United States). Thus, a nationally representative sophomore grade cohort was included in NELS:88 in the first follow-up (1990). The freshening of the sample provided comparability to earlier cohorts and opportunities for comparing the situation of NELS:88 sophomores with those of HS&B a decade before. Freshening also enabled researchers to conduct both grade-representative cross-sectional and subsequent sophomore cohort longitudinal analyses with the data.

A.2.2.3 NELS:88 second follow-up

The second follow-up took place in the spring term of the 1991–92 school year, when most sample members were in their final semester of high school. There were 21,188 student and dropout participants. This follow-up provided a culminating measurement of learning in the course of secondary school and also collected information to facilitate investigation of the transition into the labor force and postsecondary education after high school. As in the first follow-up, the sample was freshened, this time to represent the high school senior class of 1992. Cohort comparisons can be made to the high school classes of 1972 and 1980 that were studied in NLS-72 and HS&B. The NELS:88 second follow-up also surveyed students who were identified as dropouts in 1990 and identified and surveyed additional students who had left school since the prior wave. In late 1992 and early 1993, high school transcripts were collected for sample members.

A.2.2.4 NELS:88 third follow-up

The third follow-up took place in 1994, when most sample members had completed high school. The primary goals of the 1994 round were (1) to provide data for cohort comparisons with NLS-72 and HS&B, (2) to address issues of employment, (3) to address issues of postsecondary access and choice, and (4) to ascertain how many dropouts had returned to school and by what route. There were 14,915 participants.

⁴ Further information about NELS:88 proficiency scores can be found in Rock and Pollack (1995a). For examples of their use in achievement gain analysis, see Rock and Pollack (1995b) and Scott et al. (1995).

A.2.2.5 NELS:88 fourth follow-up

The fourth follow-up took place in 2000, when most sample members who attended college and technical schools had completed their postsecondary education. The study data address issues of employment, family formation, and postsecondary persistence and attainment. There were 12,144 participants in the questionnaire phase of the study. In fall 2000 and early 2001, postsecondary transcripts were collected.

A.3 Education Longitudinal Study of 2002 (ELS:2002)

The tenth-grade base year of ELS:2002 represents the first stage of a major longitudinal effort designed to provide data about critical transitions experienced by students as they proceed through high school and into postsecondary education or their careers. The 2002 sophomore cohort was re-surveyed in the spring of 2004, and again in 2006. It will continue to be followed, to collect data about students' access to, and success in, postsecondary education and the workforce, that can be related back to their high school experience. This section details some of the key elements of the study design.

A.3.1 ELS:2002 study objectives

ELS:2002 is designed to monitor the transition of a national sample of young people as they progress from 10th grade through high school and on to postsecondary education and/or the world of work.

ELS:2002 has two distinctive features. First, it is a longitudinal study, in which the same units are surveyed repeatedly over time. Individual students will be followed for more than 10 years; the base-year schools have been surveyed twice, in 2002 and in 2004. Second, in the high school years, it is an integrated multilevel study, involving multiple respondent populations. Each of these two features—the longitudinal nature of the ELS:2002 design and its multilevel focus—will be explained in greater detail below.

The transition through high school and beyond into postsecondary institutions and the labor market is both complex (there are many different pathways that youth may follow) and prolonged (it takes place over a period of years). The complexity and time frame for this transition make longitudinal approaches especially appropriate. By surveying the same young people over time, it is possible to record the changes taking place in their lives, and to examine associations between earlier achievements, aspirations, and experiences and later outcomes. In the first year of data collection (the 2002 base year), ELS:2002 measured students' tested achievement in reading and mathematics. ELS:2002 also obtained information from students about their attitudes and experiences. These same students (including those who dropped out of school) were tested and surveyed again, in 2004, and re-interviewed in 2006. Cohort members will be followed for a number of years after the 2006 round.

ELS:2002 gathers information at multiple levels. It obtains information not only from students and their school records, but also from students' parents, teachers, and the administrators (principal and library media center director) of their schools. Data from their teachers, for example, provide information both about the student and about the teachers'

background and activities. This multilevel focus supplies researchers with a detailed picture of the home, community, and school environments. This multiple respondent perspective is unified by the fact that, for most purposes, the student is the basic unit of analysis.⁵

After the high school years, ELS:2002 will continue to follow its sample of students into postsecondary education and/or the labor market. Key elements in the ELS:2002 longitudinal design are summarized by wave below.

Base Year (2002)

- Baseline survey of high school sophomores completed in spring term 2002.
- Cognitive tests in reading and mathematics completed.
- Survey of parents, English teachers, and mathematics teachers completed. School administrator questionnaires were also collected.
- Additional components for this study included a school facilities checklist and a media center (library) questionnaire.
- Sample sizes of approximately 750 schools and over 17,000 students. Schools are the first-stage unit of selection, with sophomores randomly selected within schools.
- Oversampling of Asians and private schools.
- Design linkages with the Program for International Student Assessment (PISA) and the National Assessment of Educational Progress (NAEP); score reporting linkages to the prior longitudinal studies.

First Follow-up (2004)

- Most sample members are seniors, but some are dropouts or in other grades.
- Student questionnaire, dropout questionnaire, assessment in mathematics, and school administrator questionnaire were administered.
- Return to the same schools, but separately follow transfer students.
- Freshening for a senior cohort.
- High school transcript component in 2004 (coursetaking records for grades 9–12 at minimum).

Second Follow-up (2006)

- Post–high school follow-ups conducted by computer-assisted telephone interview (CATI), computer-assisted personal interview (CAPI), and web-based self-administered interview.
- Surveyed 2 years after scheduled high school graduation.

⁵ Base-year school administrator, library media center, and facilities data can be used to report on the nation's schools with 10th grades in the 2001–02 school year. However, the primary use of the school-level data (and the purpose of parent and teacher surveys) is to provide further contextual information on the student.

Further Follow-ups

- Number of (and dates for) further follow-ups to be determined.

A.4 Measures of Survey Precision and Quality

A.4.1 Survey standard errors

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

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

A.4.2 Sampling, weighting, response rates, and quality of estimates

HS&B. This report uses data collected in the HS&B base year from the sophomore cohort. The base-year survey was conducted in the spring term of 1980. The study provided for a national probability sample of 1,015 secondary schools as the first units of selection. In the second stage, 36 seniors and 36 sophomores were selected in each school. Schools with high percentages of Hispanic students, Catholic schools with a high percentage of minority students, alternative public schools, and private schools with high achieving students were oversampled. HS&B sophomores were followed in 1982, 1984, 1986, and 1992. Postsecondary transcripts were also collected with the most recent collection being 1992. In addition, parent, teacher, and school surveys were conducted. The unweighted response rate at the baseline school level was 70 percent and at the baseline student level was 84 percent.⁶ Data weights were adjusted for nonresponse at each level.

NELS:88. NELS:88 differs from HS&B and ELS:2002 in that the first data collection phase began in the 8th grade rather than the sophomore cohort. The data used in this report are therefore from the first follow-up conducted in 1990 when most of the 8th-graders were high school sophomores. The base-year (8th-grade) cohort was drawn from a stratified national probability sample of 1,052 public and private 8th-grade schools from which about 25,000 students participated in the base-year study. Because the sample was freshened with 1990 sophomores who were not in the 8th-grade 1988 sample, it is a representative sample of the nation's spring term 1990 sophomores. For the sophomore year follow-up, about 18,221 students participated from 19,363 selected. By maintaining a degree of comparability in questionnaire and test measures employed, NELS:88 first follow-up results support comparisons with the HS&B and ELS:2002 sophomores. Study base-year 1988 participants were followed in 1990, 1992, 1994, and 2000. In addition, parent, principal, and teacher surveys were conducted. It should be

⁶ Weighted response rates for HS&B are not included in published documentation.

noted, however, that the original school sample reflects schools covering the 8th grade. The 10th-grade schools reflect the schools that this cross-section of 8th-graders dispersed to and attended two years later. The unweighted response rate at the baseline 8th-grade school level was 70 percent for the initial school selections. Replacement schools were used. The 8th-grade student response rate was 93.4 percent. Two years later, most students had dispersed to new schools, of which 99 percent cooperated. The unweighted sophomore response rate was 94 percent. Data weights were adjusted for nonresponse at each level.

ELS:2002. The ELS:2002 base-year study was carried out in a national probability sample of 752 public, Catholic, and other private schools in the spring term of the 2001–02 school year. Of 17,591 eligible selected sophomores, 15,362 completed a base-year questionnaire, as did 13,486 parents, 7,135 teachers, 743 principals, and 718 librarians. 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. Mathematics achievement was reassessed 2 years later (2004). The unweighted response rate at the school level was 62 percent and at the sophomore baseline level was 87 percent. Data weights were adjusted for nonresponse at each level.

Additional information about the design of HS&B, NELS:88, and ELS:2002, questionnaire wording, data collection results, structure of the data files, specifications used in creating composite variables, universe coverage, sample selection procedures, weighting methodology, selected standard error estimates, estimates of design effects for categories of students, and results of nonresponse analyses is provided in each study’s user manuals and technical reports. For the comparisons in this report, the most relevant documents are the following: Jones et al. (1983); Ingels et al. (1992a, 1992b); and Ingels et al. (2004). For detailed reliability and validity information concerning the HS&B and NELS:88 questionnaires and cognitive tests, the various psychometric and technical reports should also be consulted. For the sophomore year comparisons in this report, the following sources are particularly to be recommended. On data quality, see Burns et al. (2003); Feters, Stowe, and Owings (1984); Kaufman and Rasinski (1991); and McLaughlin and Cohen (1997). On sampling issues, see Frankel et al. (1981); Ingels et al. (2004); and Spencer et al. (1990). On eligibility and exclusion, see Ingels (1996). For psychometric documentation, see Ingels et al. (1994) and Rock and Pollack (1995a). For an analysis (using the variables in this report) of the impact of imputation on estimates for 2002 relative to the unimputed estimates of 1980, 1990, and 2002, see Ingels, Pratt et al. (2005), appendix C.

A.5 Statistical Procedures

A.5.1 Student *t* statistics

Comparisons that have been drawn in the text of this report have been tested for statistical significance to ensure that the differences are larger than those that might be expected due to sampling variation. The statistical comparisons in this report were based largely on the *t* statistic. Whether the difference between two groups is considered significant or not is determined by calculating a *t* value for the difference between a pair of means or proportions and

comparing this value to published tables of values, called critical values (cv). The alpha level is an a priori statement of the probability that a difference exists in fact rather than by chance.

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

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

where x_1 and x_2 are the estimates to be compared (e.g., the means of sample members in two groups), and SE_1 and SE_2 are their corresponding standard errors. This formula is valid only for independent estimates. When the estimates are not independent (a handful of comparisons in this report are based on dependent estimates), a covariance term must be added to the denominator of the formula. For tests comparing correlated samples, the t statistic used was as follows:

$$t = \frac{E_1 - E_2}{\sqrt{se_1^2 + se_2^2 - 2(r)se_1se_2}}$$

where E_1 and E_2 are the estimates to be compared, se_1 and se_2 are the corresponding standard errors, and r is the correlation between the two variables.

A.5.2 Effect sizes

Assessment results (changes in sophomore NELS:88-scaled mathematics performance between 1980 and 2002 and changes in probabilities of proficiency in mathematics and reading between 1990 and 2002) were tested in terms of effect sizes as well as statistical significance. A similar approach, using effect sizes with mean differences in tested achievement, was followed in earlier cross-cohort reports (Green, Dugoni, and Ingels 1995; Rasinski et al. 1993).

The effect size, as used in this report, is a measure of difference represented in standard deviation units (the effect size is interpreted as the number of standard deviations separating the means of the two groups). Effect sizes were calculated as the change in mean test scores divided by the pooled standard deviation. The formula for computing the pooled standard deviation was:

$$\sqrt{\frac{(n_1 - 1) \sigma_1^2 + (n_2 - 1) \sigma_2^2}{n_1 + n_2 - 2}}$$

Thus, effect sizes measure changes in test scores at any two comparison points relative to the score's total variability, calculated as the score's standard deviation pooled across the two time points.

The effect size is a measure of the practical or substantive importance of cohort and subgroup differences. Large sample sizes may result in small differences being statistically significant, but tests of statistical significance tell little about whether effects are weak or strong. Thus the effect size statistic is a useful way of assessing whether a particular difference is a meaningful one. It should be kept in mind, however, that meaningfulness of a difference varies

according to the types of data involved, and the real-world consequences of such differences (see Wainer and Robinson 2003 for a discussion of effect size magnitude and importance as relative to research context). For this report, achievement result changes over time were specifically remarked if, and only if, they were both statistically significant at .05 and had an effect size of 0.20 or higher. While 0.20 represents a small effect size, 0.50 represents a medium one, and 0.80 large. (These conventions follow Cohen 1988 and continuing practice in the field [Murphy and Myers 2004] and are reflected as guidelines in the *NCES Statistical Standards* [Seastrom 2002]). Although for comparisons of means in this report, an effect size criterion of 0.20 was set for practical importance, a minimum difference of 5 percentage points was required for proportions, for comparisons to be described as meaningfully different. In both cases, that is, whether the effect size criterion for means was enforced or the percentage criterion for proportions, statistical significance (at .05) was also required.

A.6 Description of Variables Used

In section A.6, all variables used in this report are succinctly described. Further detail is given in A.7 for key classification variables, and for test scores.

The three longitudinal studies that provided data for this report have each had several follow-ups and multiple data releases. Wherever possible, the data reported here for HS&B and NELS:88 use the data reported in *America's High School Sophomores: A Ten Year Comparison*.

The variable names for the data elements used in this report are provided in this section. For more detailed information, see the applicable user's guides for the three studies:

Jones, C., Clarke, M., Mooney, G., McWilliams, H., Crawford, I., Stephenson, B., and Tourangeau, R. (1983). *High School and Beyond 1980 Sophomore Cohort First Follow-up (1982) Data File User's Manual*. U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.

Ingels, S.J., Scott, L.A., Lindmark, J.T., Frankel, M.R., and Myers, S.L. (1992). *User's Manual: NELS:88 First Follow-Up Student Component Data Files* (NCES 92-030). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.

Ingels, S.J., Pratt, D.J., Rogers, J., Siegel, P.H., and Stutts, E.S. (2004). *Education Longitudinal Study of 2002: Base Year Data File User's Manual* (NCES 2004-405). Washington, DC: U.S. Department of Education, National Center for Education Statistics.

The references for the data files used in this report for each of the three studies are as follows:

The 1980 data were obtained using HS&B 1980 base-year student, parent, language, and school survey component files. The student- and parent-level files used the filter "GRADE=1" to filter the population of sophomore cohort students. Since HS&B Electronic Codebook (ECB) products, on CD-ROM, do not contain the full population of base-year sampled students, an archive copy of these base-year files was obtained from the website for the Inter-university

Consortium for Political and Social Research (ICPSR) at the University of Michigan under the International Archive of Education Data (IAED) program. The user can find the link to “High School and Beyond (HS&B) Series” from the IAED Data & Surveys page under the Longitudinal Surveys section. From here, the analyst can obtain data and description files by choosing “View studies in the series” and the download links to “No. 7896, *High School and Beyond, 1980: A Longitudinal Survey of Students in the United States*, National Center for Education Statistics, 1992-02-16.”

