



**U.S. Department of Education**  
NCES 2008-347

# **Education Longitudinal Study of 2002 (ELS:2002)**

## **Base-Year to Second Follow-up Data File Documentation**

**October 2007**





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Authors  
Steven J. Ingels  
Daniel J. Pratt  
David Wilson  
Laura J. Burns  
Douglas Currivan  
James E. Rogers  
Sherry Hubbard-Bednasz  
RTI International

John Wirt  
*Project Officer*  
National Center for  
Education Statistics

**U.S. Department of Education**

Margaret Spellings  
*Secretary*

**Institute of Education Sciences**

Grover J. Whitehurst  
*Director*

**National Center for Education Statistics**

Mark Schneider  
*Commissioner*

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U.S. Department of Education  
1990 K Street, NW  
Washington, DC 20006-5651

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**Contact:**

John G. Wirt  
(202) 502-7478  
[John.Wirt@ed.gov](mailto:John.Wirt@ed.gov)

# Executive Summary

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Chapter 1 serves as an introduction to the Education Longitudinal Study of 2002 (ELS:2002). It includes an overview and history of the National Center for Education Statistics program of longitudinal high school cohorts, summarizes the ELS:2002 objectives, and supplies an overview of the base-year and longitudinal study design.

Chapter 2 describes the data collection instruments, including both the development and content of the tests and questionnaires used in the three rounds of data collection. It also documents the first follow-up transcript and course offerings studies and provides information about linkages to external data sources.

The sample design is documented in chapter 3, while data collection procedures and results are presented in chapter 4. Chapter 5 describes data preparation and processing, including data file preparation.

Chapter 6 provides an account of the weighting procedures used in the study, with special emphasis on the most recent (2006) round. The chapter also covers statistical procedures, such as imputation, disclosure avoidance, and the calculation of design effects. Chapter 7 describes the contents of the data files, including the data structure and analysis populations.

The appendixes include, among other topics, an introduction to the base-year to second follow-up electronic codebook (ECB); a flow chart and facsimile for the second follow-up instrument; a crosswalk between occupation coding schemes; a glossary of terms; information about making cross-cohort comparisons; a listing of the superset of variables to be found on the ELS:2002 second follow-up restricted-use ECB and the subset of the same variables provided by the ELS:2002 second follow-up Data Analysis System (DAS); a description of the second follow-up composite variables; and a synopsis of the ELS:2002 second follow-up field test.



# Foreword

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This manual has been produced to familiarize data users with the procedures followed for data collection and processing for the base year through second follow-up of the Education Longitudinal Study of 2002 (ELS:2002). It also provides the necessary documentation for use of the data files, as they appear on the ELS:2002 base-year to second follow-up electronic codebook (ECB) (NCES 2008-346), and information that may be helpful to users of the ELS:2002 Data Analysis System (DAS).

Analysts do not need to be sophisticated statisticians or computer programmers to use the ELS:2002 ECB or DAS. Most social scientists and policy analysts should find the dataset organized and equipped in a manner that facilitates straightforward production of statistical summaries and analyses. This manual provides extensive documentation of the content of the data files and how to access and manipulate them.

**John Wirt**  
ELS:2002 Project Officer  
*Elementary/Secondary & Libraries Studies*

**Jeffrey Owings**  
Associate Commissioner  
*Elementary/Secondary & Libraries Studies*





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# Chapter 1

## Introduction

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### 1.1 Overview of the Data File Documentation

This report provides guidance and documentation for users of the combined base-year through second follow-up data of the Education Longitudinal Study of 2002 (ELS:2002). ELS:2002 is sponsored by the National Center for Education Statistics (NCES) of the Institute of Education Sciences (IES), U.S. Department of Education. The base-year and follow-up studies were conducted through a contract to RTI International, a university-affiliated, nonprofit research organization based in North Carolina. This document contains information about the purposes of ELS:2002; the base-year, first, and second follow-up data collection instruments; the sample design; and the data collection and data processing procedures. The manual provides guidance for understanding and using data from all components of the base year and its two follow-ups.

The ELS:2002 base-year to second follow-up dataset has been produced in a restricted-use electronic codebook (ECB) version (NCES 2008-346) as well as a public-use web-only Data Analysis System (DAS). The data files reflect alteration or suppression of some of the original data. The data were edited to minimize the risk of disclosing the identity of responding schools and individuals. Although the primary focus of this manual is the ECB (because it is more inclusive), much of the information supplied is also applicable to the DAS version of the dataset. Because the ELS:2002 second follow-up ECB is restricted use only, second follow-up sample sizes in this report have been rounded to tens or hundreds (numbers of less than four digits have been rounded to tens; numbers of four or five digits have been rounded to hundreds). Because base-year and first follow-up data were earlier released on public-use ECBs, exact sample sizes—in conformity to previously released documentation and published reports—have been provided.

Chapter 1 addresses three main topics. First, it supplies an overview of the NCES education longitudinal studies program, thus situating ELS:2002 in the context of the earlier NCES high school cohorts studied in the 1970s, 1980s, and 1990s. Second, it introduces ELS:2002 by sketching some of the research and policy issues it can address and by delineating its study design. Third, it provides an overview of the various modes of data analysis that the design supports and touches on files and systems that have been provided for analysis.

In subsequent chapters, additional topics are addressed: instrumentation (chapter 2), sample design (chapter 3), data collection methods and results (chapter 4), data preparation and processing (chapter 5), weighting and estimation (including imputation, bias analysis, and design effect analysis) (chapter 6), and data file structure and contents (chapter 7).

Appendixes provide additional information, including special information on cross-cohort comparisons (appendix A), an introduction to the restricted-use ECB (appendix B), a synopsis of the ELS:2002 second follow-up field test (appendix C), base-year to first follow-up Data File Documentation errata (appendix D), flow chart and facsimile for the second follow-up questionnaire (appendix E), an occupational coding crosswalk (appendix F), transcript standard errors and design effects (appendix G), supplemental weighting nonresponse adjustment tables

(appendix H), average weight adjustment factors (appendix I), second follow-up design effects (appendix J), nonresponse bias tables (appendix K), documentation of differences between the public-use and restricted-use files (appendix L), a listing of all ECB and DAS variables (appendix M), further information about composite variables and ancillary or ecological data drawn from relevant extant databases (appendix N), and a glossary of terms (appendix O).

## 1.2 Historical Background

### 1.2.1 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) is authorized by section 406(b) of the General Education Provision Act (20 U.S.C. 1221e) as 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 with the IES, in which NCES is now housed.

The high school longitudinal studies program consists of three completed studies: the National Longitudinal Study of the High School Class of 1972 (NLS:72), the High School and Beyond (HS&B) longitudinal study of 1980, and the National Education Longitudinal Study of 1988 (NELS:88). In addition, base-year through second follow-up data (2002–06) for ELS:2002, the fourth longitudinal study in the series, are now available. Taken together, these studies describe the educational experiences of students from 4 decades—the 1970s, 1980s, 1990s, and 2000s—and also provide bases for further understanding of the correlates of educational success in the United States. A fifth study, the High School Longitudinal Study of 2009 (HSL:09) is presently in its design phase. Figure 1 is a temporal presentation of the four longitudinal high school cohort studies for which data are currently available, and highlights their component and comparison points. Figure 1 does not identify all future follow-up points for ELS:2002; final decisions have yet to be made concerning them. However, the general expectation is that the ELS:2002 cohorts will be followed until about age 26–30.

### 1.2.2 National Longitudinal Study of the High School Class of 1972

The National Education Longitudinal Studies program began over 30 years ago with the implementation of NLS:72.<sup>1</sup> NLS:72 was designed to provide longitudinal data for education policymakers and researchers who link educational experiences in high school with important downstream outcomes such as labor market experiences and postsecondary education enrollment and attainment. With a national probability sample of 19,001 high school seniors from 1,061

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<sup>1</sup> For documentation on NLS:72, see Riccobono et al. (1981) and Tourangeau et al. (1987). While recent NCES reports and user documentation may be found on the NCES website (<http://nces.ed.gov>), some older documentation may be unavailable. NLS:72 and older HS&B manuals may be downloaded from the International Archive of Education Data at the Inter-university Consortium for Political and Social Research at the University of Michigan (<http://www.icpsr.umich.edu>). Materials may also be obtained in microfiche or photocopy format from the Education Resources Information Center database (<http://www.eric.ed.gov>).

public, Catholic, and other private schools, the NLS:72 sample was representative of approximately 3 million high school seniors enrolled in 17,000 U.S. high schools during the spring of the 1971–72 school year. Each member of this cohort was asked to complete a student questionnaire and a cognitive test battery. In addition, administrators at the sample members' schools were asked to supply information about the schools' programs, resources, and grading systems, as well as survey data on each student. No parent survey was conducted. However, postsecondary education transcripts were collected from the institutions attended by students. Five follow-up surveys were completed with this student cohort, with the final data collection taking place in 1986, when the sample members were 14 years removed from scheduled high school graduation and approximately 32 years old.

A wide variety of data was collected in the NLS:72 surveys. For example, in addition to background information about the students and their families, the base-year and follow-up surveys collected data on each respondent's educational activities (e.g., schools attended, grades received, and degree of satisfaction with educational institutions). Participants were also asked about their work experiences, periods of unemployment, job satisfaction, military service, marital status, and children. Attitudinal information on self-concept, goals, community involvement, and personal evaluations of educational activities were also included.