The 1990 data were obtained using the NELS:88 first follow-up survey student and base-year parent component files. The population of 1990 sophomore cohort students was obtained using the filter “F1SEQFLG=0.” This flag variable was chosen over other available NELS:88 flag and derived variables because the resultant population closely matched the original 1990 population used in the publication *America’s High School Sophomores: A Ten Year Comparison* (Rasinski et al. 1993). The data were extracted from *NELS:88/94 Base Year through Third Follow-up ECB/CD-ROM—Restricted Use* (NCES 96–130), Release Date: March 12, 1996. This data product contains two installable ECBs, N2R and N4R. The N2R ECB contains all NELS data collected from the base year, first, and second follow-ups. These data can be used for cross-sectional or longitudinal analyses. The extracted analysis file, from this ECB, varied slightly from the NELS:88 first follow-up file used in the original analysis. These differences were due to file edits and revisions performed after the original analysis. One reason for selecting this product, besides having revised data, was that it contained 1992 rescaled mathematics and reading test scores and test variables that are compatible with ELS:2002. The reading and mathematics proficiency probabilities, used in chapter 4, were computed using the rescaled 1992 Item Response Theory (IRT)-estimated item parameters. Also in chapter 4 are mathematics IRT (estimates of number-right scores) comparisons between 1980, 1990, and 2002. Because 1980 tests are included in this comparison, the NELS first follow-up 1990 scale is the only compatible scale across all years. The scaled mathematics variable “FITXMIRR” does not exist in the N2R ECB, so this variable had to be extracted from the NELS:88 base-year through first follow-up CD-ROM and merged with the other NELS data extracted from the N2R ECB.

The 2002 data were obtained using the ELS:2002 base-year survey student component file. The population of 2002 sophomore cohort students was obtained using no filters. The data were extracted from *Education Longitudinal Study: 2002 Data Files and Electronic Codebook* (NCES 2004–404), Web Release Date: November 12, 2004.

Table A-1 presents the variable names and explanatory notes for the variables discussed in this report.

Table A-1. Variable names and explanatory notes, by year: 1980, 1990, and 2002

Variable	1980	1990	2002
Cohort demographics			
Sex	BB083	F1SEX	SEX
Racial/ethnic group	BB089, BB090	F1RACE	RACE
	The race variable for 1980 evaluated the response to Hispanic origin first. If the response was positive, the race value was set to Hispanic, regardless of the response to the race question.		
Socioeconomic status	BBSSES	F1SESQ	SES1Q
Parent's education	PBB38, PBB50, BB042	F1PARED	PARED
	The parents' education variable for 1980 used parent responses. If the parent response did not exist, the student's responses were used.		
Father's education	BB039, PBB01, PBB38	BYP1A1, BYP30, BYP31	FATHED
	The mother's and father's education variable for 1980 used the parent responses, whenever possible, over the response of the student. If a parent response was given, the respondent must be one of the following to use: mother, father, stepmother, or stepfather. If used, the respondent's response for spouse was used to define the remaining value for either mother's or father's education. It should also be noted that in HS&B, only a small number of students were chosen to collect parent information, so the majority of these values were taken from the student responses.		
	The mother's and father's education variable for 1990 used the parent responses taken from the base-year survey, when the student was in 8th grade. If a parent response was given, the respondent must be one of the following to use: mother, father, stepmother, or stepfather. If used, the respondent's response for spouse was used to define the remaining value for either mother's or father's education. If a parent's response was not used, the student's base-year 8th-grade response was used. If the NELS student was a first follow-up freshened student, his or her response to parents' education was taken from the series of freshened student questions. It should be noted that in base-year NELS, most of the students had a parent response, so the majority of these values were taken from parent's information.		
Mother's education	BB042, PBB01, PBB50	BYP1A1, BYP30, BYP31	MOTHEd
	The mother's and father's education variable for 1980 used the parent responses, whenever possible, over the response of the student. If a parent response was given, the respondent must be one of the following to use: mother, father, stepmother, or stepfather. If used, the respondent's response for spouse was used to define the remaining value for either mother's or father's education. It should also be noted that in HS&B, only a small number of students were chosen to collect parent information, so the majority of these values were taken from the student responses.		

See notes at end of table.

Table A-1. Variable names and explanatory notes, by year: 1980, 1990, and 2002—Continued

Variable	1980	1990	2002
Cohort demographics— Continued			
Mother's education— Continued	The mother's and father's education variable for 1990 used the parent responses taken from the base-year survey, when the student was in 8th grade. If a parent response was given, the respondent must be one of the following to use: mother, father, stepmother, or stepfather. If used, the respondent's response for spouse was used to define the remaining value for either mother's or father's education. If a parent's response was not used, the student's base-year 8th-grade response was used. If the NELS student was a first follow-up freshened student, his or her response to parents' education was taken from the series of freshened student questions. It should be noted that in base-year NELS, most of the students had a parent response, so the majority of these values were taken from parent's information.		
Native language	LANGDATA, LB11	F1S54, F1S55A	STLANG
	The native language variable for 1980 used the base-year language questionnaire flag in determining the native language value. Students who did not have a corresponding record in the language file were given a value of English. If a language record response was found, the record was evaluated to determine if the native language was other than English.		
School sector	SCHTYPE	G10CTRL1	BYCTRL
Region	CENRGN	G10REGON	BYREGION
Urbanicity	SCHURB	G10URBAN	BYURBAN
High school program	BB002	F1S20	SCHPROG
	The high school program figures for 1980 were taken from <i>America's High School Sophomores: A Ten Year Comparison</i> (Rasinski et al. 1993). The figures for 1990 have been revised. The new figures derived for 1990 were obtained from the NELS:88 N2R ECB STMEG.PRI file variable F1S20. This variable contained additional program track responses of "Other" and "Specialized" program tracks. These responses were not included in the table analysis, since they were not used in the original publication percentages.		
Age during survey	BB084	F1BIRTHY, F1BIRTHM, survey date (03/1990)	DOBIRTHP survey date (03/2002)
	The age in years figures for 1990 and 2002 use the student's birth year and month and a fixed point of March as the survey collection year.		

See notes at end of table.

Table A-1. Variable names and explanatory notes, by year: 1980, 1990, and 2002—Continued

Variable	1980	1990	2002
Cohort demographics— Continued			
Family living arrangements	BB036A, BB036B, BB036C, BB036D, BB036E, BB036H, BB036I	BYFCOMP	BYFCOMP
	<p>The family living arrangements variable for 1980 used the series of survey variables (BB036A, BB036B, BB036C, BB036D, BB036E, BB036H, BB036I). These variables defined who lived in the household. The responses to mother and father took precedence over other responses. The value of “other relative or nonrelative” was given if there was no positive response to mother or father in the household.</p> <p>The family living arrangements variable for 1990 used the NELS:88 base-year derived variable BYFCOMP. This variable was derived from the 8th-grade student responses for 1988. Although the 1990 sophomore population includes NELS first follow-up freshened students, these freshened students did not have freshened questions that could be used to derive this variable. Also, the NELS first follow-up does contain a derived variable FAMCOMP that was derived from the base-year (1988) parent data. This derived variable defines mother and father combinations, and single and two adult family structures. This variable could not be used since single female and single male does not differentiate between mother/father and guardian/other relative.</p> <p>The family living arrangements variable for 2002 has the same name in ELS:2002 as the NELS:88 variable used in 1990.</p>		
School size	SB002A	F1SCENRL	BY01STEN
Class size	SB002B	G10ENROL	BY02G10E
Free or reduced-price lunch eligibility		F1C30A	BY10FLP
Time spent on homework per week	BB015	F1S36A1, F1S36A2	BYS34A, BYS34B
Preparation for school			
Coming to school without books	YB016B	F1S40B	BYS38B
Coming to school without paper, pen, or pencil	YB016A	F1S40A	BYS38A
Coming to school without homework	YB016C	F1S40C	BYS38C

See notes at end of table.

Table A-1. Variable names and explanatory notes, by year: 1980, 1990, and 2002—Continued

Variable	1980	1990	2002
School climate and teaching			
I don't feel safe at this school	BB059F	F1S7M	BYS20J
Disruptions by other students get in the way of my learning		F1S7N	BYS20K
The teaching is good		F1S7G	BYS20E
Exposure to calculators and computers			
Never using calculators in math class		F1S32G	BYS29F
Never using computers in math class		F1S32E	BYS29H
Participation in extracurricular activities			
Academic clubs	BB032G	F1S41BG	BYS41G
Vocational clubs	BB032H	F1S41BI	BYS41I
Athletics	BB032A	F1S41AA through F1S41AG	BYS40BA through BYS40BG
		The Athletics variable for 2002 uses the variables BYS40AB, BYS40BB, BYS40C, BYS40DB, BYS40EB, BYS40FB, and BYS40GB. If any one of these variables indicates participation, the student was flagged as an "athletic participant." In order to be flagged as a "nonparticipant," the student needed to respond "nonparticipant" to all the questions. If some responses were missing and the student did not indicate any "athletic participation," the flag was set to missing and not used in the analysis.	
Cheerleading and drill team	BB032B	F1S41AH through F1S41AI	BYS40HB
Music-related activities	BB032D, BB032E	F1S41BA	BYS41A
Hobby clubs	BB032F	F1S41BH	BYS41H

See notes at end of table.

Table A-1. Variable names and explanatory notes, by year: 1980, 1990, and 2002—Continued

Variable	1980	1990	2002
Employment status			
Ever worked for pay or employed	BB021	F1S84	BYS72
Worked for pay or employed at time of survey	BB021	F1S84	BYS72
Worked more than 20 hours per week at time of survey	BB021, BB022	F1S84, F1S85	BYS72, BYS75
Unstructured social activities			
Driving or riding around	BB047D	F1S44I	BYS44D
Visiting with friends or meeting at a hangout	BB047A	F1S44A	BYS44A
Talking with friends on the telephone	BB047E	F1S44J	BYS44E
Life values			
Being successful in line of work	BB057A	F1S46A	BYS54A
Being able to find steady work	BB057E	F1S46E	BYS54E
Having lots of money	BB057C	F1S46C	BYS54C
Having strong friendships	BB057D	BB057D	BYS54D
Having leisure time to enjoy own interests	BB057L	BB057L	BYS54L
See notes at end of table.			

Table A-1. Variable names and explanatory notes, by year: 1980, 1990, and 2002—Continued

Variable	1980	1990	2002
Life values—Continued			
Finding right person to marry/having happy family life	BB057B	F1S46B	BYS54B
Having children	BB057K	F1S46K	BYS54K
Being able to give my children better opportunities than I've had	BB057G	F1S46G	BYS54G
Helping other people in community	BB057F	F1S46F	BYS54F
Working to correct social and economic inequalities	BB057J	F1S46J	BYS54J
Plans and expectations			
Students' educational expectations	BB065	F1S49	STEXPECT
Student reports that father thinks college is most important thing to do right after high school	BB050B	F1S47B	BYS66B
Student reports that mother thinks college is most important thing to do right after high school	BB050B	F1S47A	BYS66A
Student reports that school counselor thinks college is most important thing to do right after high school	BB050C	F1S47E	BYS66E

See notes at end of table.

Table A-1. Variable names and explanatory notes, by year: 1980, 1990, and 2002—Continued

Variable	1980	1990	2002
Plans and expectations—			
Continued			
Student reports that teacher thinks college is most important thing to do right after high school	BB050D	F1S47F	BYS66F
Student intentions regarding entering college after high school	BB115	F1S51	BYS57, BYS58
Job or occupation expected at age 30	BB062	F1S53B	BYOCC30
Academic achievement			
Composite achievement test score	YBREADSD, YBMTH1SD, YBVOCS	F12XQURT	BYTXCQU
	The composite achievement test variable for 1980 was determined by the average of the available base-year test scores. These averages were weighted to determine the quarter points. The ranges derived from the quarter points were then used to define a test quarter for each student.		
Remedial English	BB011A	F1S34A	BYS33D
Remedial math	BB011B	F1S34B	BYS33E
Bilingual or bicultural education	BB011E	F1S34C	BYS33F
Advanced programs and Advanced Placement	BB011C, BB011D	F1S34E	BYS33A, BYS33B

See notes at end of table.

Table A-1. Variable names and explanatory notes, by year: 1980, 1990, and 2002—Continued

Variable	1980	1990	2002
Academic achievement— Continued			
Number-right scores for mathematics	YBMTH1RT, YBMTH2RT (equated)	F1TXMIRR	BYNELS0M
	<p>The 1980 values came from the equated variable derived and used in <i>America's High School Sophomores: A Ten Year Comparison</i> (Rasinski et al. 1993). In that publication, this equation process was defined as follows: Test Equating. In order to compare mathematics performance of the 1980 HS&B sophomore cohort with that of the 1990 NELS:88 sophomores, the two sets of mathematics scores had to be put on the same scale. The NELS:88 mathematics test was originally designed to be linked to the HS&B scores. This was accomplished by including 16 quantitative comparison items from HS&B in the NELS:88 mathematics test. Mathematics was the only cognitive test in the NELS:88 battery that shared sufficient items with its counterpart measure in HS&B to enable a reliable cross-walk between the two scales. The linking was carried out by estimating the item response theory (IRT) parameters for the common items using the NELS:88 sophomore sample and then putting the remaining nonoverlapping HS&B items on that scale. Before the final linking was carried out, the item traces for the common items were estimated separately for the two populations and compared to insure that they were "behaving" similarly in the two populations. A final check on the validity of the equating was carried out by inspecting subpopulation differences among the HS&B students after they were put on the same scale as the NELS:88 cohort. If the linking worked as desired, then the relative differences that were found among the HS&B subpopulations on their original scales should not change when they are put on the new scaling. All subpopulation differences remained relatively invariant, indicating that the linking was successful. Further details of HS&B/NELS:88 test equating procedures and the NELS :88 1990 mathematics scale (range = 0-58) can be found in the NELS:88 first follow-up final technical report (Ingels et al. 1994, NCES 94-632, chapter VI).</p> <p>The values for 1990 came from the variable F1TXMIRR. This variable was obtained from the NELS:88 first follow-up ECB and merged with the other NELS:88 analysis data, taken from the NELS: 88 Second Follow-up ECB (N2R) product released in 1996 on the base-year through third follow-up ECB/CD-ROM.</p>		
Probability of proficiency in mathematics		F12XMPP1, F12XMPP2, F12XMPP3, F12XMPP4, F12XMPP5	BYTX1MPP, BYTX2MPP, BYTX3MPP, BYTX4MPP, BYTX5MPP
Probability of proficiency in reading		F12XRPP1, F12XRPP2, F12XRPP3	BYTX1RPP, BYTX2RPP, BYTX3RPP

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

A.7 Glossary of Key Classification Variables and Test Scores

The glossary gives further information about the following key classification variables for this report: age, family living arrangements, race/ethnicity, region, school sector, sex, and socioeconomic status (SES). It also provides information about assessment scores (composite achievement test scores, NELS:88-scaled IRT-estimated number-right scores, and probability of proficiency scores) and some further analysis variables, such as educational and occupational expectations. For more detailed information about variables used in this report, see the data file documentation for (respectively) HS&B, NELS:88, and ELS:2002: Jones et al. (1983) (NCES 83-214); Ingels et al. (1992) (NCES 92-030); and Ingels et al. (2004) (NCES 2004-405).

Age. In HS&B in 1980, an item on the questionnaire asked students to mark an age, given the following response options: 13 or younger 14, 15, 16, 17, 18, 19, 20, or 21 or older. In NELS:88 and ELS:2002, students were asked to provide their date of birth (month-day-year). Thus, while all three studies occur in the spring term, age information was not collected in identical fashion. In order to calculate mean age in a comparable way, March was used as the anchor for age in HS&B, and students age as of March has been used for NELS:88 and ELS:2002.