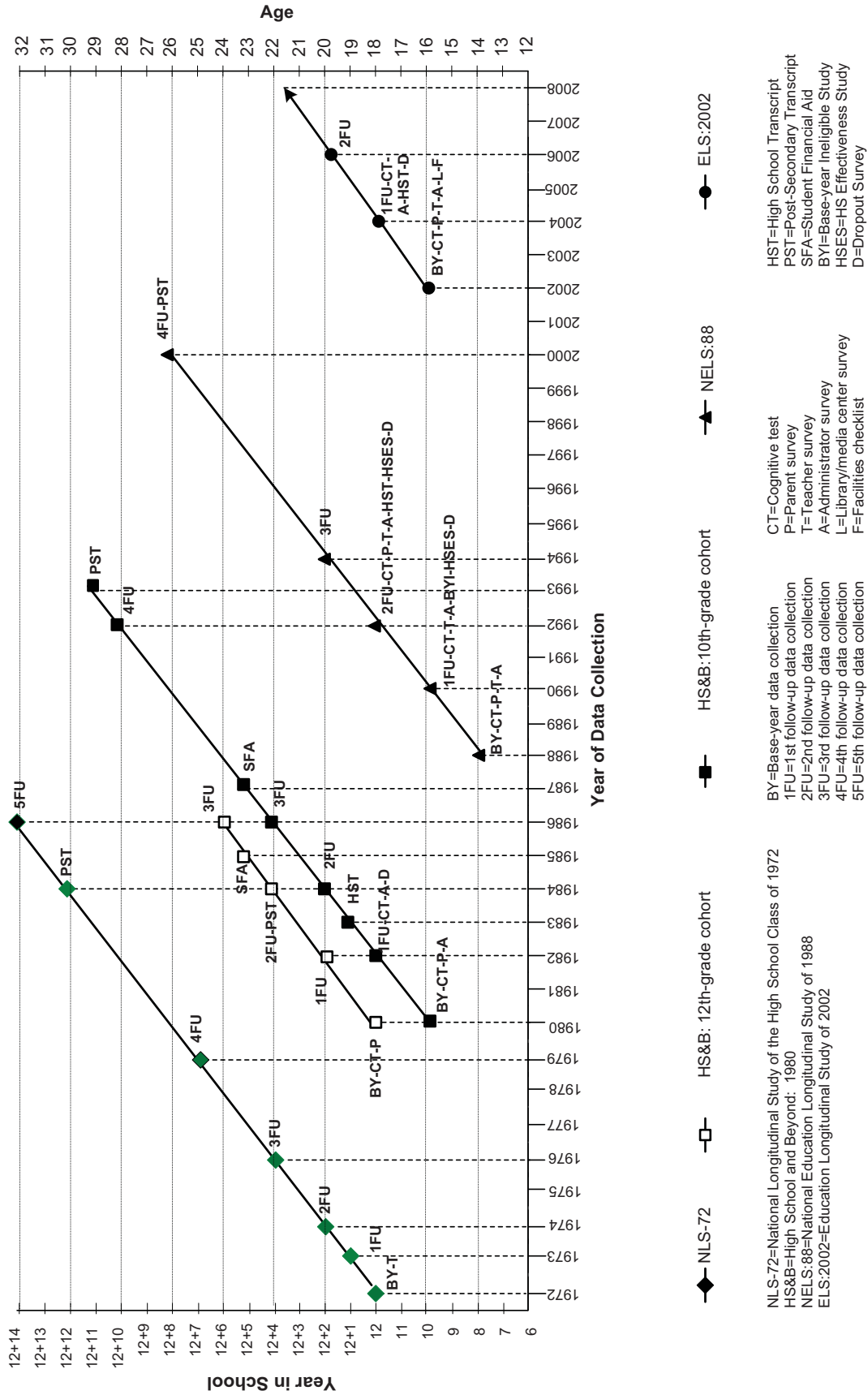
### **1.2.3 High School and Beyond**

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, it 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.<sup>2</sup> 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).

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<sup>2</sup> For a summation of the HS&B sophomore cohort study, see Zahs et al. (1995). For further information on HS&B, see the NCES website: <http://nces.ed.gov/surveys/hsb/>.

Figure 1. Longitudinal design for the NCES high school cohorts: 2006



SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002); National Education Longitudinal Study of 1988 (NELS:88); High School and Beyond Longitudinal Study (HS&B); and National Longitudinal Study of the High School Class of 1972 (NLS:72).

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 promoted or inhibited 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. These data became a rich resource for policymakers and researchers over the next decade and provided an empirical base to inform the debates of the education reform movement that began in the early 1980s.<sup>3</sup>

### 1.2.4 National Education Longitudinal Study of 1988

Much as NLS:72 captured a high school cohort of the 1970s and HS&B captured high school cohorts of the 1980s, NELS:88 was designed to study high school students of the 1990s—but with a premeasure of their achievement and status, prior to their entry into high school. 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.

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.<sup>4</sup>

#### 1.2.4.1 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 (mathematics, science, reading, 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 (e.g., 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

<sup>3</sup> For a summary of reforms instituted between the time the HS&B cohort was in high school and the NELS:88 cohort was in middle/junior high and high school, see Rasinski et al. (1993). For a summary of state education reforms instituted during the earlier school years of the ELS:2002 cohort, see Hurst et al. (2003).

<sup>4</sup> The entire compass of NELS:88, from its baseline through its final follow-up in 2000, is described in Curtin et al. (2002). Final outcomes for NELS:88 (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 (1995). The quality of NELS:88 data in the in-school rounds is examined in Kaufman and Rasinski (1991) and 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>).

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 activities; and the principal's reports on the educational setting and environment of the school.

#### **1.2.4.2 NELS:88 First Follow-up**

A first follow-up took place in 1990. In the NELS:88 first follow-up (initial data release), there are 19,260 participants (18,220 students and 1,040 dropouts) from a sample of 20,700. (There were some changes to the file in the second follow-up rerelease of the 1990 data, which shows a revised sample size of 20,840.) The first follow-up sample was freshened to represent 1990 spring-term sophomores nationally. 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 factors associated with persistence and dropping out, and (3) cross-cohort comparison (1990 high school sophomores could be compared to sophomores in 1980).

#### **1.2.4.3 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 help investigate student 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 spring-term high school senior class of 1992. Trend comparisons can be made to the high school classes of 1972 and 1980 that were studied in NLS:72 and HS&B respectively. 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.

#### **1.2.4.4 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 first, to provide data for trend comparisons with NLS:72 and HS&B; second, to address issues of employment; third, to address issues of postsecondary access and choice; and fourth, to ascertain how many dropouts had returned to school and by what route. There were 14,915 participants.

#### **1.2.4.5 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, further increasing the analytic potential of the data and the possibility of examining trends over time.

## 1.3 Education Longitudinal Study of 2002

ELS:2002 represents a major longitudinal effort designed to provide trend data about critical transitions experienced by students as they proceed through high school and into postsecondary education or their careers. The 2002 sophomore cohort is being followed, initially at 2-year intervals, to collect policy-relevant data about educational processes and outcomes. These data pertain especially to student learning, predictors of dropping out, and high school correlates of students' access to and persistence and attainment in postsecondary education, and their entry into the workforce.

In the spring term of 2002, the base year of the study, high school sophomores were surveyed and assessed in a national sample of high schools with 10th grades. Their parents, teachers, principals, and librarians were surveyed as well.

In the first of the follow-ups, base-year students who remained in their base-year schools were resurveyed and tested (in mathematics) 2 years later, along with a freshening sample that makes the study representative of spring-term 2004 high school seniors nationwide. Students who had transferred to a different school, had switched to a homeschool environment, graduated early, or who had dropped out were administered a questionnaire. In the first follow-up, academic transcripts were requested for all students who participated in either the base year or the first follow-up. The transcripts normally cover 4 years of coursework—for students who were seniors in 2004, typically 9th through 12th grade. School course offerings information for the base-year schools was also collected.

This section introduces ELS:2002, lists some of the major research and policy issues that the study addresses, and explains the four levels of analysis—cross-sectional, longitudinal, cross-cohort, and international comparison—that can be conducted with ELS:2002 data.

### 1.3.1 ELS:2002 Research and Policy Issues

Apart from helping to describe the status of high school students and their schools, ELS:2002 is providing information to help address a number of key policy and research questions. The study is intended to produce a comprehensive dataset for the development and evaluation of education policy at all government levels. Part of its aim is to inform decisionmakers, education practitioners, and parents about the changes in the operation of the educational system over time. Issues that can be addressed with data collected in the high school years include the following:

- students' academic growth in mathematics;
- the process of dropping out of high school;
- the relationship between family background and the home education support system, and students' high school outcomes;
- the relationship between coursetaking choices and success in the high school years (and thereafter);
- the distribution of educational opportunities as registered in the distinctive school experiences and performance of students from various subgroups; such subgroups include the following:

- students in public and private high schools;
  - language minority students;
  - students with disabilities;
  - students in urban, suburban, and rural settings;
  - students in different regions of the country;
  - students from upper, middle, and lower socioeconomic status levels;
  - male and female high school students; and
  - students from different racial or ethnic groups.
- steps taken to facilitate the transition from high school to postsecondary education or the world of work.

Now that most ELS:2002 students have completed high school, a new set of issues can be examined with the help of data collected in 2006. These issues include the following:

- the later educational and labor market activities of high school dropouts;
- the transition of those who do not go directly to postsecondary education or to the world of work; and
- access to and choice of postsecondary educational institutions.

Future data collections will support further investigations, such as the following:

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

These various research and policy issues can be investigated at several distinct levels of analysis. The overall scope and design of the study provide for the four following analytical levels:

- cross-sectional profiles of the nation's high school sophomores (2002), seniors (2004), and post-sophomore-year dropouts (2004);
- longitudinal analysis (including examination of life course changes);
- cross-cohort comparisons with American high school students of earlier decades; and
- international comparisons: U.S. 15-year-olds to 15-year-olds in other nations, including longitudinal outcomes for the United States that can be related to scale



scores in mathematics and reading from the Program for International Student Assessment (PISA).

### **1.3.2 ELS:2002 Study Design**

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 or the world of work, or both.

ELS:2002 has two distinctive features. First, it is a longitudinal study, in which the same units (schools and students) are surveyed repeatedly over time. Individual students have been followed through high school and will be followed for a number of years thereafter. The base-year schools were surveyed twice, in 2002 and in 2004. Second, in the high school years, ELS:2002 is an integrated, multilevel study that involves multiple respondent populations. The respondents include students, their parents, their teachers, and their schools (from which data are collected at four levels: from the principal, the librarian, a facilities checklist, and school course catalogues and records, which support a school course offerings component). Each of the two distinctive 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 (youth may follow many different paths) 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. Gathering information about the ways that their earlier achievements, aspirations, and experiences predict what happens to the respondents later is also possible. In the baseline data collection (spring 2002), 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 were resurveyed 2 years later (in 2004), in the ELS:2002 first follow-up, to measure changes such as achievement gains in mathematics and changes in enrollment status (e.g., the situation of students who drop out of school compared with those who persist in their education). The cohort members were resurveyed 4 years after the base year (2006), and the second follow-up data supply information about postsecondary educational access and choice, or transition to the labor market for cohort members who did not continue their education.

Cohort members will be followed for a number of years after this follow-up so that later outcomes (e.g., their persistence in higher education and baccalaureate attainment, or their success in the labor market) can be understood in terms of their earlier aspirations, achievement, and high school situation.

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 students' and the teachers' backgrounds and activities. This multilevel focus supplies researchers with a comprehensive picture of the home, community, and school environments and their influences on the student.

This multiple-respondent perspective is unified by the fact that for most purposes, the student is the basic unit of analysis.<sup>5</sup>

In addition, information from (or linkages to) external data sources has been integrated into the ELS:2002 dataset. These external sources include the decennial Census (2000), NCES school databases such as the Common Core of Data and Private School Survey (PSS), as well as post-high school institutional information such as the NCES Integrated Postsecondary Education Data System. Additional sources that have been drawn upon or linked to include student application and loan information, including the Free Application for Federal Student Aid, and various sources of test scores (SAT, ACT, and the GED testing program) and the National Student Loan Data System.

With the addition of postsecondary data in the 2006 second follow-up, ELS:2002 greatly enlarges its ability to connect high school antecedents to later outcomes. For students who continue on to higher education, researchers can use ELS:2002 to measure the effects of their high school careers on subsequent access to postsecondary institutions, their choices of institutions and programs, and, as time goes on, their postsecondary persistence, attainment, and eventual entry into the labor force and adult roles. For students who go directly into the workforce (whether as dropouts or high school graduates), ELS:2002 can help to determine how well high schools have prepared these students for the labor market and how they fare within it.

Key elements in the ELS:2002 longitudinal design are summarized by wave below.

### 1.3.2.1 Base Year (2002)

The ELS:2002 base year achieved the following:

- Completed the baseline survey of high school sophomores in spring term 2002.
- Administered achievement tests in reading and mathematics.
- Completed surveys of parents, English teachers, and mathematics teachers. Collected school administrator questionnaires.
- Included additional components for this study—a school facilities checklist and a media center (library) questionnaire.
- Established sample sizes of 752<sup>6</sup> participating schools and 15,362 participating students. Schools are the first-stage unit of selection, with sophomores randomly selected within schools.

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<sup>5</sup> 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. A first follow-up course offerings file further enriches the information available about high schools with 10th grades in 2002. However, if history is a guide, most analysts will employ the school-level data to provide further contextual information on the student.

<sup>6</sup> Note that exact sample sizes are provided for the base year and first follow-up of ELS:2002, consistent with past documentation (NCES 2004-405, NCES 2006-344) and the released public-use files in ECB format. However, since there is no public release file for the second follow-up, exact sample sizes are not given for the 2006 round. Rather, to perturb the data, as is required in reporting on restricted-use files, sample sizes of less than four digits are rounded to tens, and sample sizes of four or five digits are rounded to hundreds.

- Oversampled Asian<sup>7</sup> and Hispanic students and private schools.
- Designed linkages with PISA (reading in 2000 and math in 2003) and National Assessment of Educational Progress (NAEP 2005 math); scored reporting linkages to the prior longitudinal studies.

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 13,488 parents, 7,135 teachers, 743 principals, and 718 librarians.

Seven study components comprise the base-year design: assessments of students (achievement tests in mathematics and reading); 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 mathematics and reading; the baseline scores can serve as a covariate or control variable for later analyses. Mathematics achievement was reassessed 2 years hence, so that achievement gain over the last 2 years of high school can be measured and related to school processes and mathematics coursetaking. The student questionnaire gathered information about the student’s background, school experiences and activities, plans and goals for the future, employment and out-of-school experiences, language background, and psychological orientation toward learning.

One parent of each participating sophomore was asked to respond to a parent survey. The parent questionnaire was designed to gauge parental aspirations for their child, home background and the home education support system, the child’s educational history prior to 10th grade, and parental interactions with and opinions about the student’s school. For each student enrolled in English or mathematics, a teacher was also selected to participate in a teacher survey. The teacher questionnaire collected the teacher’s evaluations of the student and provided information about the teacher’s background and activities. The head librarian or media center director at each school was asked to complete a library media center questionnaire, which inquired into the school’s library media center facility, its staffing, its technological resources, collection and expenditures, and scheduling and transactions. Finally, the facilities checklist was a brief observational form completed for each school. The form collected information about the condition of school buildings and facilities.

### 1.3.2.2 First Follow-up (2004)

The ELS:2002 first follow-up involved the following:

- Most sample members were seniors, but some were dropouts or in other grades (early graduates or retained in an earlier grade).
- Student questionnaire (different versions for students who remained in the base-year school, transferred to a new school, completed high school early, or were homeschooled), dropout questionnaire, assessment in mathematics, and school administrator questionnaire were administered.

<sup>7</sup> Except where indicated otherwise, race/ethnicity is reported as follows: Black includes African American, Hispanic includes Latino, Asian includes Native Hawaiian or Other Pacific Islander, and American Indian includes Alaska Native. All race categories exclude individuals of Hispanic or Latino origin.

- The survey returned to the same schools but separately followed transfer students and surveyed them outside of school.
- The survey freshened for a spring-term 2004 senior cohort.
- There was a high school transcript component in 2004–05 (coursetaking records at the student level for grades 9–12) and a course offerings component at the school level.

The basis for the sampling frame for the first follow-up was the sample of schools and students studied in the ELS:2002 base year. There were two overlapping but conceptually different target student populations, or populations of inferential interest, for the first follow-up. One population (the ELS:2002 sophomore cohort) consists of those students who were enrolled in the 10th grade in the spring term of 2002. The other population (the ELS:2002 senior cohort) comprises those students who were enrolled in the 12th grade in the spring term of 2004. The former population includes students who dropped out of school between 10th and 12th grades, students who graduated early, students who went from a school setting to a homeschooling setting, and students who fell behind the modal grade progression of their peers (e.g., students who repeated a grade and were 11th-graders in spring 2004). Because of these two target populations and the major analytical subgroups, the full-scale sample encompasses the following types of students in the spring of 2004:

- ELS:2002 base-year sophomores enrolled (in either the 12th grade or some other grade) in the school in which they were originally sampled;
- ELS:2002 base-year sophomores who dropped out of school prior to first follow-up (2004) data collection;
- ELS:2002 base-year sophomores who finished high school early, including those who graduated from high school early as well as those who did not graduate because they achieved alternative certification (e.g., exam-certified equivalency such as a GED);
- ELS:2002 base-year sophomores who transferred out of the school in which they were originally sampled (including homeschooled students);
- ELS:2002 base-year sample sophomores who were deemed unable to participate directly during the base year owing to severe disability or insufficient command of the English language such that they could not complete a questionnaire; and
- students at the base-year sample school who were enrolled in the 12th grade in the spring term of 2004 but who were not in 10th grade in the United States during the 2001–02 school year. In spring term 2002, such students may have been out of the country, been enrolled in school in the United States in a grade other than 10th, had an extended illness or injury, been homeschooled, been institutionalized, or temporarily dropped out of school. These students comprised the first follow-up “freshening” sample.

While all groups in the sample as categorized above were eligible to complete a questionnaire, different instruments were tailored to different study populations. The guiding intuition was to provide a core of items that all sample members would respond to, supplemented by items specific to the circumstances of a particular group (such as dropouts, for example, for whom questions about their current school situation would not be relevant). In chapter 2, the

various questionnaires—student, abbreviated student, transfer student, early graduate, homeschool, out-of-school (dropout), and new student supplement—are briefly described.

For some classifications of the sample, a first follow-up test score in mathematics was either collected (students still in the base-year school) or imputed (students who have transferred to a new school). For other categories of sample members, such as dropouts, early graduates, and homeschooled students, a test score has neither been collected nor imputed. (Note that missing base-year test score data have been imputed for base-year nonrespondents who became respondents in the first follow-up.)

For all classifications of sample members, information about student coursetaking (covering all years of high school and including the sequence in which courses were taken and grades earned) were collected late in 2004 and early 2005 through the high school transcript component of the ELS:2002 first follow-up study. Further information about the transcript component is contained in this volume and in Bozick et al. (2006).

At the school level, the first follow-up extended information about base-year schools through administration of a school administrator questionnaire. In addition, information about school course offerings was collected in the first follow-up transcript study. Finally, further information about participating schools at the time of the first follow-up survey can be obtained on the restricted-use ECBs by linking (via the NCES identification code [NCESID]) to the CCD or PSS, and, via ZIP codes, to 2000 Census data. The NCES school district database and its Census data also are accessible on the restricted-use file by means of the NCESID.

### 1.3.2.3 Second Follow-up (2006)

The ELS:2002 second follow-up had the following characteristics:

- Post-high-school follow-up with web-based instrument for self-administration, computer-assisted telephone interview (CATI), or computer-assisted personal interview (CAPI).
- Survey 2 years after the cohorts' modal high school graduation captures six distinct groups:
  - high school late completers;
  - nonenrollers in higher education;
  - prompt postsecondary education enrollers;
  - delayed postsecondary education enrollers;
  - higher education leavers (versus persisters) and returnees; and
  - delayer-leavers.
- Three distinct (and sometimes alternating or combined) transitions:
  - transition to the work force;
  - transition to postsecondary education; and
  - transition to adult roles.

The second follow-up in the spring of 2006 employed a web-based self-administered instrument with CATI and CAPI data collection for nonresponse follow-up. The focus of the interview was on transition to postsecondary education and labor force participation. Out of a sample of about 15,900<sup>8</sup> cases, about 14,200 sample members completed interviews, for a weighted response rate of 88 percent.

The ELS:2002 second follow-up provides data to map and understand a key transition: the transition of the majority of cohort members out of high school. For the cohort as a whole, the second follow-up obtained information that will permit researchers and policymakers to better understand issues of postsecondary educational access and choice. Thus, a major focus of the second follow-up interview was the postsecondary decision-making process as reflected in applications to college and initial postsecondary enrollment histories. ELS:2002, unlike studies that sample only postsecondary students, is uniquely positioned to address these issues because it tracks respondents who attended postsecondary institutions before they enrolled. Additionally, it follows students who did not attend college and thus provides information on reasons students did not attend. The second follow-up also provides information about high school completion (for students who dropped out or were held back), as well as information about the status of dropouts and students who have obtained an alternative credential, such as the GED. For non-college-bound students, the second follow-up mapped the transition into the labor market (or family formation). In addition to its focus on postsecondary (or sometimes secondary) education and work experiences, the second follow-up survey also obtained information about family formation, community involvement, and negative life events.