Educational expectations. All three studies asked (in slightly variant ways) about sophomores' expectations for future educational attainment. For this report, the more extensive original categories were collapsed into four: high school or less, two or fewer years of college, attainment of a bachelor's degree, and attainment of a graduate or professional degree. In ELS:2002 (but not HS&B or NELS:88) missing educational expectations data were statistically imputed.

Family living arrangements. The six categories used are: Mother and father; Mother and guardian; Father and guardian; Mother only; Father only; Other relative or non-relative. The term "guardian" includes step-mothers and sep-fathers. The category "Mother and father" refers to biological or adoptive parents.

Household items scale. Differences in household item questions reflect changing social circumstances over time. The household items list has been revised for each survey. By 2002, HS&B items such as ownership of a typewriter had ceased to function as good proxies for family income, while other items, such as access to the Internet or having a digital video disc player, did.⁷ Although items differ across the index over time, in each case the items are those that are needed to provide a measure that has a reasonable correlation with income.

The HS&B household items were as follows: regularly-delivered newspaper, >50 books, encyclopedia, place to study, room of own, calculator, typewriter, electric dishwasher, two cars. In NELS:88, information was collected about the following household items: regularly-delivered newspaper, dictionary, encyclopedia, magazines, place to study, room of own, calculator, typewriter, electric dishwasher, > 50 books, atlas, clothes dryer, washing machine, microwave oven, computer, and VCR. Though not used in constructing SES, the following household item

⁷ The household items were asked in ELS:2002, but the index was not used in the creation of SES, because missing income data were imputed.

questions appeared in ELS:2002: regularly-delivered newspaper, magazines, room of own, internet access, electric dishwasher, fax machine, clothes dryer, computer, DVD player.

Occupation. The following occupation categories were used to generate the SES composite for 1980, 1990, and 2002, and were used for eliciting occupational expectation (at age 30) from sophomores in 1980 and 1990. In 2002, occupational expectation was asked as an open-ended question and coded to these categories, and included an option for a “Don’t Know” response. The occupation categories are listed below in hierarchical order reflecting their prestige scores on the Duncan Socioeconomic Index)⁸ from lowest to highest. Note that no prestige score is assigned to “homemaker” or “military.” For further information see Ingels et al. (1992b).

LABORER such as construction worker, car washer, sanitary worker, farm laborer;

OPERATIVE, such as meat cutter, assembly worker, machine operator, welder, taxicab, bus or truck driver;

SERVICE, such as barber, beautician, practical nurse, private household worker, janitor, waiter;

CRAFTSPERSON, such as baker, automobile mechanic, machinist, painter, plumber, telephone installer, carpenter;

FARMER such as farmer, farm manager;

PROTECTIVE SERVICES, such as detective, police officer or guard, sheriff, fire fighter;

PROPRIETOR/OWNER, such as owner of small business, contractor, restaurant owner;

SALES, such as salesperson, advertising or insurance agent, real estate broker;

CLERICAL, such as bank teller, bookkeeper, secretary, typist, mail carrier, ticket agent;

MANAGER/ADMINISTRATOR such as sales manager, office manager, school administrator, buyer, restaurant manager, government official;

TECHNICAL, such as draftsman, medical or dental technician, computer programmer;

SCHOOL TEACHER, such as elementary or high school teacher;

PROFESSIONAL 1, such as accountant, artist, registered nurse, engineer, librarian, writer, social worker, actor, actress, athlete, politician, but not including school teacher; and

⁸ See Duncan, O.D., (1961). A Socioeconomic Index for All Occupations. In A.J. Reiss (Ed.) *Occupations and Social Status*. New York: Free Press.

PROFESSIONAL 2, such as clergyman, dentist, physician, lawyer, scientist, college professor.

Race/ethnicity. The race categories used in this report are: American Indian or Alaska Native; Asian or Pacific Islander; Black or African American; Hispanic or Latino; More than one race; White. The category “more than one race” applies only to ELS:2002. There is no way to know how an individual in this category in ELS:2002 would have been placed in a race or ethnicity category in the prior studies. In all three studies, race was self-reported, and based on a response in the student questionnaire.

Region. Geographic region in which the 10th-grade school is located: Northeast (CT, ME, MA, NH, NJ, NY, PA, RI, and VT); Midwest (formerly North Central) (IL, IN, IA, KS, MI, MN, MO, ND, NE, OH, SD, and WI); South (AL, AR, DC, DE, FL, GA, KY, LA, MD, MS, NC, OK, SC, TN, TX, VA, and WV); and West (AK, AZ, CA, CO, HI, ID, MT, NV, NM, OR, UT, WA, and WY).

School sector. Public, Catholic, and Other Private are the school sector categories used in this report. All three studies oversampled non-public schools to some degree, the better to represent this comparatively rare population.

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

Socioeconomic status (SES). The socioeconomic status (SES) variable offers a good example of the subtle differences that may exist between the same variable in different studies, despite efforts to maximize cross-cohort consistency of measures. Continuities and differences in SES constituents and construction in the three studies are summarized in tables A-2 and A-3.

Table A-2. Elements of the socioeconomic composite, HS&B and NELS:88: 1980–1992

HS&B (student reported)	NELS:88 (parent reported)	NELS:88 student survey substitutions
Father's occupation	Father's occupation Mother's occupation	Father's occupation Mother's occupation
Father's education	Father's education	Father's education
Mother's education	Mother's education	Mother's education
Family income	Family income	Household items
Household items	—	—

— Not available.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B) Longitudinal Study (1980); and National Education Longitudinal Study of 1988 (NELS:88).

Table A-3. Elements of socioeconomic composite, ELS:2002: 2002

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

— Not available.

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

In all three studies, the composite is based on five equally weighted, standardized components; however, these components differ somewhat. In HS&B the household items are directly used; in NELS:88, they are used only as a proxy for missing income data. In HS&B, mother's occupation was available from the data set but was not used in calculating SES. In NELS:88 and ELS:2002, both mother's and father's occupation are elements of SES. In HS&B, student data were used to construct this composite. In NELS:88 and ELS:2002, parent data were used to construct the SES composite. In both NELS:88 and ELS:2002, student data are substituted where parent data are missing. However, for parent education and occupation, where both parent and student reports are missing, ELS:2002 education and occupation values are imputed. Family income was not asked of students. While in NELS:88 a student-provided household item index (see below for more information about the household item scale), which served as an income proxy, was substituted when income data were missing, a different procedure was followed in ELS:2002. When parent data on income were missing, income was statistically imputed. The impact of imputation on the intercohort comparability of the SES composite was investigated by comparing two versions of 2002 SES, one based on the ELS:2002 specifications, the other on NELS:88 specifications. The basic finding was of no impact or extremely small impact on estimates. Details are given in Ingels, Pratt et al. (2005), appendix C.

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

Test Scores

Composite test score. This is the standardized test composite score (reading and mathematics) quartile ranking for each test taker. The composite score is the average of the math and reading standardized scores, restandardized to a national mean of 50.0 and standard deviation of 10.0. A very few students had scores for only the math test or reading test, but not both. For students who did not have both scores, the composite is based on the single score that was available. The standardized T score provides a norm-referenced measurement of achievement, that is, an estimate of achievement relative to the population (10th graders) as a whole. It provides information on status compared to peers (as distinguished from the item response theory [IRT]-estimated number-right score, which represents status with respect to achievement on a particular criterion set of test items). The score divides the weighted (population estimate) achievement distributions into four equal groups (or quarters).

IRT-Estimated number right score in mathematics. These scores are available on the same scale for HS&B, NELS:88, and ELS:2002. The scale (which has a range of 0-58), is based on the 1990 NELS:88, with equating to HS&B and ELS:2002. The 1990 scale is fully documented in Ingels et al. 1994 (NCES 94-632, chapter VI); this source also provides details of the HS&B-NELS:88 test equating.

The IRT-estimated number-right scores are derived from the IRT model and are based on all of the student's responses to the mathematics assessment. That is, the pattern of right and wrong answers and the characteristics of the assessment items themselves are used to estimate a point on an ability continuum, and this ability estimate, *theta*, then provides the basis for criterion-referenced scores.

Probability of proficiency scores in reading and mathematics. Criterion-referenced proficiency probability scores are based on clusters of items that mark different levels on the reading and mathematics scales developed in NELS:88. Clusters of four items each were identified in the NELS:88 tests that marked three hierarchical levels in reading and five in mathematics. While clusters of four items anchor each mastery level, the probability of proficiency is a continuous score that does not depend on a student answering the actual items in each of the clusters but, rather, on the probability of a correct answer on these items given the overall pattern of response on the items completed.

Probability of Mastery, Reading Levels:

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

Probability of Mastery, Mathematics Levels:

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

The mastery levels are hierarchical in the sense that mastery of a higher level typically implies mastery at lower levels. The proficiency probabilities were computed using IRT-estimated item parameters calibrated in NELS:88. Each proficiency probability represents the likelihood that a student would pass a given mastery level defined as above in the NELS:88 sample. It should be remembered that probability of proficiency scores are IRT-derived estimates based on overall performance rather than counts of actual item responses. The NELS:88 and ELS:2002 tests were semi-adaptive, with different forms keyed to different ability levels. Owing to the multiple test forms used in NELS:88 and ELS:2002, not all sophomores received all items. Nevertheless, the IRT model permits proficiency probabilities to be estimated, even for those sophomores who were not administered a particular proficiency/mastery cluster. The mean of a proficiency probability score aggregated over a subgroup of students is analogous to an estimate of the percentage of students in the subgroup who have displayed mastery of the particular skill. Since the range of the scores is zero to one, means can be expressed in percentage form.⁹ For example, the weighted mean for mastery of math level 1 in ELS:2002 is 0.92, which is equivalent to saying that 92 percent of the sophomore cohort had achieved mastery at this level (simple arithmetical operations on whole numbers). While the continuous probability of proficiency scores can be used to measure status, they are perhaps most useful for measuring change longitudinally within NELS:88 or ELS:2002, or difference as detected in cross-cohort analysis of time series data (as is done in this report).

⁹ On the interpretation of a probability as a proportion, see, for example, Fleiss, Levin, and Paik (2003, p. 1).

Appendix B

Standard Error Tables

**Table B-1. Unweighted sample sizes for subgroups formed, by classification variables:
1980, 1990, and 2002**

Characteristic	1980	1990	2002
All sophomores	30,030	17,753	15,362
Sex			
Male	13,382	8,863	7,646
Female	14,511	8,890	7,716
Racial/ethnic group			
American Indian or Alaska Native	297	195	131
Asian or Pacific Islander	405	1,204	1,465
Black or African American	4,194	1,742	2,033
Hispanic or Latino	3,788	2,210	2,234
More than one race	—	—	742
White	21,071	12,311	8,757
Socioeconomic status			
Lowest quarter	7,540	3,674	3,635
Middle two quarters	14,007	8,172	8,757
Highest quarter	7,090	5,171	4,339
Parents' education			
High school or less	12,817	4,780	3,977
Some college	7,122	6,608	4,339
College graduation	3,181	2,695	3,484
Graduate degree	2,938	2,776	2,852
Native language ¹			
English	27,487	15,242	12,766
Non-English	2,522	2,075	2,596
Student's educational expectations			
High school or less	7,440	1,668	1,127
Some college	9,216	4,903	1,453
College graduation	6,567	5,789	5,455
Graduate or professional degree	5,518	5,180	5,866
Don't know		213	1,461
Composite achievement test score			
Lowest quarter	7,151	3,519	3,495
Second quarter	6,888	4,065	3,743
Third quarter	6,647	4,272	4,011
Highest quarter	6,849	4,882	4,113
School sector			
Public	26,241	15,059	12,039
Catholic	2,808	984	1,920
Other private	981	1,455	1,403

See notes at end of table.

**Appendix B:
Standard Error Tables**

Table B-1. Unweighted sample sizes for subgroups formed, by classification variables: 1980, 1990, and 2002—Continued

Characteristic	1980	1990	2002
Region			
Northeast	6,248	3,313	2,763
Midwest	8,575	4,605	3,879
South	9,679	6,040	5,640
West	5,528	3,541	3,080
Urbanicity			
Urban	6,026	5,129	5,115
Suburban	13,291	6,937	7,399
Rural	7,801	5,435	2,848
High school program			
General	13,417	7,171	5,419
Academic/college preparatory	9,941	6,337	8,439
Vocational	5,999	1,591	1,504

— Not available.

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

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

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

Table B-2. Standard errors for table 1 estimates (number and percentage of high school sophomores' cohort size, by geographic region of schools): 1980, 1990, and 2002

Region	1980		1990		2002	
	Number	Percent	Number	Percent	Number	Percent
U.S.	62,345	†	51,214	†	54,411	†
Northeast ¹	59,571	1.52	27,110	0.85	25,266	0.65
Midwest ²	58,511	1.54	23,592	0.77	24,938	0.65
South ³	68,185	1.69	26,933	0.82	23,366	0.66
West ⁴	50,871	1.33	25,681	0.79	34,080	0.81

† Not applicable.

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

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

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

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

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

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

Table B-3. Standard errors for table 2 estimates (Mean age and percentage distribution of high school sophomores, by age and sex): 1980, 1990, and 2002

Characteristic	1980	1990	2002
Mean Age	0.01	0.01	0.01
Age during survey			
18 years or more	0.08	0.06	0.12
17 years	0.21	0.34	0.32
16 years	0.43	0.68	0.52
15 years	0.50	0.67	0.51
14 years or less	0.06	0.16	0.07
Sex			
Male	0.48	0.62	0.53
Female	0.48	0.62	0.53

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

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

Table B-4. Standard errors for table 3 estimates (percentage of high school sophomores, by racial/ethnic group): 1980, 1990, and 2002

Racial/ethnic group	1980	1990	2002
American Indian or Alaska Native	0.15	0.22	0.20
Asian or Pacific Islander	0.13	0.29	0.26
Black or African American	0.81	0.81	0.66
Hispanic or Latino	0.31	0.79	0.87
More than one race	†	†	0.23
White	0.94	1.16	0.98

† Not applicable.

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

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

**Appendix B:
Standard Error Tables**

Table B-5. Standard errors for table 4 estimates (percentage of high school sophomores whose native language is English, by racial/ethnic group): 1980, 1990, and 2002

Racial/ethnic group	1980	1990	2002
All sophomores	0.31	0.68	0.60
American Indian or Alaska Native	4.43	9.16	4.46
Asian or Pacific Islander	4.10	2.95	2.10
Black or African American	0.19	0.60	0.64
Hispanic or Latino	1.73	2.49	1.93
More than one race	†	†	1.04
White	0.14	0.20	0.28

† Not applicable.