The principal innovation of the ELS:2002 second follow-up—one that represents a technological improvement over the data collection methods used in its predecessor, NELS:88—is application of computer methods to self-administered questionnaires for the out-of-high-school population, in which the questionnaire is completed on the Web. The survey used a web-enabled survey system to program the instrument for self-administration. The same electronic instrument was used in the CATI and CAPI instruments as well. (The self- and interviewer-administered survey instruments are indistinguishable in terms of screen text and skip patterns in each of the three modes.) The advantages of a web-based instrument include real-time data capture and access, including data editing in parallel with data collection.

#### **1.3.2.4 Further Follow-ups**

The number of (and dates for) further web/CATI/CAPI and postsecondary education transcript follow-ups will be determined at a later date.

### **1.3.3 ELS:2002 Modes of Data Analysis**

#### **1.3.3.1 Cross-Sectional Profiles**

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

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<sup>8</sup> As earlier noted, only approximate sample sizes are provided for the 2006 round, because restricted-use data are used. Exact sample sizes from restricted-use data cannot be published unless the data are perturbed in some ways. The perturbation approach taken here was to round the exact sample sizes to tens (for one- to three-digit numbers) or hundreds (for four- to five-digit numbers). In contrast, a public-use ECB was produced for the 2002 (base-year) and 2004 (first follow-up) rounds. For this reason, exact sample sizes can be reported for the earlier rounds.

available in an NCES report, *A Profile of the American High School Sophomore in 2002*.<sup>9</sup> Because of sample freshening, the results 2 years later provided a basis for profiling the nation's high school seniors in the spring term of the 2003–04 school year. A report on seniors has also been released<sup>10</sup> as well as findings pertaining to high school graduates that uses data from the ELS:2002 high school transcript study.<sup>11</sup> Finally, a “first look” report containing some basic tabulations of second follow-up data accompanies the release of the 2002–06 combined data.

### 1.3.3.2 Longitudinal Analysis

Longitudinal analysis became possible with the release of data from the 2004 first follow-up<sup>12</sup> and has been further extended by the addition of the 2006 data point. The primary research objectives of ELS:2002 are longitudinal in nature. The study provides the basis for within-cohort comparison by following the same individuals over time to measure postsecondary educational and workforce entry and relate these outcomes to antecedents identified in earlier rounds, including individual, home, school, and community factors.

### 1.3.3.3 Cross-cohort Comparisons

As part of an important historical series of studies that repeats a core of key items each decade, ELS:2002 offers the opportunity for the analysis of trends in areas of fundamental importance, such as patterns of coursetaking, rates of participation in extracurricular activities, academic performance, and changes in goals and aspirations. An NCES report is available that details the experiences of HS&B, NELS:88, and ELS:2002 high school sophomores.<sup>13</sup> With completion of the second follow-up in 2006, researchers can now compare ELS:2002 high school seniors' experiences 2 years out of high school with those of the NELS:88 cohort in 1994, HS&B in 1982 and 1984, and NLS:72 in 1974. With the ELS:2002 academic transcript data, researchers can also make trend comparisons with academic transcript data containing students' high school course histories and sequences because comparable transcript studies have been conducted with spring-defined senior cohorts, starting with HS&B<sup>14</sup> (1982) and including NELS:88 (1992) and NAEP (1987, 1990, 1994, 1998, 2000, and 2005). (See appendix A.)

### 1.3.3.4 International Comparisons

A feature of ELS:2002 that expands the study's power beyond that of the predecessor studies is that it can be used to support international comparisons. A concordance has been generated to link the ELS:2002 scale to that of PISA. The Organization for Economic Cooperation and Development's PISA (Lemke et al. 2001, 2004) is an internationally

<sup>9</sup> See Ingels et al. (2005a) (NCES 2005-338). A small, but growing, ELS:2002 bibliography can be found at <http://nces.ed.gov/surveys/els2002/Bibliography.asp>.

<sup>10</sup> See Ingels, Planty, and Bozick (2005), *A Profile of the American High School Senior in 2004* (NCES 2006-348).

<sup>11</sup> See Planty, Bozick, and Ingels (2006), *Academic Pathways, Preparation, and Performance—A Descriptive Overview of the Transcripts from the High School Graduating Class of 2003-04* (NCES 2007-316).

<sup>12</sup> For an example of longitudinal analysis, see Bozick and Ingels (2007), *Mathematics Coursetaking and Achievement at the End of High School: Evidence from the Education Longitudinal Study of 2002* (NCES 2007); or Bozick and Lauff (2007), *A First Look at the Initial Postsecondary Experiences of the Sophomore Class of 2002* (ELS:2002) (NCES 2008-308).

<sup>13</sup> See Cahalan et al. (2006), *United States High School Sophomores: A Twenty-Two Year Comparison, 1980–2002* (NCES 2006-327). A cross-cohort analysis of coursetaking trends, based on academic transcripts, has also been completed—see Dalton et al. (2007), *Advanced Mathematics and Science Coursetaking in the Spring High School Senior Classes of 1982, 1992, and 2004* (NCES 2007-312).

<sup>14</sup> However, the HS&B sophomore cohort 2 years later (1982) did not include a freshening sample of seniors; this introduces a small conservative bias in its estimates (see Dalton et al. 2007 for details).

standardized assessment administered to 15-year-olds in groups in their schools. PISA covers three domains: reading literacy, numeracy, and scientific literacy; ELS:2002 test results have been linked to PISA reading (2000) and mathematics (2003) scores so that the PISA scale can be used in ELS:2002 analyses. PISA aims to define each domain not merely in terms of mastery of the school curriculum, but also in terms of important knowledge and skills needed in adult life. Emphasis is placed on the mastery of processes, the understanding of concepts, and the ability to function in various situations within each domain.

### **1.3.4 Analysis Files and Systems**

While the base-year and base-year to first follow-up ELS:2002 data deliveries include both a public-use ECB and a restricted-use ECB, there is only a restricted-use ECB for the combined base year to second follow-up. Restricted files require that analysts obtain a special institutionally based license from NCES. However, a base-year to second follow-up web-housed public-use DAS has also been produced. Full details about the ECB are provided in later chapters, particularly chapter 7. A “quick guide” to use of the base-year to second follow-up ECB appears as appendix B of this document. Although this document is primarily oriented to the ECB, information that will be helpful to DAS users is also included.

## **1.4 High School Longitudinal Study of 2002**

A fifth study in the series—the High School Longitudinal Study of 2009 (HSLs:09)—is currently in its development phase. HSLs:09 will survey a nationally representative sample of high school students, their parents, teachers, and school administrators at several time points during students’ secondary and postsecondary years. In the high school years, it will include assessments in both mathematics and science. Unlike previous studies in the series, HSLs:09 will collect data from students in the fall of their 9th-grade year, with a second round of data collection at the end of 11th grade in 2012, when most of the student cohort will be completing their junior year. The new schedule will allow researchers and policymakers to learn if and how 9th-grade plans are linked to students’ subsequent behavior, from coursetaking to postsecondary choices, and how these plans evolve over time. In subsequent waves of data collection, the sample members will be followed into college and beyond.



# Chapter 2

## Base-Year Through Second Follow-up Instrumentation

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### 2.1 Introduction

This chapter is divided into five main sections. Section 2.1 is an introduction to instrumentation issues. Section 2.2 provides information about the base-year and first follow-up questionnaires. Section 2.3 describes the base-year and first follow-up achievement tests. Section 2.4 introduces the academic transcript component. Finally, section 2.5 provides information about the ELS:2002 second follow-up (2006) questionnaire.

The *base-year* (2002) data collection instruments for the Education Longitudinal Study of 2002 (ELS:2002) consisted of five separate questionnaires (student, parent, teacher, school administrator, and library media center), two achievement tests (assessments in reading and mathematics), and a school observation form (facilities checklist).

The *first follow-up* (2004) data collection instruments comprised seven questionnaires and an achievement test in mathematics. The first follow-up questionnaires included a student questionnaire, a transfer student questionnaire, a new participant student questionnaire (NPSQ), a homeschool student questionnaire, an early graduate questionnaire, a dropout (not currently in school) questionnaire, and a school administrator questionnaire. A new participant supplement (NPS) (repeating questions from the base year) and an abbreviated version of the student questionnaire were also offered.<sup>15</sup> The base-year and first follow-up questionnaires can be found as portable document format (PDF) files on the National Center for Education Statistics (NCES) ELS:2002 website (<http://nces.ed.gov/surveys/els2002/>).

In the first follow-up, information was also collected about the course offerings of the base-year schools, as well as the transcript records (including both courses taken and grades and credits received) of the sophomore and senior cohorts.

In the *second follow-up* (2006), a single electronic questionnaire was administered in three modalities—a web-enabled self-administration, an interviewer administration of computer-assisted telephone interviews (CATI), and computer-assisted personal interviews.

#### 2.1.1 Instrument Development Process and Procedures

In general, the development and review process for each questionnaire consisted of the following steps:

1. *Sharing of draft data elements.* Draft elements of the questionnaires were shared with other government agencies, policy groups, and interested parties.
2. *Technical review panel (TRP) review.* The ELS:2002 TRP, a specially appointed, independent group of substantive, methodological, and technical experts, reviewed the questionnaires.
3. *NCES review.* The questionnaires underwent interdivisional review at NCES.

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<sup>15</sup> In fact, the new participant student questionnaire is simply the new participant supplement and abbreviated first follow-up student questionnaire, joined together to create one booklet, for convenience of administration.

4. *Questionnaire revision.* The survey instruments were revised based on reviewer comments.
5. *Writing of justification.* A justification was written for the data elements, noting issue areas, constructs to be measured within each, and items that would be used to measure each construct.
6. *Office of Management and Budget (OMB) review.* The federal OMB reviewed the instruments.
7. *Questionnaire revision.* The questionnaires were revised based on OMB comments.
8. *Field testing and revision.* The instruments were field tested and revised based on field test results.

Specific assessment items for the base-year mathematics and reading tests and first follow-up mathematics test were typically not subject to these reviews, but the larger assessment framework and goals and the results (as seen in overall item statistics from the field test) were an integral element within the review process and, in particular, in the deliberations of the TRP.

The field testing of procedures, questionnaires, and assessments was an especially important step in the development of the full-scale surveys. Field test instruments were evaluated in a number of ways. For the questionnaires, field test analyses included evaluation of item nonresponse, examination of test-retest reliabilities, calculation of scale reliabilities, and examination of correlations between theoretically related measures. For the achievement tests in mathematics and reading, item parameters were estimated for both 10th and 12th grade in the base-year field test. Both classical and Item Response Theory (IRT) techniques were employed to determine the most appropriate items for inclusion in the final (base-year main study) forms of the two tests. Psychometric analyses included various measures of item difficulty and discrimination, investigation of reliability and factor structure, and analysis of differential item functioning. In the first follow-up field test, similar classical and IRT psychometric analyses were conducted but with a slightly different end in terms of final format: adaptiveness was ensured through a two-stage test in the base year, whereas the test designed for the first follow-up main study based assignment of form on the base-year mathematics ability estimate. The base-year field test report is available from NCES (Burns et al. 2003). Findings of the first follow-up field test are summarized in appendix J of Ingels et al. (2005b), while second follow-up field test results are reported in appendix C of this volume.

### **2.1.2 Instrument Development Goals and Constraints**

The primary research objectives of ELS:2002 are longitudinal in nature; therefore, the first priority was to select the items that would prove most useful in predicting outcomes as measured in future survey waves.

The second priority was to obtain needed cross-sectional data, whenever consistent with the longitudinal objectives, particularly data that could be used for cross-cohort comparison with past studies or linkage to certain current data collection efforts. Wherever possible, all ELS:2002 instruments were designed to provide continuity and consistency with the earlier education longitudinal studies of high school cohorts. Where appropriate, ELS:2002 drew items from the National Longitudinal Study of the High School Class of 1972, the High School and Beyond (HS&B) longitudinal study, and, most particularly, the National Education Longitudinal Study of

1988 (NELS:88). In addition, the study used coding frames and taxonomies that were comparable to those employed in past high school transcript studies, or (in the case of occupation coding) could be crosswalked to them. Apart from the cross-cohort comparisons that can be sustained through use of the test, questionnaire, and transcript data, ELS:2002 provides score linkages with the testing programs of the Program for International Student Assessment (PISA) (reading and mathematics) and National Assessment of Educational Progress (NAEP) (mathematics).

Although maintaining trend items to support cross-cohort comparisons was a major aim of instrument development, there was also a need to provide new items to address new areas of policy concern and to reflect recent advances in theory. For example, in the base year in particular, educational technology items were developed to reflect the fact that computers have become a major factor in learning in recent years. Psychological scales that reflect recent work in self-efficacy theory and related areas were also added.

Another consideration in the development of the ELS:2002 instruments was the need to obtain factual information from the best source among the various respondent populations. This was an issue both for the base year, in which both parents and students were surveyed, and first follow-up, where administrative records were pursued (transcript component) as well as self-reports (questionnaire).

## **2.2 Base-Year and First Follow-up Questionnaires**

### **2.2.1 Base-Year Questionnaires**

The various ELS:2002 base-year questionnaires can be found at <http://nces.ed.gov/surveys/els2002/index.asp>. Some detail about them is provided below.

#### **2.2.1.1 Student Questionnaire**

The ELS:2002 base-year student questionnaire was typically self-administered. Sophomore sample members normally completed the questionnaire in a group setting in their schools. A small number of students were surveyed outside of school, with a shortened version of the questionnaire in a CATI. Assessments in reading and mathematics were given at the same time (i.e., during the group administration), in a two-stage process in which the first stage was a routing test. The full questionnaire was available only in English, although a shortened Spanish version was also produced.

The student questionnaire was divided into seven sections: (1) locating information, (2) school experiences and activities, (3) plans for the future, (4) non-English language use, (5) money and work, (6) family, and (7) beliefs and opinions about self.

#### **2.2.1.2 Parent Questionnaire**

The parent questionnaire was to be completed by the parent or guardian most familiar with the sophomore's school situation and experience. Guided by this definition of the preferred respondent, the parent survey respondent was self-selected.

The parent questionnaire was available in both English and Spanish. Both a hardcopy version and an electronic CATI version<sup>16</sup> were produced. The parent questionnaire addressed the following five topic areas: (1) family background, (2) their child's school life, (3) their child's family life, (4) their opinions about their child's school, and (5) their aspirations and plans for their child's future.

### **2.2.1.3 Teacher Questionnaire**

The teacher questionnaire was to be completed by the English teacher and the mathematics teacher of each ELS:2002 sophomore. The teacher questionnaire was designed to address questions of the quality, equality, and diversity of educational opportunity by obtaining information in two content areas:

- *Teacher evaluations of students.* The teacher's assessment of the student's school-related behavior and academic performance and educational and career plans and goals. Respondents completed this section with respect to the sample members they instructed in a particular subject.
- *Teacher background.* Information about the teacher's background and activities (e.g., academic training, subject areas of instruction, years of teaching experience, and participation in professional growth activities).

### **2.2.1.4 School Administrator Questionnaire**

The base-year school administrator questionnaire collected information on the school in six areas: (1) school characteristics, (2) student characteristics, (3) teaching staff characteristics, (4) school policies and programs, (5) technology, and (6) school governance and climate. The school administrator data can be used contextually, as an extension of the student data, when the student is the fundamental unit of analysis. At the same time, the ELS:2002 base-year school sample is nationally representative and can stand alone as a basis for generalizing to the nation's regular high schools with sophomores in the 2001–02 school year.

### **2.2.1.5 Library Media Center Questionnaire**

For the school library media center component, the school librarian, media center director, or school administrator supplied information about library media center size, organization, and staffing; technology resources and electronic services; extent of library and media holdings, including both collections and expenditures; and levels of facility utilization, including scheduling for use by students and teachers. Finally, the questionnaire also supplied information about the library media center's use in supporting the school's curriculum; that is, how library media center staff collaborate with and support teachers to help them plan and deliver instruction. Information in the library media center questionnaire can be used as contextual data with the student as the unit of analysis or to generalize to libraries within all

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<sup>16</sup> The approach to parent telephone interviews in the ELS:2002 base year differed from that followed in NELS:88. In NELS:88, to minimize the possibility of mode of administration effects, the parent was asked to read along in the hardcopy questionnaire as the questions were read over the telephone. The interview was not computer assisted. In ELS:2002, the decision was made to take advantage of the logical consistency editing and other features of CATI, and considerable effort was made to constrain the hardcopy questionnaire to items and formats compatible with a CATI administration. ELS:2002 parents were not interviewed over the telephone with the hardcopy questionnaire in hand. This fact accounts for some of the differences between the NELS:88 and ELS:2002 parent survey instruments.

regular high schools with 10th grades in the United States in the 2001–02 school year (for ELS:2002 library component findings, see Scott 2004).

### **2.2.1.6 School Facilities Checklist**

Instrumentation for the facilities component comprised a checklist to be completed by the survey administrator. The survey administrator was asked to observe a number of conditions at the school, including the condition of the hallways, main entrance, lavatories, classrooms, parking lots, and surrounding neighborhood. Of special interest were indicators of security (metal detectors, fire alarms, exterior lights, fencing, security cameras, etc.) and maintenance and order (trash, graffiti, clean walls and floors, noise level, degree of loitering, etc.). Information gathered in the facilities checklist can be used as contextual data with the student as the unit of analysis, or data can be used at the school level to generalize to all regular high schools with 10th grades in the United States in the 2001–02 school year. (For findings drawing on the Facilities Checklist, see Planty and DeVoe 2005.)

## **2.2.2 First Follow-up Questionnaires**

The various ELS:2002 first follow-up (2004) questionnaires can be found at <http://nces.ed.gov/surveys/els2002/index.asp>. Some detail about them is provided below.

### **2.2.2.1 Introduction**

The following questionnaires were employed in the ELS:2002 first follow-up: student questionnaire, dropout questionnaire, early graduate questionnaire, transfer student questionnaire, homeschool student questionnaire, and NPSQ. A school administrator questionnaire was also offered. For the ELS:2002 data user, it is necessary to specify which items are common to various questionnaires and which are unique, and how each questionnaire group relates to the analytic populations of interest. The ELS:2002 *Base-Year to First Follow-up Data File Documentation* (Ingels et al. 2005b, NCES 2006-344) includes as its table 2 a crosswalk that shows shared and unique items across the first follow-up questionnaires.

### **2.2.2.2 Questionnaire Assignment and Content**

*First follow-up student questionnaire assignment and content.* The student questionnaire was administered to sophomore cohort members who had remained in their base-year school as well as to a freshening sample of spring-term 12th-graders in those same schools. Students who completed the student questionnaire also were normally eligible for the first follow-up mathematics assessment. Some students were administered an abbreviated version of the questionnaire (these cases are flagged on the data file). The questionnaire was primarily self-administered in in-school survey sessions, and secondarily, for some students, out of school through CATI or occasionally through mail or field interviews.

Some alterations were required to adapt the paper-and-pencil questionnaire to CATI. Generally, the wording of the paper-and-pencil questions was made more conversational for the telephone interview to facilitate interviewer-respondent interaction. On occasion, adaptations were made to account for the fact that those interviewed by telephone did not have the benefit of seeing the entire question with all of its elements at once. For example, students were asked to report how much coursework they had taken in various subject areas. Respondents who completed the paper-and-pencil form were able to see the full range of mathematics courses

listed more or less in the sequence in which they are taught. In this context, it was clear to respondents that “general math” referred to a basic math course as opposed to a catchall category. However, without the visual cues, telephone respondents may have misinterpreted general math to include all math courses. Therefore, for the telephone interview, general math was moved to the end of the list of math courses. Similar adaptations were required for the other telephone-administered questionnaires as well (transfer student, dropout, and so on). Generally, CATI telephone data collection took place subsequent to in-school data collection. Also, there was more ambiguity about the status (dropout, early graduate, transfer, homeschooled, and so on) of sample members interviewed outside the school setting. For this reason, the CATI interview included a series of screening questions to ensure that the proper questionnaire was administered. Such a screener was also used for field cases subject to in-person interview.