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

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

Table B-6. Standard errors for table 5 estimates (percentage of high school sophomores, by family living arrangement): 1980, 1990, and 2002

Family living arrangements	1980	1990	2002
Mother and father	0.49	0.72	0.56
Mother and guardian	0.29	0.45	0.36
Father and guardian	0.10	0.32	0.17
Mother only	0.37	0.48	0.44
Father only	0.12	0.31	0.20
Other relative or nonrelative	0.12	0.22	0.19

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

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

Table B-7. Standard errors for table 6 estimates (percentage of high school sophomores, by parents' highest level of education): 1980, 1990, and 2002

Parents' highest level of education	1980	1990	2002
Fathers			
Did not finish high school	0.53	0.62	0.54
Graduated from high school or GED	0.49	0.61	0.53
Some postsecondary education (PSE)	0.40	0.63	0.48
Graduated from college	0.38	0.49	0.43
Completed master's or equivalent	0.25	0.41	0.30
Completed Ph.D., M.D., or other advanced degree	0.26	0.38	0.26
Mothers			
Did not finish high school	1.14	0.54	0.54
Graduated from high school or GED	1.28	0.64	0.49
Some postsecondary education (PSE)	1.00	0.68	0.53
Graduated from college	0.75	0.46	0.46
Completed master's or equivalent	0.44	0.25	0.27
Completed Ph.D., M.D., or other advanced degree	0.30	0.08	0.15

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

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

Table B-8. Standard errors for table 7 estimates (percentage of high school sophomores, by socioeconomic status [SES] and racial/ethnic group): 1980, 1990, and 2002

Racial/ethnic group	Lowest quarter			Middle two quarters			Highest quarter		
	1980	1990	2002	1980	1990	2002	1980	1990	2002
All sophomores	0.60	0.71	0.68	0.51	0.73	0.63	0.70	0.86	0.73
American Indian or Alaska Native	3.56	5.68	5.42	3.45	5.29	4.87	2.18	2.47	3.48
Asian or Pacific Islander	2.99	1.78	2.16	2.93	2.55	1.69	3.12	2.44	2.15
Black or African American	1.42	2.37	1.38	1.24	2.16	1.37	0.79	1.15	0.89
Hispanic or Latino	1.49	2.07	1.86	1.20	1.79	1.54	0.85	1.08	0.86
More than one race	†	†	2.01	†	†	2.33	†	†	1.76
White	0.53	0.69	0.63	0.59	0.81	0.80	0.80	0.99	0.94

† Not applicable.

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

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

**Appendix B:
Standard Error Tables**

Table B-9. Standard errors for table 8 estimates (percentage of high school sophomores, by school type, racial/ethnic group, and socioeconomic status [SES]): 1980, 1990, and 2002

Characteristic	Public			Catholic			Other private		
	1980	1990	2002	1980	1990	2002	1980	1990	2002
All sophomores	0.32	0.37	0.28	0.68	0.89	0.16	1.71	0.66	0.23
Racial/ethnic group									
American Indian or Alaska Native	1.25	1.01	2.50	0.54	1.01	0.46	1.09	†	2.45
Asian or Pacific Islander	1.95	3.26	1.51	1.54	1.83	1.13	1.14	2.98	1.04
Black or African American	0.57	1.46	0.39	0.53	1.44	0.35	0.02	0.37	0.17
Hispanic or Latino	1.46	1.54	0.52	1.02	1.17	0.43	1.09	0.77	0.26
More than one race	†	†	0.93	†	†	0.63	†	†	0.66
White	1.31	0.80	0.47	0.97	0.59	0.27	0.95	0.48	0.38
Socioeconomic status									
Lowest quarter	0.53	0.42	0.28	0.48	0.37	0.16	0.21	0.19	0.17
Middle two quarters	1.12	0.71	0.24	0.84	0.58	0.19	0.78	0.42	0.25
Highest quarter	2.20	1.65	0.31	1.61	1.11	0.59	1.78	1.17	0.81

† Not applicable.

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

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

Table B-10a. Standard errors for table 9a estimates (Percentage distribution of school size for high school sophomores, by racial/ethnic group and socioeconomic status [SES]): 1980, 1990, and 2002

Categories	1980	1990	2002
All 2002 sophomores			
1 to 399 students	1.20	0.99	1.13
400 to 599 students	0.97	1.03	1.15
600 to 799 students	1.03	1.02	1.20
800 to 999 students	1.05	0.98	1.26
1,000 to 1,199 students	1.11	1.12	1.20
1,200 to 1,599 students	1.41	1.07	1.71
1,600 to 1,999 students	1.40	1.13	1.59
2,000 to 2,499 students	1.14	0.87	1.57
2,500 or more students	1.04	0.66	1.23
Race ethnicity			
American Indian or Alaska Native			
1 to 399 students	5.31	6.88	8.90
400 to 599 students	4.42	8.70	10.19
600 to 799 students	3.16	1.77	2.27
800 to 999 students	2.00	2.58	11.31
1,000 to 1,199 students	1.88	7.14	3.27
1,200 to 1,599 students	4.35	4.59	3.47
1,600 to 1,999 students	3.01	2.55	5.85
2,000 to 2,499 students	1.87	1.37	5.16
2,500 or more students	1.43	3.29	2.24
Asian or Pacific Islander			
1 to 399 students	1.41	3.21	1.28
400 to 599 students	1.04	1.09	2.52
600 to 799 students	1.01	1.72	1.32
800 to 999 students	1.13	1.78	1.18
1,000 to 1,199 students	1.77	2.18	1.51
1,200 to 1,599 students	2.85	2.53	3.96
1,600 to 1,999 students	3.78	2.47	2.13
2,000 to 2,499 students	5.44	2.71	3.89
2,500 or more students	5.31	2.89	3.56
Black or African American			
1 to 399 students	1.72	2.09	1.28
400 to 599 students	2.11	1.17	2.08
600 to 799 students	1.29	2.05	2.41
800 to 999 students	2.06	2.17	2.00
1,000 to 1,199 students	1.61	2.57	1.93
1,200 to 1,599 students	2.59	2.16	3.35
1,600 to 1,999 students	2.75	1.96	3.27
2,000 to 2,499 students	2.21	1.42	2.30
2,500 or more students	2.93	1.48	1.32

See notes at end of table.

**Appendix B:
Standard Error Tables**

Table B-10a. Standard errors for table 9a estimates (Percentage distribution of school size for high school sophomores, by racial/ethnic group and socioeconomic status [SES]): 1980, 1990, and 2002—Continued

Categories	1980	1990	2002
Race ethnicity—continued			
Hispanic or Latino			
1 to 399 students	1.61	1.76	1.44
400 to 599 students	0.91	1.67	2.16
600 to 799 students	1.24	1.17	0.81
800 to 999 students	1.81	1.42	1.37
1,000 to 1,199 students	1.30	1.39	1.63
1,200 to 1,599 students	1.75	1.93	2.75
1,600 to 1,999 students	1.98	5.18	2.87
2,000 to 2,499 students	2.36	2.27	4.37
2,500 or more students	2.26	2.70	3.63
White			
1 to 399 students	1.38	1.17	1.51
400 to 599 students	1.05	1.26	1.41
600 to 799 students	1.17	1.25	1.50
800 to 999 students	1.15	1.17	1.59
1,000 to 1,199 students	1.24	1.26	1.41
1,200 to 1,599 students	1.52	1.20	1.85
1,600 to 1,999 students	1.48	1.05	1.58
2,000 to 2,499 students	1.14	0.93	1.52
2,500 or more students	0.87	0.52	1.02
More than one race			
1 to 399 students	†	†	1.73
400 to 599 students	†	†	1.86
600 to 799 students	†	†	2.19
800 to 999 students	†	†	1.57
1,000 to 1,199 students	†	†	2.11
1,200 to 1,599 students	†	†	3.16
1,600 to 1,999 students	†	†	2.25
2,000 to 2,499 students	†	†	2.26
2,500 or more students	†	†	2.47
Socioeconomic status			
Lowest quarter			
1 to 399 students	1.53	1.45	1.56
400 to 599 students	1.40	1.44	1.72
600 to 799 students	1.22	1.35	1.50
800 to 999 students	1.38	1.34	1.53
1,000 to 1,199 students	1.12	1.42	1.36
1,200 to 1,599 students	1.51	1.54	2.08
1,600 to 1,999 students	1.51	1.74	1.64
2,000 to 2,499 students	1.21	1.04	2.20
2,500 or more students	1.41	1.08	1.72

See notes at end of table.

Table B-10a. Standard errors for table 9a estimates (Percentage distribution of school size for high school sophomores, by racial/ethnic group and socioeconomic status [SES]): 1980, 1990, and 2002—Continued

Categories	1980	1990	2002
Socioeconomic status—continued			
Middle two quarters			
1 to 399 students	1.25	1.13	1.29
400 to 599 students	1.06	1.09	1.31
600 to 799 students	1.09	1.16	1.27
800 to 999 students	1.07	1.12	1.36
1,000 to 1,199 students	1.18	1.23	1.23
1,200 to 1,599 students	1.50	1.19	1.87
1,600 to 1,999 students	1.47	1.03	1.71
2,000 to 2,499 students	1.20	0.83	1.63
2,500 or more students	0.98	0.66	1.29
Highest quarter			
1 to 399 students	1.89	1.11	0.90
400 to 599 students	0.79	1.28	1.14
600 to 799 students	1.44	1.37	1.44
800 to 999 students	1.26	1.50	1.43
1,000 to 1,199 students	1.53	1.55	1.59
1,200 to 1,599 students	1.73	1.36	2.10
1,600 to 1,999 students	1.70	1.64	2.02
2,000 to 2,499 students	1.59	1.35	1.98
2,500 or more students	1.22	0.84	1.48

† Not applicable.

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

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

**Appendix B:
Standard Error Tables**

Table B-10b. Standard errors for table 9b estimates (Percentage distribution of sophomore class size for high school sophomores, by racial/ethnic group and socioeconomic status [SES]): 1980, 1990, and 2002

Categories	1980	1990	2002
All 2002 sophomores			
1 to 99 students	1.12	1.12	1.01
100 to 199 students	1.25	1.21	1.23
200 to 299 students	1.30	1.30	1.38
300 to 399 students	1.37	1.10	1.36
400 to 549 students	1.40	1.28	1.54
550 to 699 students	1.31	0.87	1.34
700 or more students	1.24	0.71	1.15
Race/ethnicity			
American Indian or Alaska Native			
1 to 99 students	5.23	8.34	8.36
100 to 199 students	3.27	8.63	9.50
200 to 299 students	11.03	4.36	10.01
300 to 399 students	2.97	3.85	3.15
400 to 549 students	4.60	3.77	6.74
550 to 699 students	2.53	1.95	4.15
700 or more students	2.26	3.39	2.29
Asian or Pacific Islander			
1 to 99 students	1.39	3.22	1.17
100 to 199 students	1.33	1.75	2.13
200 to 299 students	1.78	2.62	2.21
300 to 399 students	1.87	2.46	3.27
400 to 549 students	3.44	2.66	3.53
550 to 699 students	5.78	2.77	3.04
700 or more students	5.07	2.90	2.42
Black or African American			
1 to 99 students	1.43	1.90	1.24
100 to 199 students	2.00	2.35	2.46
200 to 299 students	2.31	3.10	2.32
300 to 399 students	2.84	2.29	2.57
400 to 549 students	2.40	2.51	2.76
550 to 699 students	2.50	1.97	2.27
700 or more students	3.20	1.19	1.25
Hispanic or Latino			
1 to 99 students	1.64	1.82	1.21
100 to 199 students	1.44	1.91	1.74
200 to 299 students	1.42	1.79	1.40
300 to 399 students	2.11	1.95	2.07
400 to 549 students	1.90	5.01	2.69
550 to 699 students	1.93	2.44	3.42
700 or more students	2.66	2.96	3.74
White			
1 to 99 students	1.30	1.34	1.39
100 to 199 students	1.40	1.44	1.54
200 to 299 students	1.44	1.51	1.77
300 to 399 students	1.48	1.25	1.57
400 to 549 students	1.51	1.31	1.73
550 to 699 students	1.36	0.87	1.36
700 or more students	1.10	0.61	0.91

See notes at end of table.

Table B-10b. Standard errors for table 9b estimates (Percentage distribution of sophomore class size for high school sophomores, by racial/ethnic group and socioeconomic status [SES]): 1980, 1990, and 2002—Continued

Categories	1980	1990	2002
Race/ethnicity—Continued			
More than one race			
1 to 99 students	†	†	1.81
100 to 199 students	†	†	2.26
200 to 299 students	†	†	2.02
300 to 399 students	†	†	2.40
400 to 549 students	†	†	3.02
550 to 699 students	†	†	1.94
700 or more students	†	†	1.75
Socioeconomic status			
Lowest quarter			
1 to 99 students	1.40	1.67	1.36
100 to 199 students	1.64	1.60	1.70
200 to 299 students	1.59	1.75	1.64
300 to 399 students	1.53	1.56	1.61
400 to 549 students	1.46	1.77	1.65
550 to 699 students	1.49	1.22	1.75
700 or more students	1.59	1.14	2.00
Middle two quarters			
1 to 99 students	1.18	1.25	1.15
100 to 199 students	1.34	1.33	1.37
200 to 299 students	1.38	1.47	1.46
300 to 399 students	1.39	1.20	1.43
400 to 549 students	1.53	1.24	1.70
550 to 699 students	1.35	0.88	1.42
700 or more students	1.21	0.68	1.15
Highest quarter			
1 to 99 students	1.79	1.36	1.12
100 to 199 students	1.54	1.65	1.33
200 to 299 students	1.59	1.56	1.86
300 to 399 students	1.88	1.70	1.92
400 to 549 students	1.67	1.72	1.93
550 to 699 students	1.67	1.27	1.75
700 or more students	1.46	1.06	1.23

† Not applicable.

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

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

**Appendix B:
Standard Error Tables**

Table B-11. Standard errors for table 10 estimates (percentage of high school sophomores, by urbanicity, racial/ethnic group, and socioeconomic status [SES]): 1980, 1990, and 2002

Characteristic	Urban			Suburban			Rural		
	1980	1990	2002	1980	1990	2002	1980	1990	2002
All sophomores	1.48	1.39	0.75	1.77	1.64	0.80	1.63	1.62	0.63
Racial/ethnic group									
American Indian or Alaska Native	3.02	5.01	7.20	6.27	5.71	10.36	7.86	9.06	8.87
Asian or Pacific Islander	5.27	4.21	6.03	5.30	3.96	2.99	1.76	1.55	1.60
Black or African American	3.40	3.50	2.29	3.00	2.93	2.16	2.52	2.60	1.44
Hispanic or Latino	2.88	4.11	3.03	2.59	3.41	3.01	1.87	4.74	1.16
More than one race	†	†	2.44	†	†	2.69	†	†	2.26
White	1.30	1.21	0.95	1.92	1.80	1.13	1.84	1.82	0.94
Socioeconomic status									
Lowest quarter	2.00	2.06	1.63	1.94	1.96	1.62	2.08	2.35	1.10
Middle two quarters	1.47	1.51	0.89	1.86	1.76	1.01	1.78	1.69	0.78
Highest quarter	1.58	1.79	1.47	2.15	2.10	1.62	1.72	1.61	1.23

† Not applicable.