The student questionnaire comprised eight content modules. *Part I* of the questionnaire requested contact information in support of the longitudinal design.

*Part II* covered the student’s school experiences and activities. Data generated from this section provide information about extracurricular participation, computer use in English and math, the transition process from sophomore year to upper-level secondary school, and the relationship of curricular programs and coursetaking to educational achievement and persistence. Some of these data may be viewed as outcomes, influenced by factors studied in the base year, and others as predictors of outcomes in future rounds.

*Part III*, “How You Spend Your Time,” inquired about time usage on homework, television viewing, video and computer games, computers, nonschool reading, library use, and other activities. *Part IV* focused on plans and expectations for the future. It included questions that elicited information about students’ educational and life goals and values. *Part V*, on education after high school, contained items on postsecondary planning steps and choice criteria. *Part VI* dealt with plans for work after high school. *Part VII* inquired about working for pay, including hours worked per week. Finally, *Part VIII* consisted of items on community, family, and friends.

*First follow-up dropout questionnaire assignment and content.* Dropouts were defined as sophomore cohort members who were out of school in the spring term of 2004, who had not received a high school diploma or General Educational Development (GED) credentials on or before March 15, 2004, and who had missed 4 or more consecutive weeks not due to accident or illness. Students who had a dropout episode but who had been in school for at least 2 weeks at the time of their school’s Survey Day were administered the student questionnaire. The dropout questionnaire was administered in multiple modalities—self-administration, in-person interviewer administration, and over the telephone by means of CATI.

There was considerable overlap between the student and dropout questionnaires. *Part I* collected locating information for longitudinal follow-up. *Part II* contained items on school experiences and activities. Dropouts were asked questions about the school they last attended and their participation in alternative educational programs. In addition, they were asked to supply their specific reasons for leaving school prior to graduation. They were asked as well about plans to get a GED or return to high school. *Part III* covered time use (reading, library patronage, television, videogames, computer use, and so on). *Part IV* asked about plans and expectations for the future. *Part V* provided information to identify the type and amount of work that dropouts were engaged in. It gathered information about students’ work status and history, how much they

earned, and how many hours they worked. *Part VI* asked about volunteer or community service work and the educational behaviors of friends.

*Early graduate questionnaire assignment and content.* Early graduates were interviewed outside the school setting, in multiple data collection modalities but most commonly by telephone. Early graduates were defined as sophomore cohort members who had graduated from high school or received a GED on or before March 15, 2004. The approach to early graduates differs somewhat across the several NCES high school cohort studies. In HS&B, the group that was captured was high school completers who finished early (i.e., prior to March 1, 1982). In NELS:88 and ELS:2002, an additional group is included, those who completed by alternative means (e.g., GED) prior to their classmates who were in the modal graduation sequence. In both HS&B and NELS:88, early graduates completed supplementary questions in addition to the full student questionnaire (answering from the vantage point of their recent high school experience). In ELS:2002, early graduates completed only a subset of the items on the student questionnaire, complemented by additional items pertaining to their situation. More specifically, early graduates were asked with whom they consulted when deciding to graduate early, the basis for that decision, and the means by which they did so. They also provided a history of their work and educational experiences since leaving high school.

*Transfer student questionnaire assignment and content.* Sophomore cohort members who had transferred out of their base-year school to a new school received the transfer student questionnaire. Transfer students were asked a subset of items from the student questionnaire, covering the following topics: school experiences and activities; time use; plans and expectations for the future; education after high school; work after high school; and community, family, and friends. In addition, transfer students were asked when they transferred and their reasons for doing so. Transfer students did not complete a cognitive test, but their test scores have been imputed. Thus, 2004 math scores are available for both sophomore cohort “movers” and “stayers” as well as freshened spring seniors (though not for dropouts or the homeschooled).

*Homeschool student questionnaire assignment and content.* ELS:2002 does not provide a representative sample of homeschooled high school students. (In the base year, all study sophomores were selected from regular U.S. high schools.) Instead, homeschooled students in ELS:2002 generalize only to sophomores in regular high schools in spring term 2002 who were in a homeschool situation 2 years later. The primary motive for administering a separate questionnaire to this subset of the sophomore cohort was that neither the transfer student questionnaire items nor the dropout items fully fit their situation.

Homeschooled students were asked about their schooling activities and status, including their grade, coursework completed in science and math, and steps taken toward college; how they spend their time; their plans and expectations for the future, including education and work after high school; work experiences; and community, family, and friends.

*New participant supplement questionnaire assignment and content; NPS.* There are essentially three categories of students who were ELS:2002 new participants in the first follow-up. One class is the spring-term high school seniors who entered the study through the freshening sample. A second class of new participants is that of base-year nonrespondents who completed a questionnaire in the first follow-up. The third and final class is that of sophomore cohort

members who were questionnaire-incapable<sup>17</sup> in 2002 because of disability or a language barrier, but who were reclassified as capable of completing a questionnaire in 2004. (An example might be an English language learner who was not proficient in English in 2002 but, with 2 additional years of instruction, had reached a level of English proficiency sufficient to deal with the ELS:2002 first follow-up questionnaire.) While the first of these three classes is by definition a student, the second and third groups include both students and out-of-school members of the sophomore cohort (such as dropouts and early graduates).

Any student new to the study at any of the core (base-year) schools was administered the NPSQ. However, transfer students and out-of-school cohort members were administered the relevant questionnaire and an NPS containing the key base-year items. For example, any student new to the study who had transferred to a new school was administered the transfer student questionnaire and an NPS. Any new respondent who was out of school, however, such as a dropout or early graduate, was administered the appropriate out-of-school questionnaire, as well as an NPS. Table 1 summarizes, for all new participants, use of the NPS and NPSQ, as well as base-year and first follow-up assessment status.

**Table 1. Base-year key variables and test data available, by type of first follow-up new participants: 2004**

First follow-up new participants	Source of base-year standard classification variables	Availability of base-year reading and math scores	Availability of first follow-up math scores
Sophomore cohort members in core (base-year) schools in 2004	NPSQ	Imputed	Tested
Sophomore cohort members in new schools in 2004	NPS	Imputed	Imputed
Sophomore cohort members out of school in 2004: dropouts	NPS	Imputed	—
Sophomore cohort members out of school in 2004: early graduates	NPS	Imputed	—
Freshened spring 2004 seniors	NPSQ	—	Tested
Sophomore cohort members homeschooled in 2004	NPS	Imputed	—

— Not available.

NOTE: NPSQ = New Participant Supplement Questionnaire. NPS = New Participant Supplement; this instrument contains only the key base-year items.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "First Follow-up, 2004."

The NPSQ gathered information that had been collected (for other students) in the base year on new participants' demographic characteristics, parental education and occupation, and language use. These items are identical to those on the NPS. In addition, a subset of items included on the student questionnaire was also posed to new participants. These items (which are identical in content to the abbreviated student questionnaire) relate to topics such as school experiences and activities; time use; plans and expectations for the future; education and work

<sup>17</sup> Students who were questionnaire-incapable were ineligible for the assessment and were ineligible for the questionnaire, based on language barriers or severe disabilities. Nonetheless, contextual data were gathered for them in the base year, and in the first follow-up, transcripts were collected and their questionnaire status was re-assessed, in order to capture any change in status. In some ELS:2002 documentation, the questionnaire-incapable group is referred to as "questionnaire-ineligible."



after high school; and work, community, family, and friendship experiences. In contrast, the NPS gathered the key base-year variables that also were included on the NPSQ.

*School administrator questionnaire content and content linkages.* The school administrator questionnaire collected information on the school in four areas: school characteristics, structure, and policies; student characteristics and programs; teacher and library staff characteristics; and principal reports on the school environment. Many school-level variables of analytic interest also pose a high risk of disclosure of school identities. For this reason, a number of analysis variables have been limited to the restricted-use electronic codebook (ECB) or may be accessed through a link provided only on the restricted-use ECB.<sup>18</sup>

School-level data are not nationally representative of American high schools in 2004, because the first follow-up sample did not factor in “births” of new schools and “deaths” of existing schools between 2002 and 2004. First follow-up school data, however, do provide a statistical portrait of a nationally representative sample of American high schools with 10th grades in 2002 (2 years later).

### 2.3 ELS:2002 Base-Year and First Follow-up Assessment Battery

Before considering test development and the mathematics and reading assessment frameworks, it is useful, as a point of entry into the first follow-up achievement tests, to consider the fact of test availability in conjunction with the main sample populations for which questionnaires were designed. As table 2 makes clear, the entire responding questionnaire-capable sophomore cohort was eligible to be tested in the base year. However, as table 2 also makes clear, not all groups were tested in the first follow-up, nor were test scores imputed for all groups.

**Table 2. Assessment availability status, by sample group: 2004**

Sample group (status in 2004)	Base year	First follow-up
2002 sophomores in core (base-year) schools in 2004	Tested <sup>1</sup>	Tested <sup>2</sup>
2002 sophomores in transfer schools in 2004	Tested <sup>1</sup>	Imputed
2004 freshened spring-term seniors	—	Tested <sup>2</sup>
2002 sophomores: 2004 dropouts	Tested <sup>1</sup>	—
2002 sophomores: 2004 early graduates	Tested <sup>1</sup>	—
2002 sophomores: homeschooled in 2004	Tested <sup>1</sup>	—

— Not available.

<sup>1</sup> Imputed for base-year nonrespondents.

<sup>2</sup> Imputed for first follow-up participant test noncompleters.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), “First Follow-up, 2004.”

<sup>18</sup> An example of the latter is the link to the NCES Common Core of Data and Private School Survey provided via the NCES identification code (BYNCESSI). An analyst with a restricted-use license can import into the analysis such variables as, for example, *grade span* (highest grade and lowest grade of school for any of the relevant academic years); *percent minority*; *proportion free lunch qualifiers*; *enrollment*; grade 9 enrollment (2000–01), grade 10 enrollment (2001–02), grade 11 enrollment (2002–03), grade 12 enrollment (2003–04); *metropolitan status* (urbanicity); locale code; *student/teacher ratio*; *FTEs*: total number of full-time classroom teachers; *student enrollment*: overall; *school type* (regular, vocational, special education, other); and so on. A further example of such a restricted-use link is to school ZIP code, which permits locale variables to be imported from the 2000 decennial Census, and residential geocoding at the level of state, county, tract, and block. For the second follow-up, the link to the NCES Integrated Postsecondary Education Data System is especially important, and additional links to extant data have been supplied in the second follow-up, and are fully described in appendix N.