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

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

Table B-12. Standard errors for table 11 estimates (percentage of high school sophomores, by percentage free or reduced-price lunch eligibility in school): 1990 and 2002

Percentage of students eligible for free lunch in school	1990	2002
0 to 10	1.73	1.93
11 to 30	1.57	2.08
31 to 100	1.45	1.83

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

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

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

Characteristic	General			College preparatory or academic			Vocational/technical/ business		
	1980	1990	2002	1980	1990	2002	1980	1990	2002
All sophomores	0.71	0.95	0.63	0.74	0.96	0.68	0.61	0.37	0.46
Sex									
Male	0.82	1.15	0.79	0.87	1.19	0.88	0.76	0.65	0.67
Female	0.89	1.12	0.79	0.90	1.10	0.80	0.64	0.54	0.43
Racial/ethnic group									
American Indian or Alaska Native	3.78	5.18	5.18	2.89	4.31	4.30	4.17	4.45	3.23
Asian or Pacific Islander	2.98	2.63	1.88	3.19	2.86	2.26	2.18	1.95	1.57
Black or African American	1.48	2.53	1.35	1.59	2.64	1.47	1.48	1.83	0.99
Hispanic or Latino	1.41	1.91	1.37	1.27	1.85	1.25	1.34	1.34	1.19
More than one race	†	†	2.23	†	†	2.32	†	†	1.43
White	0.79	1.10	0.81	0.82	1.10	0.88	0.59	0.44	0.51
Socioeconomic status									
Lowest quarter	1.02	1.63	1.04	0.74	1.41	1.01	0.90	1.31	0.86
Middle quarters	0.81	1.09	0.77	0.73	1.12	0.83	0.68	0.59	0.55
Highest quarter	1.07	1.64	1.13	1.19	1.66	1.21	0.47	0.32	0.52
Composite achievement test score									
Lowest quarter	1.09	1.70	1.01	0.58	1.62	0.90	0.97	1.33	0.88
Second quarter	1.02	1.48	1.07	0.81	1.43	1.06	0.91	0.94	0.75
Third quarter	1.03	1.53	1.07	1.01	1.58	1.15	0.65	0.63	0.58
Highest quarter	1.01	1.40	1.04	1.10	1.42	1.15	0.45	0.32	0.54
School sector									
Public	0.70	0.94	0.66	0.64	0.94	0.71	0.64	0.51	0.50
Catholic	3.30	3.88	1.74	3.49	3.91	1.86	0.84	0.70	0.44
Other private	5.98	4.73	3.39	7.51	4.74	3.60	2.69	0.61	0.68
Region									
Northeast	1.41	2.20	1.59	1.69	2.40	1.84	1.56	1.41	1.74
Midwest	1.56	1.62	1.30	1.65	1.63	1.38	1.32	0.63	0.65
South	1.05	1.44	0.91	1.02	1.45	1.01	0.91	0.78	0.65
West	1.47	2.17	1.38	1.58	2.14	1.39	0.93	0.91	0.81

† Not applicable.

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

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

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

Characteristic	Remedial English			Remedial math			Bilingual or bicultural education			English as a second language (ESL)			Advanced or honors programs (1980), AP (1990), AP and IB (2002)		
	1980	1990	2002	1980	1990	2002	1980	1990	2002	1980	1990	2002	1980	1990	2002
All sophomores	0.53	0.60	0.30	0.48	0.56	0.35	0.31	0.51	0.60	—	0.44	0.30	0.46	0.68	0.53
Sex															
Male	0.63	0.83	0.44	0.61	0.77	0.51	0.40	0.65	0.76	—	0.63	0.38	0.59	0.89	0.60
Female	0.66	0.74	0.37	0.61	0.74	0.44	0.41	0.72	0.80	—	0.54	0.43	0.61	0.90	0.70
Racial/ethnic group															
American Indian or Alaska Native	3.13	3.13	2.43	3.67	3.92	4.07	1.98	2.80	5.04	—	8.99	2.12	3.42	3.76	3.12
Asian or Pacific Islander	3.19	2.02	0.97	3.62	1.98	1.24	1.94	1.82	1.81	—	2.27	1.43	3.61	2.51	2.18
Black or African American	1.01	1.77	0.82	1.01	1.74	0.91	0.54	1.58	1.13	—	1.16	0.73	0.98	2.13	0.99
Hispanic or Latino	1.13	1.69	0.74	1.13	1.63	0.83	0.89	1.72	1.28	—	1.29	0.94	1.07	1.57	1.28
More than one race	†	†	1.42	†	†	1.52	†	†	2.22	—	†	1.18	†	†	1.88
White	0.62	0.68	0.39	0.55	0.62	0.43	0.36	0.57	0.78	—	0.49	0.31	0.55	0.78	0.69
Socioeconomic status															
Lowest quarter	0.80	1.29	0.66	0.78	1.25	0.76	0.41	0.81	0.87	—	1.01	0.63	0.65	1.09	0.75
Middle quarters	0.67	0.74	0.43	0.60	0.72	0.46	0.36	0.77	0.76	—	0.49	0.38	0.59	0.82	0.63
Highest quarter	0.76	0.99	0.51	0.70	0.76	0.55	0.68	0.91	1.04	—	0.91	0.41	0.88	1.30	1.06
Composite achievement test score															
Lowest quarter	0.83	1.55	0.76	0.84	1.40	0.88	0.36	0.62	0.70	—	1.28	0.73	0.63	0.85	0.61
Second quarter	0.82	0.96	0.49	0.83	1.04	0.60	0.36	0.99	0.89	—	0.81	0.60	0.66	1.14	0.69
Third quarter	0.87	0.76	0.50	0.80	0.73	0.56	0.50	1.06	1.04	—	0.67	0.44	0.81	1.17	0.90
Highest quarter	0.76	0.62	0.47	0.64	0.42	0.48	0.78	0.97	1.10	—	0.47	0.25	0.93	1.35	1.25
School sector															
Public	0.55	0.64	0.32	0.50	0.58	0.37	0.31	0.52	0.64	—	0.47	0.32	0.48	0.68	0.56
Catholic	2.05	1.93	0.96	1.71	2.06	0.98	1.27	2.72	1.46	—	1.32	0.61	1.88	3.30	1.67
Other private	3.51	3.68	1.23	3.37	3.19	1.32	1.33	2.58	2.30	—	1.88	1.29	2.65	4.11	2.32

See notes at end of table.

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

Characteristic	Remedial English			Remedial math			Bilingual or bicultural education			English as a second language (ESL)			Advanced or honors programs (1980), AP (1990), AP and IB (2002)		
	1980	1990	2002	1980	1990	2002	1980	1990	2002	1980	1990	2002	1980	1990	2002
Region															
Northeast	1.00	1.04	0.70	1.11	1.04	1.01	0.81	1.21	1.38	—	0.76	0.85	1.15	1.64	1.12
Midwest	1.02	1.27	0.65	0.88	1.12	0.67	0.53	1.01	1.39	—	0.70	0.58	0.81	1.32	1.04
South	0.81	0.94	0.50	0.73	0.90	0.57	0.45	0.82	0.84	—	0.84	0.40	0.77	1.15	0.90
West	1.43	1.52	0.63	1.27	1.42	0.68	0.64	1.23	1.28	—	1.13	0.70	0.99	1.49	1.18

— Not available.

† Not applicable.

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

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

**Appendix B:
Standard Error Tables**

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

Time spent per week	All			Male			Female		
	1980	1990	2002	1980	1990	2002	1980	1990	2002
All homework (1980 categories)									
Less than 1 hour a week	0.40	—	0.12	0.56	—	0.21	0.41	—	0.11
Between 1 and 3 hours	0.41	—	0.49	0.53	—	0.67	0.51	—	0.58
More than 3 but less than 5 hours	0.34	—	0.37	0.48	—	0.56	0.45	—	0.47
Between 5 and 10 hours	0.41	—	0.45	0.50	—	0.61	0.54	—	0.61
More than 10 hours	0.33	—	0.59	0.41	—	0.71	0.39	—	0.79
Out-of-school homework (1990 categories)									
None	—	0.40	0.28	—	0.62	0.48	—	0.48	0.28
1 hour or less a week	—	0.55	0.44	—	0.78	0.66	—	0.69	0.55
2–3 hours	—	0.55	0.46	—	0.74	0.63	—	0.78	0.62
4–6 hours	—	0.49	0.38	—	0.69	0.53	—	0.64	0.54
7–9 hours	—	0.34	0.28	—	0.51	0.41	—	0.44	0.43
10–12 hours	—	0.33	0.34	—	0.43	0.43	—	0.46	0.51
13–15 hours	—	0.22	0.21	—	0.26	0.26	—	0.36	0.33
More than 15 hours	—	0.20	0.29	—	0.22	0.36	—	0.31	0.41
In-school homework (1990 categories)									
None	—	0.42	0.30	—	0.49	0.44	—	0.59	0.34
1 hour or less a week	—	0.73	0.47	—	0.97	0.62	—	0.92	0.58
2–3 hours	—	0.57	0.49	—	0.78	0.66	—	0.75	0.66
4–6 hours	—	0.48	0.45	—	0.62	0.62	—	0.69	0.57
7–9 hours	—	0.31	0.28	—	0.38	0.35	—	0.44	0.39
10–12 hours	—	0.15	0.25	—	0.22	0.36	—	0.21	0.33
13–15 hours	—	0.14	0.17	—	0.25	0.24	—	0.15	0.21

— Not available.

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

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

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

Characteristic	Come to school without books			Come to school without paper, pen, or pencil			Come to school without homework		
	1980	1990	2002	1980	1990	2002	1980	1990	2002
All sophomores	0.23	0.30	0.43	0.28	0.38	0.42	0.31	0.47	0.51
Sex									
Male	0.37	0.43	0.57	0.43	0.66	0.60	0.49	0.76	0.71
Female	0.26	0.37	0.57	0.32	0.34	0.51	0.39	0.51	0.64
Racial/ethnic group									
American Indian or Alaska Native	2.61	3.19	5.41	2.71	2.60	5.03	2.61	4.66	4.79
Asian or Pacific Islander	2.69	1.44	1.47	2.09	1.38	1.39	2.43	1.94	1.54
Black or African American	0.77	0.86	1.16	0.81	0.95	1.15	0.86	1.55	1.11
Hispanic or Latino	0.84	1.06	1.29	0.91	1.20	1.18	0.96	1.32	1.34
More than one race	†	†	1.89	†	†	2.06	†	†	2.14
White	0.22	0.33	0.49	0.30	0.46	0.45	0.34	0.54	0.61
Socioeconomic status									
Lowest quarter	0.45	0.70	0.88	0.54	0.63	0.78	0.62	0.97	0.97
Middle two quarters	0.30	0.42	0.55	0.36	0.47	0.54	0.41	0.68	0.66
Highest quarter	0.32	0.44	0.71	0.48	0.94	0.78	0.55	0.97	0.90
Composite achievement test score									
Lowest quarter	0.55	0.78	1.01	0.62	0.83	0.93	0.66	1.32	1.09
Second quarter	0.40	0.61	0.78	0.52	0.64	0.81	0.58	0.93	1.01
Third quarter	0.32	0.51	0.65	0.48	0.61	0.64	0.57	0.75	0.81
Highest quarter	0.25	0.30	0.57	0.44	0.85	0.62	0.50	0.86	0.75
School sector									
Public	0.25	0.31	0.46	0.30	0.35	0.45	0.32	0.49	0.54
Catholic	0.56	0.82	0.95	1.05	1.59	1.04	1.05	1.60	1.09
Other private	1.09	2.11	0.96	1.26	4.77	1.31	2.33	4.21	1.20
Region									
Northeast	0.48	0.66	0.83	0.55	1.09	0.72	0.68	1.06	1.13
Midwest	0.38	0.47	0.84	0.51	0.52	0.95	0.51	0.87	0.91
South	0.42	0.52	0.63	0.53	0.66	0.58	0.56	0.83	0.72
West	0.63	0.80	1.14	0.65	0.87	1.10	0.81	1.13	1.37

† Not applicable.

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

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

**Appendix B:
Standard Error Tables**

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

Characteristic	I don't feel safe at this school			Disruptions by other students get in the way of my learning		The teaching is good	
	1980	1990	2002	1990	2002	1990	2002
All sophomores	0.30	0.33	0.39	0.69	0.57	0.49	0.50
Sex							
Male	0.41	0.45	0.50	0.99	0.79	0.69	0.67
Female	0.37	0.46	0.51	0.89	0.80	0.59	0.62
Racial/ethnic group							
American Indian or Alaska Native	1.99	2.50	3.38	5.33	5.29	3.59	4.85
Asian or Pacific Islander	2.20	1.41	1.17	2.80	1.65	1.61	1.37
Black or African American	0.95	1.28	1.15	2.16	1.44	1.27	1.29
Hispanic or Latino	0.86	1.02	1.08	1.72	1.30	1.02	1.02
More than one race	†	†	1.77	†	2.53	†	2.09
White	0.29	0.34	0.44	0.76	0.68	0.61	0.63
Socioeconomic status							
Lowest quarter	0.57	0.78	0.80	1.27	0.98	0.84	0.84
Middle two quarters	0.38	0.43	0.53	0.91	0.76	0.70	0.67
Highest quarter	0.40	0.57	0.57	1.17	1.06	0.82	0.87
Parents' education							
High school or less	0.41	0.66	0.72	1.15	0.96	0.79	0.79
Some college	0.45	0.49	0.62	1.01	0.84	0.74	0.79
College graduation	0.57	0.68	0.72	1.38	1.11	1.23	0.96
Graduate degree	0.61	0.87	0.74	1.83	1.35	1.06	1.07
Native language¹							
English	0.30	0.34	0.41	0.73	0.62	0.52	0.56
Non-English	1.12	1.03	1.11	2.01	1.18	1.06	0.95
Student's educational expectations							
High school or less	0.59	1.15	1.56	1.73	1.72	1.44	1.66
Some college	0.46	0.60	1.17	1.22	1.75	0.95	1.41
College graduation	0.43	0.48	0.53	1.14	0.87	0.68	0.74
Graduate or professional degree	0.50	0.60	0.49	1.21	0.87	0.79	0.66
Don't know	—	2.88	1.16	4.78	1.51	3.76	1.38
Composite achievement test score							
Lowest quarter	0.62	0.80	0.85	1.33	1.04	0.97	0.97
Second quarter	0.52	0.73	0.72	1.30	0.97	0.95	0.85
Third quarter	0.45	0.53	0.64	1.12	1.07	0.78	0.83
Highest quarter	0.35	0.42	0.47	1.17	0.95	0.98	0.73

See notes at end of table.

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

Characteristic	I don't feel safe at this school			Disruptions by other students get in the way of my learning		The teaching is good	
	1980	1990	2002	1990	2002	1990	2002
School sector							
Public	0.32	0.37	0.41	0.73	0.60	0.51	0.53
Catholic	0.68	0.88	0.57	2.59	1.37	1.53	0.96
Other private	1.71	0.59	0.65	4.99	2.35	3.72	1.25
Region							
Northeast	0.65	0.85	0.97	1.75	1.45	1.42	1.20
Midwest	0.50	0.49	0.68	1.28	1.16	0.94	1.07
South	0.54	0.64	0.67	1.17	0.88	0.78	0.76
West	0.69	0.68	0.81	1.49	1.23	0.98	1.11
Urbanicity							
Urban	0.86	0.81	0.81	1.44	1.09	0.84	1.11
Suburban	0.41	0.46	0.53	1.05	0.79	0.81	0.60
Rural	0.47	0.52	0.65	1.15	1.21	0.81	1.09

† Not applicable.

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

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

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

**Appendix B:
Standard Error Tables**

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

Characteristic	Never used in math class			
	Calculators		Computers	
	1990	2002	1990	2002
All sophomores	0.74	0.32	0.60	0.77
Sex				
Male	0.91	0.46	0.75	0.92
Female	1.01	0.34	0.75	0.86
Racial/ethnic group				
American Indian or Alaska Native	5.95	3.46	4.99	4.42
Asian or Pacific Islander	2.76	0.86	1.81	2.27
Black or African American	2.06	0.70	1.50	1.78
Hispanic or Latino	2.16	1.06	1.60	1.30
More than one race	†	1.13	†	2.29
White	0.84	0.33	0.69	0.98
Socioeconomic status				
Lowest quarter	1.54	0.68	1.12	1.12
Middle quarters	0.92	0.39	0.73	0.90
Highest quarter	1.17	0.44	0.89	1.24
Parents' education				
High school or less	1.31	0.61	0.94	1.14
Some college	0.96	0.41	0.84	1.02
College graduation	1.57	0.47	0.97	1.26
Graduate degree	1.59	0.47	1.19	1.35
Native language ¹				
English	0.76	0.32	0.63	0.82
Non-English	2.36	1.02	1.62	1.50
Student's educational expectations				
High school or less	1.91	1.24	1.51	1.95
Some college	1.14	0.89	0.92	1.75
College graduation	1.00	0.41	0.87	1.02
Graduate or professional degree	1.14	0.32	0.92	1.01
Don't know	4.09	1.06	4.83	1.66
Composite achievement test score				
Lowest quarter	1.36	0.67	1.20	1.23
Second quarter	1.30	0.50	1.00	1.18
Third quarter	1.27	0.44	0.79	1.26
Highest quarter	0.97	0.41	1.07	1.24

See notes at end of table.