### 2.3.1 Test Design and Development

Test specifications for the ELS:2002 base year and first follow-up were adapted from frameworks used for NELS:88. There were two levels to the framework: content areas and cognitive processes. Mathematics tests contained items in arithmetic, algebra, geometry/measurement, data/probability, and advanced topics (including analytic geometry and precalculus but not calculus). The tests also reflected cognitive process categories of skill/knowledge, understanding/comprehension, and problem solving. The test questions were selected from previous assessments: NELS:88, NAEP, and PISA. Most of the base-year items were multiple choice (about 10 percent of the base-year mathematics items were open-ended). In the first follow-up, all items were multiple choice.

Both 10th-grade and 12th-grade items were field tested in 2001, and 12th-grade items were field tested again in 2003.<sup>19</sup> Items were selected or modified based on field test results. Final forms were assembled based on psychometric characteristics and coverage of framework categories.

The ELS:2002 assessments were designed to maximize the accuracy of measurement that could be achieved in a limited amount of testing time while minimizing floor and ceiling effects by matching sets of test questions to initial estimates of students' achievement. In the base year, this was accomplished by means of a two-stage test. In 10th grade, all students received a short multiple-choice routing test, scored immediately by survey administrators, who then assigned each student to a low, middle, or high difficulty second-stage form, depending on the student's number of correct answers in the routing test. In the 12th-grade administration, students were assigned to an appropriate test form based on their performance in 10th grade. Cut points for the 12th-grade low, middle, and high forms were calculated by pooling information from the field tests for 10th and 12th grades in 2001, the 12th-grade field test in 2003, and the 10th-grade national sample. Item and ability parameters were estimated on a common scale. Growth trajectories for longitudinal participants in the 2001 and 2003 field tests were calculated, and the resulting regression parameters were applied to the 10th-grade national sample. Test forms were designed to match the projected achievement levels of the lowest and highest 25 percent, as well as the middle 50 percent of the base-year sample 2 years later. An additional test form with a broad range of item difficulty was assembled for administration to follow-up participants who were new to the sample or who had not received a mathematics score in 10th grade. Additions to and deletions from the base-year sample resulted in 23 percent, 42 percent, and 26 percent of the follow-up sample taking the low, middle, and high difficulty forms, respectively, with the remaining 10 percent taking the broad-band form. Each of the four test forms contained 32 multiple-choice items.

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<sup>19</sup> For more details about the field tests, see Burns et al. (2003) and appendix J of the *Base-Year to First Follow-up Data File Documentation*, Ingels et al. (2005b).

### 2.3.2 Assessment Framework for Mathematics

In the four tables immediately below (tables 3–6), content and process information<sup>20</sup> is provided about the 73 unique items that comprise the base-year and 59 items that comprise the first follow-up mathematics assessments. Additional tables are presented later that break down assignments of items by content and process *by test form*, and thus show the impact of overlap (any given unique item may appear on one or more forms).<sup>21</sup> Table 4 and table 5 show the numbers and percentages of unique mathematics test items devoted to each content area for the base-year and the first follow-up test batteries. Table 6 and table 7 show the number and percentages of unique test items devoted to each cognitive process area.

**Table 3. Number and percentage of unique mathematics items in ELS:2002 base year, by content area: 2002**

Content area	Number of items	Percentage of items
Arithmetic	19	26.0
Algebra	17	23.3
Geometry/measurement	20	27.4
Data analysis, statistics/probability	9	12.3
Advanced topics <sup>1</sup>	8	11.0

<sup>1</sup> “Advanced topics” includes precalculus and analytic geometry.

NOTE: To provide overlap, some items appear on more than one test form. Detail may not sum to totals because of rounding.

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

**Table 4. Number and percentage of unique mathematics items in ELS:2002 first follow-up, by content area: 2004**

Content area	Number of items	Percentage of items
Arithmetic	15	25.4
Algebra	17	28.8
Geometry/measurement	17	28.8
Data analysis, statistics/probability	4	6.8
Advanced topics <sup>1</sup>	6	10.2

<sup>1</sup> Advanced topics includes precalculus and analytic geometry.

NOTE: To provide overlap, some items appear on more than one test form. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), “First Follow-up, 2004.”

<sup>20</sup> Content by process (cognitive behavior) matrices can be useful for giving some sense of how tests have been constructed but must be interpreted with caution. Robitaille et al. (1993) point out that such grids somewhat oversimplify the interrelatedness of elements in the scheme. Analysts should consider that knowledge and abilities or behavior in one area of mathematics are not unconnected to knowledge and skills in other areas. As the National Assessment Governing Board has remarked on its 2005 NAEP mathematics framework (NAGB 2004), its divisions “are not intended to separate mathematics into discrete elements. Rather, they are intended to provide a helpful classification scheme that describes the full spectrum of mathematical content assessed by NAEP. Classifying items into one primary content area is not always clear cut, but doing so brings us closer to the goal of ensuring that important mathematical concepts and skills are assessed in a balanced way.”

<sup>21</sup> There was also overlap across waves, in that some items were used both in the base year and first follow-up.

**Table 5. Number and percentage of unique mathematics items per skill/cognitive process area in ELS:2002 base year, by process/skill specifications: 2002**

Process/skill specifications	Number of items	Percentage of items
Procedural skills/knowledge	23	31.5
Conceptual understanding	27	37.0
Problem solving	23	31.5

NOTE: To provide overlap, some items appear on more than one test form. Detail may not sum to totals because of rounding.

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

**Table 6. Number and percentage of unique mathematics items per skill/cognitive process area in ELS:2002 first follow-up, by process/skill specifications: 2004**

Process/skill specifications	Number of items	Percentage of items
Procedural skills/knowledge	17	28.8
Conceptual understanding	26	44.1
Problem solving	16	27.1

NOTE: To provide overlap, some items appear on more than one test form. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "First Follow-up, 2004."

Table 7 shows the number of mathematics test items per form in the base year and first follow-up. Again, forms were assigned on the basis of performance on a routing test in the base year, but were assigned on the basis of the base-year ability estimate in the first follow-up. As earlier noted, those who had not been tested in the base year were given a broad range form in 2004. While all examinees received a 32-item form in 2004, the number of items ranged from 40 to 42 in the base year, except for a handful of students who received the single-stage 23-item version of the base-year assessment.

**Table 7. Number of items in each ELS:2002 base-year and first follow-up test for assessing achievement in mathematics, by form: 2004**

Form	Base year (2002)	First follow-up (2004)
Routing test	15	†
Second stage tests		
Form X (low difficulty)	25	32
Form Y (middle difficulty)	27	32
Form Z (high difficulty)	27	32
Form V (single stage in 2002; broad range in 2004)	23	32

† Not applicable.

NOTE: Some items overlap and appear on more than one test form.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002" and "First Follow-up, 2004."

While the tables above show the content and process areas for the unique items that comprise the overall base year and first follow-up mathematics tests, students took different forms of each test, and a given item could be used on more than one form. To see the number or proportion of items in a given content or skill area that students at various levels of form assignment in fact took, an additional set of tables is required. Table 8 shows content by

cognitive process distributions of items across all test forms. Contents of the routing tests are shown separately, although for purposes of computation of the base-year ability estimate, *theta*, the two stages of the mathematics test were combined.

**Table 8. Number of mathematics items per content area, by cognitive skill/process and form, ELS:2002 base year through first follow-up: 2004**

Cognitive skill/process	Content area				
	Arithmetic	Algebra	Geometry/ measurement	Data analysis/ statistics probability	Advanced topics <sup>1</sup>
<b>Skill/knowledge</b>					
Routing test	3	†	1	†	†
10th-grade low (X)	7	3	1	3	†
10th-grade medium (Y)	1	1	2	3	1
10th-grade high (Z)	†	2	1	†	†
10th-grade 1-stage (V)	2	3	1	†	†
12th-grade low (X)	7	4	2	†	†
12th-grade medium (Y)	2	4	1	†	1
12th-grade high (Z)	†	2	2	†	1
12th-grade broad (V)	4	3	2	†	1
<b>Understanding/comprehension</b>					
Routing test	1	4	1	1	†
10th-grade low (X)	3	†	1	1	2
10th-grade medium (Y)	2	3	2	1	5
10th-grade high (Z)	3	2	1	5	5
10th-grade 1-stage (V)	2	3	1	1	3
12th-grade low (X)	5	4	2	2	†
12th-grade medium (Y)	2	7	4	1	2
12th-grade high (Z)	†	5	4	1	4
12th-grade broad (V)	3	3	3	1	2
<b>Problem solving</b>					
Routing test	†	2	2	†	†
10th-grade low (X)	2	†	1	1	†
10th-grade medium (Y)	1	†	3	1	1
10th-grade high (Z)	1	1	10	1	†
10th-grade 1-stage (V)	2	†	3	1	1
12th-grade low (X)	2	†	3	1	†
12th-grade medium (Y)	2	1	5	†	†
12th-grade high (Z)	1	2	9	1	†
12th-grade broad (V)	3	2	4	1	†

† Not applicable.

<sup>1</sup> "Advanced topics" includes precalculus and analytic geometry.

NOTE: Some of the 73 base-year and 59 first follow-up items appear on more than one test form. The modal grade for sample members in 2004 was 12th grade; all sample members were 10th-graders in 2002.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002" and "First Follow-up, 2004."

Table 9 shows, by test form, numbers and percentage of items in each content area. The items in the base-year stage 1 test (routing test) have been combined with the items in the stage 2 test. For example, in the first follow-up (2004), students assigned the low form had 44 percent arithmetic items and no advanced topics, while students assigned the high form had 3 percent arithmetic items and 16 percent advanced topics. Nonetheless, the different forms comprise a

single test, and with IRT<sup>22</sup> methods, proficiencies can be estimated for ELS:2002 items not assigned to the examinee. In other words, all ELS:2002 IRT scores (whether number-right or probability of proficiency scores) measure student performance on the entire item pool regardless of which form they took.