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

Characteristic	Never used in math class			
	Calculators		Computers	
	1990	2002	1990	2002
School sector				
Public	0.78	0.33	0.65	0.82
Catholic	3.39	1.55	1.86	2.19
Other private	4.08	1.55	2.03	3.08
Region				
Northeast	1.92	0.62	1.36	1.99
Midwest	1.04	0.45	1.16	1.58
South	1.37	0.49	0.97	1.18
West	1.52	0.95	1.37	1.64
Urbanicity				
Urban	1.49	0.59	1.07	1.31
Suburban	1.22	0.45	0.89	1.06
Rural	1.43	0.68	1.15	1.93

† Not applicable.

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

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

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

**Appendix B:
Standard Error Tables**

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

Characteristic	1980	2002
All sophomores	0.215	0.218
Sex		
Male	0.255	0.242
Female	0.229	0.249
Racial/ethnic group		
American Indian or Alaska Native	0.881	1.090
Asian or Pacific Islander	0.872	0.573
Black or African American	0.353	0.360
Hispanic or Latino	0.272	0.377
More than one race	†	0.532
White	0.190	0.198
Socioeconomic status		
Lowest quarter	0.224	0.279
Middle two quarters	0.191	0.206
Highest quarter	0.263	0.251
Region		
Northeast	0.471	0.521
Midwest	0.306	0.437
South	0.339	0.310
West	0.491	0.517
High school program		
General	0.219	0.258
Academic/college preparatory	0.245	0.236
Vocational	0.281	0.442
School sector		
Public	0.213	0.232
Catholic	0.497	0.428
Other private	1.500	0.710

† Not applicable.

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

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

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

Characteristic	1990	2002
All sophomores	0.212	0.218
Sex		
Male	0.260	0.242
Female	0.267	0.249
Racial/ethnic group		
American Indian or Alaska Native	1.409	1.090
Asian or Pacific Islander	0.681	0.573
Black or African American	0.515	0.360
Hispanic or Latino	0.431	0.377
More than one race	†	0.532
White	0.222	0.198
Socioeconomic status		
Lowest quarter	0.270	0.279
Middle two quarters	0.221	0.206
Highest quarter	0.304	0.251
Region		
Northeast	0.535	0.521
Midwest	0.376	0.437
South	0.336	0.310
West	0.492	0.517
High school program		
General	0.275	0.258
Academic/college preparatory	0.292	0.236
Vocational	0.393	0.442
School sector		
Public	0.220	0.232
Catholic	0.708	0.428
Other private	0.994	0.710

† Not applicable.

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

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

**Appendix B:
Standard Error Tables**

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

Characteristic	1990	2002
All sophomores		
Level 1: Simple arithmetic operations on whole numbers	0.30	0.30
Level 2: Simple operations with decimals, fractions, powers, and roots	0.78	0.77
Level 3: Simple problem solving, requiring the understanding of low-level mathematical concepts	0.80	0.81
Level 4: Understanding of intermediate-level mathematical concepts and/or having the ability to formulate multistep solutions to word problems	0.51	0.54
Level 5: Proficiency in solving complex multistep word problems and/or the ability to demonstrate knowledge of mathematics material found in advanced mathematics courses	#	0.08
Sex		
Level 1		
Male	0.33	0.35
Female	0.44	0.35
Level 2		
Male	0.95	0.84
Female	0.95	0.89
Level 3		
Male	0.96	0.92
Female	0.97	0.92
Level 4		
Male	0.64	0.63
Female	0.60	0.63
Level 5		
Male	0.04	0.13
Female	0.03	0.07
Socioeconomic status		
Level 1		
Lowest quarter	0.60	0.56
Middle quarters	0.36	0.33
Highest quarter	0.22	0.26
Level 2		
Lowest quarter	1.16	1.15
Middle quarters	0.86	0.75
Highest quarter	1.04	0.73
Level 3		
Lowest quarter	0.86	0.96
Middle quarters	0.86	0.81
Highest quarter	1.16	1.02
Level 4		
Lowest quarter	0.38	0.45
Middle quarters	0.52	0.52
Highest quarter	0.96	0.95

See notes at end of table.

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

Characteristic	1990	2002
Socioeconomic status—Continued		
Level 5		
Lowest quarter	0.03	0.05
Middle quarters	0.02	0.06
Highest quarter	0.07	0.23
Racial/ethnic group ¹		
Level 1		
Asian or Pacific Islander	0.86	0.56
Black or African American or African American	1.06	0.81
Hispanic or Latino	1.02	0.73
White	0.28	0.20
Level 2		
Asian or Pacific Islander	2.32	1.69
Black or African American or African American	2.41	1.52
Hispanic or Latino	1.57	1.47
White	0.76	0.64
Level 3		
Asian or Pacific Islander	2.41	2.19
Black or African American or African American	1.51	1.22
Hispanic or Latino	1.37	1.31
White	0.83	0.79
Level 4		
Asian or Pacific Islander	2.03	2.07
Black or African American or African American	0.66	0.48
Hispanic or Latino	0.77	0.70
White	0.57	0.64
Level 5		
Asian or Pacific Islander	0.17	0.69
Black or African American or African American	†	0.06
Hispanic or Latino	0.03	0.07
White	0.03	0.10
High school program		
Level 1		
General	0.35	0.41
Academic/college preparatory	0.31	0.30
Vocational	0.90	0.76
Level 2		
General	1.05	0.99
Academic/college preparatory	0.95	0.75
Vocational	1.51	1.77
Level 3		
General	1.05	0.97
Academic/college preparatory	1.19	0.91
Vocational	1.32	1.64

See notes at end of table.

**Appendix B:
Standard Error Tables**

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

Characteristic	1990	2002
High school program—Continued		
Level 4		
General	0.60	0.56
Academic/college preparatory	0.94	0.73
Vocational	0.61	0.87
Level 5		
General	0.04	0.06
Academic/college preparatory	0.06	0.13
Vocational	†	0.11
School sector		
Level 1		
Public	0.30	0.32
Catholic	0.63	0.36
Other private	1.63	0.84
Level 2		
Public	0.78	0.82
Catholic	2.54	1.22
Other private	2.66	1.93
Level 3		
Public	0.80	0.86
Catholic	2.90	1.74
Other private	3.77	2.76
Level 4		
Public	0.51	0.57
Catholic	2.17	1.66
Other private	3.97	2.43
Level 5		
Public	0.03	0.08
Catholic	0.12	0.23
Other private	0.21	0.49
Region		
Level 1		
Northeast	0.54	0.69
Midwest	0.45	0.59
South	0.52	0.44
West	0.74	0.74
Level 2		
Northeast	1.81	1.73
Midwest	1.38	1.56
South	1.26	1.13
West	1.69	1.81
Level 3		
Northeast	2.00	1.99
Midwest	1.40	1.62
South	1.20	1.17
West	1.77	1.82

See notes at end of table.

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

Characteristic	1990	2002
Region—Continued		
Level 4		
Northeast	1.42	1.38
Midwest	0.87	1.05
South	0.72	0.74
West	1.13	1.28
Level 5		
Northeast	0.09	0.20
Midwest	0.05	0.12
South	0.03	0.12
West	0.05	0.20
Parents' education ²		
Level 1		
High school or less	0.56	0.48
Some college	0.38	0.37
College graduation	0.32	0.37
Graduate or professional degree	0.41	0.46
Level 2		
High school or less	1.10	1.02
Some college	0.96	0.88
College graduation	1.23	0.91
Graduate or professional degree	1.61	1.09
Level 3		
High school or less	0.92	0.95
Some college	0.95	0.93
College graduation	1.37	1.13
Graduate or professional degree	1.72	1.32
Level 4		
High school or less	0.39	0.54
Some college	0.56	0.56
College graduation	1.05	0.86
Graduate or professional degree	1.49	1.19
Level 5		
High school or less	0.02	0.05
Some college	0.02	0.06
College graduation	0.06	0.17
Graduate or professional degree	0.11	0.31

† Not applicable.

Rounds to zero.

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

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

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

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

**Appendix B:
Standard Error Tables**

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

Characteristic	1990	2002
All sophomores		
Level 1: Simple comprehension	0.35	0.39
Level 2: Simple inference	0.74	0.70
Level 3: Complex inference	0.45	0.28
Sex		
Level 1		
Male	0.49	0.48
Female	0.45	0.44
Level 2		
Male	0.88	0.78
Female	0.88	0.85
Level 3		
Male	0.55	0.32
Female	0.53	0.37
Socioeconomic status		
Level 1		
Lowest quarter	0.85	0.77
Middle quarters	0.48	0.39
Highest quarter	0.31	0.38
Level 2		
Lowest quarter	0.87	0.84
Middle quarters	0.81	0.68
Highest quarter	1.06	0.88
Level 3		
Lowest quarter	0.37	0.23
Middle quarters	0.44	0.25
Highest quarter	1.00	0.71
Racial/ethnic group ¹		
Level 1		
Asian or Pacific Islander	0.84	0.95
Black or African American	1.75	0.89
Hispanic or Latino	0.78	1.12
White	0.30	0.31
Level 2		
Asian or Pacific Islander	2.28	1.98
Black or African American	1.97	1.08
Hispanic or Latino	1.33	1.18
White	0.77	0.71
Level 3		
Asian or Pacific Islander	1.54	1.07
Black or African American	0.53	0.22
Hispanic or Latino	0.59	0.30
White	0.56	0.38

See notes at end of table.

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

Characteristic	1990	2002
High school program		
Level 1		
General	0.49	0.55
Academic/college preparatory	0.50	0.41
Vocational	1.21	0.96
Level 2		
General	0.93	0.83
Academic/college preparatory	1.05	0.79
Vocational	1.21	1.39
Level 3		
General	0.51	0.28
Academic/college preparatory	0.82	0.43
Vocational	0.41	0.39
School sector		
Level 1		
Public	0.37	0.42
Catholic	0.66	0.53
Other private	1.69	1.14
Level 2		
Public	0.71	0.74
Catholic	2.39	1.70
Other private	3.65	2.69
Level 3		
Public	0.36	0.29
Catholic	1.96	1.17
Other private	4.27	1.63
Region		
Level 1		
Northeast	0.56	0.77
Midwest	0.68	0.76
South	0.68	0.56
West	0.69	1.04
Level 2		
Northeast	1.81	1.56
Midwest	1.18	1.44
South	1.11	0.99
West	1.70	1.70
Level 3		
Northeast	1.43	0.72
Midwest	0.64	0.55
South	0.51	0.39
West	0.97	0.66

See notes at end of table.

**Appendix B:
Standard Error Tables**

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

Characteristic	1990	2002
Parents' education ²		
Level 1		
High school or less	0.72	0.70
Some college	0.52	0.46
College graduation	0.36	0.53
Graduate or professional degree	0.52	0.56
Level 2		
High school or less	0.90	0.80
Some college	0.87	0.83
College graduation	1.20	0.96
Graduate or professional degree	1.65	1.17
Level 3		
High school or less	0.37	0.24
Some college	0.47	0.28
College graduation	1.05	0.57
Graduate or professional degree	1.51	0.84

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

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

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

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

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

Characteristic	Academic clubs			Vocational clubs		
	1980	1990	2002	1980	1990	2002
All sophomores	0.42	0.62	0.33	0.54	0.54	0.43
Sex						
Male	0.50	0.83	0.38	0.57	0.65	0.53
Female	0.55	0.87	0.46	0.66	0.69	0.53
Racial/ethnic group						
American Indian or Alaska Native	2.90	4.66	2.15	2.94	3.30	3.61
Asian or Pacific Islander	2.87	2.24	1.33	1.33	0.81	0.57
Black or African American	1.04	1.91	0.67	1.17	1.84	0.81
Hispanic or Latino	1.11	1.57	0.60	0.85	0.87	0.63
More than one race	†	†	1.29	†	†	1.31
White	0.47	0.72	0.43	0.60	0.64	0.60
Socioeconomic status						
Lowest quarter	0.71	1.05	0.46	0.83	1.15	0.76
Middle quarters	0.55	0.89	0.38	0.63	0.67	0.50
Highest quarter	0.75	1.16	0.74	0.50	0.54	0.57
Composite achievement test score						
Lowest quarter	0.73	1.21	0.42	0.86	1.19	0.63
Second quarter	0.69	1.18	0.44	0.79	0.86	0.72
Third quarter	0.66	1.15	0.55	0.67	0.90	0.65
Highest quarter	0.79	1.17	0.80	0.53	0.60	0.67
School sector						
Public	0.44	0.65	0.34	0.58	0.60	0.46
Catholic	1.63	2.40	1.20	0.50	0.64	0.37
Other private	2.63	4.60	1.66	1.76	2.32	1.02
Region						
Northeast	0.78	1.35	0.85	0.58	0.46	0.63
Midwest	0.79	1.27	0.57	1.14	1.17	1.10
South	0.73	1.06	0.58	1.07	1.10	0.73
West	0.93	1.32	0.66	0.87	0.86	0.80

† Not applicable.

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

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

**Appendix B:
Standard Error Tables**

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

Characteristic	Athletics			Cheerleading and drill team		
	1980	1990	2002	1980	1990	2002
All sophomores	0.45	0.69	0.66	0.35	0.43	0.48
Sex						
Male	0.56	0.89	0.79	0.25	0.45	0.51
Female	0.59	0.89	0.90	0.59	0.68	0.65
Racial/ethnic group						
American Indian or Alaska Native	3.11	5.05	6.10	1.99	3.06	3.38
Asian or Pacific Islander	2.72	2.86	2.16	1.64	0.98	1.21
Black or African American	0.96	2.22	1.39	0.79	2.34	0.99
Hispanic or Latino	1.29	1.82	1.55	0.76	0.86	1.06
More than one race	†	†	2.59	†	†	1.77
White	0.53	0.78	0.83	0.41	0.38	0.59
Socioeconomic status						
Lowest quarter	0.73	1.19	1.15	0.58	0.82	0.73
Middle quarters	0.55	0.92	0.88	0.44	0.65	0.58
Highest quarter	0.77	1.21	1.09	0.59	0.65	0.87
Composite achievement test score						
Lowest quarter	0.76	1.42	1.02	0.56	0.95	0.75
Second quarter	0.72	1.22	1.07	0.59	0.94	0.70
Third quarter	0.76	1.22	1.12	0.55	0.82	0.74
Highest quarter	0.79	1.25	1.06	0.56	0.72	0.82
School sector						
Public	0.44	0.70	0.70	0.35	0.46	0.48
Catholic	1.91	2.76	1.74	1.55	1.18	2.48
Other private	4.15	4.46	1.85	3.09	2.47	3.79
Region						
Northeast	1.10	1.49	1.47	0.61	0.66	1.41
Midwest	0.96	1.27	1.39	0.80	0.63	0.82
South	0.66	1.16	0.93	0.58	0.96	0.55
West	1.03	1.59	1.62	0.80	0.71	1.31

† Not applicable.

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

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

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

Characteristic	Music			Hobby clubs		
	1980	1990	2002	1980	1990	2002
All sophomores	0.43	0.59	0.52	0.34	0.37	0.34
Sex						
Male	0.46	0.63	0.60	0.49	0.52	0.41
Female	0.63	0.85	0.71	0.42	0.50	0.50
Racial/ethnic group						
American Indian or Alaska Native	3.23	3.66	3.75	2.66	2.83	2.23
Asian or Pacific Islander	2.79	2.76	1.56	2.67	1.47	1.41
Black or African American	1.04	1.77	1.33	0.93	0.78	0.68
Hispanic or Latino	1.04	1.19	0.91	1.01	0.67	0.64
More than one race	†	†	1.80	†	†	1.50
White	0.50	0.68	0.65	0.38	0.46	0.47
Socioeconomic status						
Lowest quarter	0.68	0.93	0.75	0.62	0.56	0.50
Middle quarters	0.57	0.77	0.64	0.44	0.55	0.39
Highest quarter	0.78	1.09	1.02	0.62	0.68	0.79
Composite achievement test score						
Lowest quarter	0.73	0.87	0.79	0.64	0.59	0.52
Second quarter	0.73	1.08	0.79	0.60	0.58	0.49
Third quarter	0.74	1.05	0.86	0.62	0.65	0.64
Highest quarter	0.78	1.05	1.02	0.59	0.75	0.75
School sector						
Public	0.44	0.61	0.53	0.35	0.38	0.35
Catholic	1.62	1.60	1.82	1.28	1.53	1.35
Other private	3.80	5.01	3.61	2.27	3.50	2.14
Region						
Northeast	0.90	1.33	1.29	0.76	1.21	0.78
Midwest	0.92	1.22	1.07	0.68	0.53	0.77
South	0.68	0.93	0.85	0.49	0.53	0.50
West	1.00	1.30	0.95	0.89	0.78	0.77

† Not applicable.

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

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

**Appendix B:
Standard Error Tables**

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

Characteristic	Ever worked for pay or employed			Worked for pay or employed at time of the survey			Worked more than 20 hours per week at time of the survey		
	1980	1990	2002	1980	1990	2002	1980	1990	2002
All sophomores	0.32	0.67	0.62	0.47	0.60	0.52	0.20	0.34	0.32
Sex									
Male	0.33	0.89	0.82	0.57	0.85	0.71	0.32	0.56	0.49
Female	0.47	0.88	0.80	0.62	0.76	0.69	0.19	0.41	0.39
Racial/ethnic group									
American Indian or Alaska Native	2.58	6.98	5.35	4.86	5.52	4.47	2.18	4.23	3.27
Asian or Pacific Islander	2.95	2.60	2.04	2.35	2.37	1.49	1.09	1.86	0.50
Black or African American	0.92	2.42	1.44	0.80	1.68	1.25	0.37	0.98	0.97
Hispanic or Latino	0.95	1.66	1.74	1.02	1.48	1.23	0.61	0.90	0.89
More than one race	†	†	2.35	†	†	2.20	†	†	1.28
White	0.27	0.79	0.72	0.48	0.69	0.69	0.22	0.40	0.40
Socioeconomic status									
Lowest quarter	0.57	1.47	1.26	0.68	1.13	0.98	0.33	0.78	0.68
Middle quarters	0.36	0.95	0.77	0.56	0.84	0.73	0.28	0.49	0.46
Highest quarter	0.46	1.29	1.05	0.78	1.02	0.91	0.32	0.41	0.54
Composite achievement test score									
Lowest quarter	0.61	1.43	1.25	0.73	1.17	1.01	0.35	0.87	0.71
Second quarter	0.47	1.33	1.07	0.76	1.10	0.94	0.39	0.66	0.63
Third quarter	0.48	1.18	1.04	0.74	1.09	0.91	0.38	0.53	0.58
Highest quarter	0.44	1.22	1.04	0.79	1.03	0.97	0.28	0.44	0.46
School sector									
Public	0.34	0.71	0.66	0.48	0.63	0.56	0.21	0.37	0.34
Catholic	1.09	2.47	2.00	1.79	2.66	1.42	0.43	0.93	0.53
Other private	1.44	3.50	2.20	3.21	2.99	1.60	1.26	1.51	0.73
Region									
Northeast	0.73	1.47	1.32	1.08	1.16	1.40	0.33	0.63	0.81
Midwest	0.48	1.32	0.92	0.79	1.32	1.14	0.31	0.60	0.62
South	0.55	1.13	0.95	0.76	0.99	0.77	0.44	0.59	0.56
West	0.72	1.65	1.58	1.12	1.34	0.96	0.46	0.82	0.60

† Not applicable.

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

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

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

Characteristic	Driving or riding around			Visiting with friends or meeting at a hangout			Talking with friends on the telephone		
	1980	1990	2002	1980	1990	2002	1980	1990	2002
All sophomores	0.49	0.66	0.58	0.38	0.65	0.47	0.40	0.55	0.47
Sex									
Male	0.62	0.93	0.76	0.50	0.84	0.65	0.57	0.86	0.68
Female	0.58	0.88	0.84	0.54	0.90	0.65	0.43	0.63	0.56
Racial/ethnic group									
American Indian or Alaska Native	3.07	5.46	3.75	2.76	3.41	4.36	5.25	8.48	5.63
Asian or Pacific Islander	3.02	2.74	1.77	3.10	2.31	1.77	2.74	1.85	1.67
Black or African American	1.19	2.49	1.57	0.94	2.34	1.22	1.04	2.05	1.07
Hispanic or Latino	1.23	1.69	1.35	1.05	2.26	1.15	1.20	1.54	1.18
More than one race	†	†	2.17	†	†	1.86	†	†	1.93
White	0.53	0.72	0.75	0.44	0.71	0.54	0.41	0.60	0.59
Socioeconomic status									
Lowest quarter	0.74	1.21	1.07	0.71	1.32	0.96	0.77	1.02	0.92
Middle quarters	0.59	0.90	0.72	0.50	0.88	0.63	0.48	0.73	0.67
Highest quarter	0.93	1.36	1.15	0.64	1.15	0.82	0.56	1.12	0.84
Composite achievement test score									
Lowest quarter	0.82	1.37	1.10	0.70	1.41	1.02	0.74	1.33	0.93
Second quarter	0.79	1.19	1.05	0.65	1.26	0.81	0.69	1.06	0.85
Third quarter	0.81	0.81	1.03	1.25	0.67	0.79	1.15	0.65	0.86
Highest quarter	0.82	1.18	1.13	0.72	1.16	0.84	0.61	1.05	0.87
School sector									
Public	0.50	0.68	0.62	0.40	0.68	0.50	0.41	0.57	0.50
Catholic	1.81	2.73	1.64	1.73	2.03	1.20	1.48	2.50	1.36
Other private	3.77	4.39	2.61	1.80	3.92	2.13	2.28	3.15	2.05
Region									
Northeast	1.07	1.31	1.45	0.87	1.37	0.98	0.74	1.22	0.98
Midwest	0.96	1.23	0.96	0.80	1.25	0.85	0.69	0.90	0.88
South	0.71	1.17	0.92	0.63	1.06	0.73	1.15	1.04	0.79
West	0.98	1.46	1.41	0.82	1.67	1.19	0.61	1.21	1.04

† Not applicable.

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

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

**Appendix B:
Standard Error Tables**

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

Characteristic	Being successful in my line of work			Being able to find steady work			Having lots of money		
	1980	1990	2002	1980	1990	2002	1980	1990	2002
All sophomores	0.27	0.45	0.38	0.28	0.39	0.38	0.41	0.61	0.56
Sex									
Male	0.36	0.54	0.52	0.38	0.59	0.58	0.55	0.88	0.79
Female	0.37	0.68	0.49	0.40	0.54	0.45	0.50	0.80	0.71
Racial/ethnic group									
American Indian or Alaska Native	2.52	7.48	3.89	2.95	3.57	3.97	3.03	5.75	5.11
Asian or Pacific Islander	2.27	1.72	1.12	2.25	1.70	1.32	2.68	2.39	1.91
Black or African American	0.68	1.15	0.90	0.82	1.18	0.88	1.09	2.15	1.40
Hispanic or Latino	1.00	1.41	1.05	0.94	1.24	1.03	1.09	1.67	1.37
More than one race	†	†	1.63	†	†	1.80	†	†	2.43
White	0.29	0.51	0.47	0.30	0.45	0.48	0.41	0.67	0.68
Socioeconomic status									
Lowest quarter	0.57	1.25	0.82	0.57	0.86	0.80	0.73	1.31	0.99
Middle quarters	0.36	0.56	0.48	0.34	0.56	0.49	0.53	0.85	0.79
Highest quarter	0.43	0.61	0.65	0.51	0.66	0.77	0.71	1.08	0.92
Composite achievement test score									
Lowest quarter	0.62	1.21	0.82	0.60	1.04	0.85	0.80	1.35	1.08
Second quarter	0.48	0.78	0.72	0.46	0.68	0.63	0.71	1.26	1.05
Third quarter	0.43	0.75	0.58	0.46	0.83	0.68	0.70	1.11	0.91
Highest quarter	0.44	0.55	0.60	0.50	0.68	0.75	0.66	1.02	0.98
School sector									
Public	0.28	0.49	0.41	0.29	0.41	0.40	0.43	0.64	0.60
Catholic	0.84	1.32	0.69	1.05	1.65	0.80	1.34	2.71	1.55
Other private	1.23	2.03	1.40	1.68	1.78	1.52	2.39	3.08	1.94
Region									
Northeast	0.56	1.00	0.96	0.57	0.91	0.84	0.90	1.29	1.40
Midwest	0.54	0.77	0.71	0.49	0.73	0.65	0.70	1.14	1.24
South	0.44	0.67	0.53	0.54	0.59	0.56	0.68	1.15	0.83
West	0.61	1.41	0.94	0.61	0.96	1.01	1.02	1.39	1.19

† Not applicable.

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

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

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

Characteristic	Having strong friendships			Having leisure time to enjoy own interests		
	1980	1990	2002	1980	1990	2002
All sophomores	0.35	0.54	0.40	0.36	0.62	0.51
Sex						
Male	0.47	0.73	0.58	0.50	0.91	0.70
Female	0.45	0.74	0.51	0.47	0.87	0.70
Racial/ethnic group						
American Indian or Alaska Native	3.05	3.97	4.23	3.31	3.91	4.31
Asian or Pacific Islander	2.30	1.43	1.11	2.66	2.26	1.68
Black or African American	0.94	1.76	1.19	0.92	2.14	1.25
Hispanic or Latino	1.11	1.89	1.32	1.10	1.66	1.36
More than one race	†	†	1.89	†	†	2.22
White	0.30	0.55	0.40	0.40	0.71	0.62
Socioeconomic status						
Lowest quarter	0.65	1.11	0.91	0.67	1.25	0.99
Middle quarters	0.43	0.74	0.54	0.47	0.85	0.64
Highest quarter	0.45	0.91	0.61	0.63	1.29	0.87
Composite achievement test score						
Lowest quarter	0.78	1.27	0.91	0.70	1.34	0.97
Second quarter	0.58	0.96	0.80	0.68	1.27	0.88
Third quarter	0.48	0.95	0.69	0.63	1.07	0.89
Highest quarter	0.48	0.87	0.59	0.61	1.15	0.88
School sector						
Public	0.37	0.57	0.43	0.37	0.64	0.54
Catholic	0.89	1.72	0.83	1.05	2.41	1.25
Other private	1.45	4.33	1.02	2.51	4.38	2.23
Region						
Northeast	0.79	1.28	0.87	0.84	1.46	1.01
Midwest	0.62	0.75	0.72	0.56	1.21	0.86
South	0.65	0.93	0.69	0.62	1.07	0.85
West	0.65	1.51	0.98	0.81	1.38	1.34

† Not applicable.

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

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

**Appendix B:
Standard Error Tables**

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

Characteristic	Finding right person to marry and having a happy family life			Having children			Being able to give my children better opportunities than I've had		
	1980	1990	2002	1980	1990	2002	1980	1990	2002
All sophomores	0.28	0.54	0.47	0.42	0.63	0.58	0.41	0.56	0.43
Sex									
Male	0.43	0.78	0.68	0.54	0.84	0.82	0.51	0.79	0.63
Female	0.34	0.68	0.60	0.57	0.88	0.76	0.54	0.71	0.57
Racial/ethnic group									
American Indian or Alaska Native	4.52	5.83	6.02	3.81	7.29	6.63	3.12	4.69	3.54
Asian or Pacific Islander	2.25	2.08	1.45	2.65	2.39	1.96	2.30	1.93	1.65
Black or African American	0.76	1.90	1.10	0.92	1.79	1.43	0.72	1.09	0.88
Hispanic or Latino	0.86	1.65	1.28	1.19	1.83	1.40	0.94	1.03	0.93
More than one race	†	†	1.95	†	†	2.40	†	†	1.85
White	0.30	0.59	0.56	0.48	0.76	0.72	0.44	0.66	0.57
Socioeconomic status									
Lowest quarter	0.55	1.12	0.89	0.72	1.23	1.12	0.62	0.95	0.74
Middle quarters	0.37	0.74	0.61	0.56	0.83	0.81	0.47	0.68	0.58
Highest quarter	0.52	1.14	0.87	0.77	1.26	0.96	0.77	1.23	0.88
Composite achievement test score									
Lowest quarter	0.61	1.36	0.85	0.78	1.27	0.99	0.69	1.04	0.83
Second quarter	0.51	1.04	0.91	0.76	1.20	1.05	0.60	0.83	0.74
Third quarter	0.49	0.93	0.82	0.73	1.15	1.02	0.66	1.01	0.70
Highest quarter	0.52	0.94	0.84	0.71	1.29	1.04	0.74	1.16	0.91
School sector									
Public	0.29	0.58	0.50	0.42	0.64	0.62	0.41	0.55	0.45
Catholic	0.91	2.31	0.94	1.38	2.64	1.30	1.61	2.78	1.18
Other private	2.54	3.81	1.45	4.63	4.55	1.48	3.53	4.65	1.68
Region									
Northeast	0.62	1.28	1.04	1.02	1.77	1.38	0.97	1.26	0.99
Midwest	0.48	1.12	0.86	0.65	1.07	1.16	0.64	1.10	1.02
South	0.47	0.85	0.76	0.71	1.12	0.92	0.60	0.82	0.64
West	0.80	1.27	1.13	1.12	1.39	1.29	0.92	1.31	0.87

† Not applicable.

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

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

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

Characteristic	Helping other people in community			Working to correct social and economic inequalities		
	1980	1990	2002	1980	1990	2002
All sophomores	—	0.60	0.46	0.28	0.49	0.46
Sex						
Male	—	0.72	0.63	0.38	0.67	0.60
Female	—	0.92	0.70	0.36	0.70	0.65
Racial/ethnic group						
American Indian or Alaska Native	—	7.07	4.40	2.41	6.36	3.52
Asian or Pacific Islander	—	2.09	1.92	2.81	1.91	1.49
Black or African American	—	2.23	1.42	0.85	1.93	1.37
Hispanic or Latino	—	1.69	1.29	1.10	1.57	1.33
More than one race	—	†	2.39	†	†	1.65
White	—	0.67	0.59	0.25	0.52	0.51
Socioeconomic status						
Lowest quarter	—	1.40	0.93	0.58	1.12	0.97
Middle quarters	—	0.82	0.71	0.35	0.73	0.61
Highest quarter	—	1.28	0.87	0.49	0.90	0.69
Composite achievement test score						
Lowest quarter	—	1.24	1.02	0.65	1.09	0.96
Second quarter	—	1.10	0.99	0.52	1.05	0.85
Third quarter	—	1.31	0.92	0.47	0.99	0.75
Highest quarter	—	1.05	0.88	0.44	0.88	0.64
School sector						
Public	—	0.62	0.49	0.30	0.51	0.49
Catholic	—	2.71	1.36	0.82	2.21	0.95
Other private	—	4.52	1.95	1.50	2.75	1.47
Region						
Northeast	—	1.27	1.11	0.67	1.00	1.09
Midwest	—	0.98	0.90	0.44	0.97	0.88
South	—	1.13	0.74	0.50	0.83	0.72
West	—	1.44	0.99	0.64	1.19	1.10

— Not available.

† Not applicable.

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

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

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

Characteristic	High school diploma or less			Two years or less of college or vocational school			College graduate			Graduate or professional		
	1980	1990	2002	1980	1990	2002	1980	1990	2002	1980	1990	2002
All sophomores	0.50	0.42	0.36	0.39	0.65	0.37	0.38	0.59	0.50	0.40	0.64	0.60
Sex												
Male	0.66	0.52	0.52	0.54	0.88	0.52	0.52	0.84	0.71	0.54	0.87	0.72
Female	0.58	0.62	0.38	0.52	0.84	0.47	0.47	0.81	0.70	0.50	0.84	0.80
Racial/ethnic group												
American Indian or Alaska Native	4.12	6.26	3.94	3.01	4.51	3.80	3.63	3.96	6.94	2.08	3.29	6.21
Asian or Pacific Islander	2.08	1.86	0.80	2.66	2.51	1.12	2.99	2.00	2.03	3.36	2.87	2.18
Black or African American	1.06	1.13	0.95	0.89	2.02	0.83	0.83	1.87	1.34	0.91	2.05	1.47
Hispanic or Latino	1.18	1.19	1.04	1.07	1.95	0.99	0.83	1.40	1.37	0.84	1.52	1.40
More than one race	†	†	1.29	†	†	1.49	†	†	2.44	†	†	2.44
White	0.57	0.48	0.40	0.45	0.72	0.42	0.44	0.67	0.64	0.46	0.73	0.69
Socioeconomic status												
Lowest quarter	0.82	1.17	0.82	0.67	1.21	0.75	0.50	0.95	0.99	0.43	0.98	0.93
Middle quarters	0.52	0.46	0.43	0.52	0.91	0.48	0.45	0.81	0.77	0.39	0.75	0.79
Highest quarter	0.40	0.23	0.35	0.68	0.75	0.42	0.68	1.20	0.95	0.80	1.30	0.98
Composite achievement test score												
Lowest quarter	0.87	1.02	0.98	0.71	1.39	0.87	0.53	1.22	0.99	0.41	1.29	0.94
Second quarter	0.76	0.68	0.60	0.70	1.23	0.85	0.56	1.00	1.11	0.49	0.90	1.06
Third quarter	0.64	0.51	0.39	0.72	1.10	0.55	0.67	1.13	0.97	0.58	1.05	1.00
Highest quarter	0.39	0.27	0.20	0.68	0.70	0.38	0.67	1.17	0.96	0.89	1.24	1.02
School sector												
Public	0.50	0.46	0.39	0.38	0.67	0.40	0.37	0.62	0.53	0.37	0.62	0.64
Catholic	1.21	0.88	0.28	1.72	1.81	0.57	1.52	2.24	1.68	1.94	2.74	1.78
Other private	2.63	1.41	0.88	3.77	2.73	0.73	3.06	3.50	1.92	4.29	4.48	2.35

See notes at end of table.

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

Characteristic	High school diploma or less			Two years or less of college or vocational school			College graduate			Graduate or professional		
	1980	1990	2002	1980	1990	2002	1980	1990	2002	1980	1990	2002
Region												
Northeast	1.19	0.90	0.79	0.87	1.43	0.82	0.94	1.35	1.25	1.05	1.77	1.53
Midwest	1.10	0.73	0.68	0.81	1.16	0.63	0.88	1.02	0.96	0.85	1.15	1.09
South	0.75	0.60	0.52	0.58	1.13	0.55	0.53	1.20	0.81	0.54	0.99	0.89
West	1.06	1.29	0.95	0.91	1.53	1.03	0.86	1.11	1.08	0.94	1.36	1.52

† Not applicable.

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

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

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

Characteristic	Father			Mother			School counselor			Teacher or favorite teacher		
	1980	1990	2002	1980	1990	2002	1980	1990	2002	1980	1990	2002
All sophomores	0.62	0.70	0.56	0.58	0.63	0.49	0.57	0.74	0.55	0.49	0.71	0.46
Sex												
Male	0.80	0.97	0.81	0.76	0.86	0.70	0.69	0.99	0.83	0.64	1.00	0.77
Female	0.69	0.91	0.63	0.64	0.87	0.54	0.70	0.96	0.70	0.59	0.90	0.61
Racial/ethnic group												
American Indian or Alaska Native	3.23	7.11	6.59	3.33	7.35	6.78	5.55	8.98	6.25	4.23	7.75	6.01
Asian or Pacific Islander	2.83	1.75	1.65	2.98	1.59	1.60	3.39	2.44	1.91	3.28	2.33	2.01
Black or African American	1.31	1.72	1.35	1.29	2.42	1.21	1.05	2.43	1.37	1.17	2.49	1.22
Hispanic or Latino	1.32	2.37	1.42	1.28	1.47	1.10	1.25	1.93	1.40	1.25	1.87	1.36
More than one race	†	†	2.37	†	†	1.79	†	†	2.33	†	†	2.48
White	0.70	0.79	0.64	0.66	0.67	0.59	0.65	0.84	0.70	0.53	0.78	0.63
Socioeconomic status												
Lowest quarter	0.85	1.58	1.10	0.90	1.61	1.02	0.75	1.46	1.11	0.81	1.47	1.05
Middle quarters	0.64	0.88	0.72	0.65	0.80	0.64	0.63	0.99	0.77	0.55	0.98	0.71
Highest quarter	0.59	0.54	0.60	0.53	0.36	0.61	0.97	1.07	0.98	0.83	1.05	0.89
Composite achievement test score												
Lowest quarter	0.87	1.54	1.30	0.93	1.57	1.18	0.87	1.55	1.23	0.92	1.49	1.11
Second quarter	0.85	1.40	0.98	0.87	1.32	0.87	0.72	1.42	1.05	0.74	1.46	1.02
Third quarter	0.87	0.97	0.78	0.82	0.75	0.67	0.81	1.21	0.96	0.76	1.26	0.97
Highest quarter	0.68	0.72	0.68	0.56	0.43	0.53	1.01	1.13	0.94	0.80	1.03	0.91
School sector												
Public	0.62	0.74	0.60	0.57	0.68	0.53	0.56	0.77	0.59	0.49	0.73	0.49
Catholic	1.66	1.12	0.80	1.54	0.98	0.51	2.38	2.27	1.60	1.85	2.40	1.06
Other private	4.65	2.05	1.65	5.23	1.63	1.77	6.12	2.94	2.34	4.39	3.00	2.37

See notes at end of table.

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

Characteristic	Father			Mother			School counselor			Teacher or favorite teacher		
	1980	1990	2002	1980	1990	2002	1980	1990	2002	1980	1990	2002
Region												
Northeast	1.53	1.36	1.25	1.48	1.06	1.21	1.33	1.63	1.21	1.11	1.59	1.15
Midwest	1.28	1.17	1.15	1.26	1.01	1.00	1.19	1.32	1.12	1.06	1.25	0.87
South	0.94	1.23	0.76	0.86	1.18	0.66	0.82	1.24	0.92	0.73	1.27	0.74
West	1.33	1.80	1.43	1.19	1.66	1.24	1.33	1.84	1.18	1.10	1.65	1.06

† Not applicable.

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

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

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

Characteristic	Right after high school			After a year			After more than a year			No/don't know		
	1980	1990	2002	1980	1990	2002	1980	1990	2002	1980	1990	2002
All sophomores	0.61	0.70	0.58	0.30	0.44	0.36	0.12	0.16	0.14	0.59	0.59	0.45
Sex												
Male	0.76	0.96	0.75	0.39	0.58	0.50	0.18	0.28	0.26	0.75	0.83	0.64
Female	0.71	0.90	0.71	0.38	0.62	0.53	0.14	0.17	0.12	0.65	0.76	0.51
Racial/ethnic group												
American Indian or Alaska Native	3.34	5.78	5.09	2.33	3.53	3.40	2.55	0.86	1.86	3.41	7.35	4.09
Asian or Pacific Islander	3.15	2.39	1.62	2.00	1.52	0.96	1.35	0.84	0.37	2.19	1.93	1.15
Black or African American	1.28	1.94	1.39	0.79	1.30	0.92	0.45	0.53	0.25	1.20	1.62	1.12
Hispanic or Latino	1.32	1.79	1.28	0.87	1.59	0.86	0.41	0.78	0.42	1.35	1.35	1.17
More than one race	†	†	2.62	†	†	1.88	†	†	0.67	†	†	1.88
White	0.69	0.83	0.72	0.34	0.51	0.45	0.12	0.17	0.18	0.68	0.71	0.57
Socioeconomic status												
Lowest quarter	0.79	1.29	1.05	0.48	0.96	0.77	0.27	0.37	0.30	0.90	1.37	0.91
Middle quarters	0.63	0.90	0.74	0.42	0.58	0.57	0.16	0.22	0.19	0.61	0.76	0.56
Highest quarter	0.80	1.12	0.77	0.49	0.94	0.55	0.22	0.25	0.25	0.58	0.64	0.60
Composite achievement test score												
Lowest quarter	0.85	1.43	1.13	0.53	1.08	0.72	0.31	0.31	0.33	0.95	1.36	1.06
Second quarter	0.82	1.30	0.99	0.57	0.83	0.82	0.24	0.29	0.24	0.87	1.12	0.74
Third quarter	0.84	1.18	1.01	0.55	0.76	0.74	0.21	0.36	0.28	0.80	0.98	0.66
Highest quarter	0.77	0.90	0.83	0.49	0.63	0.54	0.20	0.24	0.27	0.58	0.65	0.64
School sector												
Public	0.58	0.72	0.61	0.31	0.43	0.38	0.12	0.17	0.15	0.59	0.63	0.48
Catholic	1.91	1.91	1.19	0.97	1.17	0.78	0.25	0.71	0.11	1.75	1.40	0.69
Other private	4.74	6.37	2.20	2.01	4.53	1.13	0.61	0.38	0.16	4.75	3.02	1.86

See notes at end of table.

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

Characteristic	Right after high school			After a year			After more than a year			No/don't know		
	1980	1990	2002	1980	1990	2002	1980	1990	2002	1980	1990	2002
Region												
Northeast	1.60	1.67	1.44	0.60	0.76	0.80	0.26	0.37	0.38	1.53	1.41	1.01
Midwest	1.02	1.27	1.14	0.50	0.70	0.71	0.19	0.27	0.17	1.00	1.00	0.98
South	1.00	1.18	0.85	0.50	0.77	0.57	0.21	0.21	0.21	0.96	1.00	0.64
West	1.31	1.60	1.30	0.73	1.08	0.85	0.29	0.50	0.40	1.18	1.56	1.04

† Not applicable.

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

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

**Appendix B:
Standard Error Tables**

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

Occupation	All			Male			Female		
	1980	1990	2002	1980	1990	2002	1980	1990	2002
Clerical	0.23	0.18	0.05	0.14	0.20	0.04	0.40	0.30	0.10
Craftsman	0.23	0.19	0.18	0.45	0.35	0.32	0.10	0.13	0.13
Farmer, farm manager	0.15	0.09	0.03	0.29	0.17	0.06	0.10	0.06	†
Homemaker	0.18	0.16	0.03	0.04	0.07	†	0.33	0.31	0.06
Laborer	0.10	0.07	0.06	0.20	0.14	0.12	0.06	0.04	†
Manager, administrator	0.15	0.27	0.14	0.23	0.40	0.22	0.17	0.33	0.19
Military	0.15	0.19	0.10	0.26	0.34	0.19	0.13	0.15	0.08
Operative	0.12	0.23	0.10	0.24	0.45	0.19	0.09	0.14	0.04
Professional (1)	0.37	0.56	0.46	0.47	0.80	0.70	0.48	0.76	0.61
Professional (2)	0.33	0.54	0.43	0.43	0.77	0.49	0.40	0.69	0.61
Proprietor or owner	0.14	0.38	0.15	0.24	0.51	0.23	0.14	0.45	0.19
Protective service	0.09	0.20	0.17	0.17	0.36	0.32	0.08	0.16	0.15
Sales	0.10	0.14	0.08	0.14	0.21	0.14	0.14	0.19	0.08
School teacher	0.11	0.27	0.13	0.09	0.19	0.12	0.20	0.49	0.24
Service	0.15	0.10	0.17	0.08	0.08	0.09	0.27	0.19	0.33
Technical	0.19	0.25	0.19	0.33	0.44	0.32	0.21	0.22	0.22
Plan not to work	0.11	0.03	0.11	0.14	0.05	0.14	0.18	0.05	0.16
Other	†	0.33	0.07	†	0.49	0.11	†	0.41	0.10
Don't know	†	0.38	0.52	†	0.44	0.73	†	0.61	0.68

† Not applicable.

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

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

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

Occupation	All			Male			Female		
	1980	1990	2002	1980	1990	2002	1980	1990	2002
Clerical	0.23	0.20	0.08	0.14	0.22	0.07	0.40	0.33	0.14
Craftsman	0.23	0.21	0.27	0.45	0.39	0.52	0.10	0.14	0.19
Farmer, farm manager	0.15	0.10	0.05	0.29	0.19	0.10	0.10	0.07	†
Homemaker	0.18	0.18	0.05	0.04	0.08	†	0.33	0.34	0.09
Laborer	0.10	0.08	0.09	0.20	0.15	0.20	0.06	0.04	†
Manager, administrator	0.15	0.30	0.22	0.23	0.44	0.36	0.17	0.36	0.27
Military	0.15	0.21	0.15	0.26	0.37	0.31	0.13	0.17	0.11
Operative	0.12	0.26	0.15	0.24	0.49	0.31	0.09	0.15	0.06
Professional (1)	0.37	0.61	0.63	0.47	0.87	1.03	0.48	0.82	0.81
Professional (2)	0.33	0.60	0.61	0.43	0.85	0.76	0.40	0.78	0.80
Proprietor or owner	0.14	0.41	0.23	0.24	0.56	0.38	0.14	0.50	0.26
Protective service	0.09	0.22	0.26	0.17	0.39	0.51	0.08	0.18	0.21
Sales	0.10	0.16	0.12	0.14	0.24	0.23	0.14	0.22	0.11
School teacher	0.11	0.30	0.20	0.09	0.21	0.20	0.20	0.55	0.34
Service	0.15	0.11	0.26	0.08	0.09	0.15	0.27	0.21	0.46
Technical	0.19	0.27	0.29	0.33	0.49	0.51	0.21	0.25	0.32
Plan not to work	0.11	0.04	0.16	0.14	0.05	0.23	0.18	0.05	0.22
Other	†	0.36	0.11	†	0.54	0.19	†	0.46	0.14
Don't know	†	†	†	†	†	†	†	†	†

† Not applicable.

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

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