**Table 9. Percentage distribution of ELS:2002 test items, by content area and mathematics test form: 2002 and 2004**

Mathematics test form	Content area									
	Arithmetic		Algebra		Geometry/ measurement		Data analysis/ statistics/ probability		Advanced topics	
	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number
10th-grade low form (X)	40.0	16	25.0	10	15.0	6	15.0	6	5.0	2
10th-grade medium (Y)	19.0	8	26.2	11	23.8	10	14.3	6	16.7	7
10th-grade high (Z)	11.9	5	31.0	13	38.1	16	7.1	3	11.9	5
10th-grade 1-stage (V)	26.1	6	26.1	6	21.7	5	8.7	2	17.4	4
12th-grade low (X)	43.8	14	21.9	7	25.0	8	9.4	3	0.0	0
12th-grade medium (Y)	18.8	6	37.5	12	31.3	10	3.1	1	9.4	3
12th-grade high (Z)	3.1	1	28.1	9	46.9	15	6.3	2	15.6	5
12th-grade broad (V)	31.3	10	25.0	8	28.1	9	6.3	2	9.4	3

NOTE: "Advanced topics" includes precalculus and analytic geometry. Detail may not sum due to rounding. Tenth-grade item summaries by forms X, Y, and Z combine the routing test and the second stage test. Twelfth grade was the model grade for sample members in 2004; all sample members were 10th-graders in 2002.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002" and "First Follow-up, 2004."

### 2.3.3 Assessment Framework for Reading

Reading items were drawn from two sources, NELS:88 and PISA (2000). There are four content areas:

- biographical;
- literary (including both poetry and prose);
- scientific (includes graphical displays as well as prose); and
- social studies.

There are three cognitive process areas: reproduction of detail, comprehension of thought (translating verbal statements into concepts), and inference/evaluative judgment (drawing conclusions based on the material presented). In the reading assessment (conducted in the base year only), there are 51 unique items, 11 of which are used twice (i.e., across two forms). Distribution of unique items (again, some items were repeated, to link forms) across the content areas is summarized in Table 10, while distribution across cognitive process areas is summarized in table 11.

<sup>22</sup> IRT stands for Item Response Theory. In ELS:2002, IRT was used both for vertical equating (linking the tests across grades 10 and 12) and lateral (or horizontal) equating (linking to HS&B in 1980 and to NELS:88 in 1990 and 1992). More generally, IRT is a test analysis procedure that applies mathematical models to the probability that any given examinee will provide a correct test response. Specifically, IRT uses patterns of correct, incorrect, and omitted answers to obtain ability estimates that are comparable across different test forms within a domain. In estimating a student's ability, IRT also accounts for each test question's difficulty, discriminating ability, and a guessing factor. For introductory information on IRT, see Embretson and Reise (2000) or Hambleton, Swaminathan, and Rogers (1991). For more technical discussions see Van der Linden and Hambleton (1997).

**Table 10. Number and percentage of unique reading items in ELS:2002 base year, by content area: 2002**

Content area	Number of items	Percentage of items
Biographical	12	23.5
Literary	18	35.3
Scientific	13	25.5
Social studies/other	8	15.7

NOTE: To provide overlap, some items appear on more than one test form. Detail may not sum to totals because of rounding.

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

**Table 11. Number and percentage of unique reading items per skill/cognitive process area in ELS:2002 base year, by process/skill specifications: 2002**

Process/skill specifications	Number of items	Percentage of items
Reproduction of detail	12	23.5
Comprehension of thought	19	37.3
Inferences/evaluative judgments	20	39.2

NOTE: To provide overlap, some items appear on more than one test form. Detail may not sum to totals because of rounding.

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

Again, the base-year reading test was a two-stage test in which a routing test guided examinees to the appropriate second-stage form. The number of items per first or second stage form is indicated in table 12.

**Table 12. Number of items in each ELS:2002 base-year test form for assessing achievement in reading, by test form: 2002**

Form	Number of items
Routing test	14
Second stage tests	
Form X (low difficulty)	16
Form Y (middle difficulty)	17
Form Z (high difficulty)	15

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

While the tables above show the content and process areas for the unique items that comprise the base-year reading assessment, students took different forms of the test, and a given item could be used on more than one form. To see the number or proportion of items in a given content or skill area that students at various levels of form assignment in fact took, an additional set of tables is required. Table 13 shows content by cognitive process distributions of reading items across all test forms. Contents of the routing tests are shown separately, although for computing the base-year ability estimate, *theta*, the two stages of the reading test were combined.

**Table 13. Number of reading items per content area, by cognitive skill/process and form, ELS:2002 base year: 2002**

Cognitive skill/process	Content area			
	Biographical	Literary	Scientific	Social studies
<b>Reproduction of detail</b>				
Routing test	†	1	2	†
10th-grade low (X)	†	3	†	2
10th-grade medium (Y)	†	†	2	3
10th-grade high (Z)	1	†	1	1
<b>Comprehension of thought</b>				
Routing test	†	4	1	†
10th-grade low (X)	1	†	†	2
10th-grade medium (Y)	†	†	3	4
10th-grade high (Z)	6	†	1	2
<b>Inferences and/or evaluative judgments</b>				
Routing test	†	5	1	†
10th-grade low (X)	3	5	†	†
10th-grade medium (Y)	†	†	4	1
10th-grade high (Z)	1	†	1	1

† Not applicable.

NOTE: Some items appear on more than one test form.

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

Table 14 shows, by test form, numbers and percentage of items in each of the four reading content areas. The items in the base-year stage 1 test (routing test) have been combined with the items in the stage 2 test to show the total items examinees at each of the three levels were assigned.

**Table 14. Percentage distribution of ELS:2002 test items, by content area and reading test form: 2002**

Reading test form	Content area							
	Biographical		Literary		Scientific		Social studies	
	Percent	Number	Percent	Number	Percent	Number	Percent	Number
10th-grade low form (X)	13.3	4	60.0	18	13.3	4	13.3	4
10th-grade medium (Y)	†	†	32.3	10	41.9	13	25.8	8
10th-grade high (Z)	27.6	8	34.5	10	24.1	7	13.8	4

† Not applicable.

NOTE: Detail may not sum to totals due to rounding. Tenth-grade item summaries by forms X, Y, and Z combine the routing test and the second stage test.

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

### 2.3.4 Score Descriptions and Summary Statistics

Norm-referenced and criterion-referenced ELS:2002 test scores are explained below. For examples of the use of the ELS:2002 IRT-estimated number-right and probability of proficiency scores in cross-cohort analysis, see Cahalan et al. (2006). For an example of their use in



longitudinal analysis, see Bozick and Ingels (2007). For an example (from NELS:88) of use of a NAEP-scaled score, see Scott and Ingels (2007).

### 2.3.4.1 Norm-referenced Scores: Standardized Scores (T-scores)

The standardized scores (*theta* or T-scores) are overall measures of status at a point in time, but they are norm-referenced rather than criterion-referenced. They do not answer the question, “What skills do students have?” but rather, “How do they compare with their peers?” The transformation to a familiar metric with a mean of 50 and standard deviation of 10 facilitates comparisons in standard deviation units. For example, an individual with a T-score of 65 (or a subgroup with a mean of 65) has demonstrated achievement one and one-half standard deviations above the national average for 12th-graders, whereas a score of 45 would correspond to half a standard deviation below the norm. These numbers do not indicate whether students have mastered a particular body of material, but rather what their standing is relative to others. Base-year and first follow-up T-scores are documented in table 15.

**Table 15. Standardized scores (*theta* or T-scores) from ELS:2002 mathematics and reading assessments, by variable: 2002 and 2004**

Variable	Description	Range
BYTXMSTD	Base-year mathematics standardized score (T-score)	10–90
BYTXRSTD	Base-year reading standardized score (T-score)	10–90
BYTXCSTD	Composite mathematics + reading standardized score (T-score)	10–90
F1TXMSTD	First follow-up mathematics standardized score (T-score)	10–90

NOTE: T-score is the standardized score.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), “Base Year, 2002” and “First Follow-up, 2004.”

### 2.3.4.2 Norm-referenced Scores: Quartile Scores

Quartile scores divide the weighted (population estimate) achievement distributions into four equal groups, based on mathematics, reading, and mathematics plus reading composite scores. Quarter 1 corresponds to the lowest achieving quarter of the population, quarter 4 to the highest. Table 16 contains variable names, descriptions, and ranges for the quartile scores.

**Table 16. Quartile scores from ELS:2002 mathematics and reading assessments, by variable: 2002 and 2004**

Variable	Description	Range
BYTXMQU	Base-year mathematics quarter	1–4
BYTXRQU	Base-year reading quarter	1–4
BYTXCQU	Base-year composite mathematics + reading quarter	1–4
F1TXMQU	First follow-up mathematics quarter	1–4

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), “Base Year, 2002” and “First Follow-up, 2004.”

### 2.3.4.3 Criterion-referenced Scores: IRT-estimated Number-right

The IRT-estimated number-right scores are overall, criterion-referenced measures of status at a point in time. The criterion is the set of skills defined by the framework and represented by the assessment item pool. These scores are useful in identifying cross-sectional differences among subgroups in overall achievement level. They provide a summary measure of achievement useful for correlational analysis with status variables, such as demographics, school

type, or behavioral measures, and may be used in multivariate models as well. These scores may also be used as longitudinal measures of overall growth, when an aggregated measure is preferred. (When a disaggregated measure is desired, in order to measure and compare gains made at different points on the score scale [that is, to target a hierarchy of specific sets of skills], the probability of proficiency scores may be preferred in longitudinal analysis.)

For mathematics, 10th- and 12th-grade IRT-estimated number-right scores are available on both the ELS:2002 and the 1992 NELS:88 scale. Tenth-grade math scores are also available on the 1990 NELS:88 scale, to which 1980 HS&B scores can also be linked. For base-year reading, the scores are available on the NELS:88 scale as well as the ELS:2002 scale. The 1990 NELS:88 scale is documented in Ingels et al. (1994a,b) while the 1992 scale is documented in Rock and Pollack (1995). Linkage between NELS:88 and ELS:2002 was achieved through common item (anchor) equating. Tables 17 through 20 present IRT estimated number-right scores by variable, scale, and analysis. (See appendix D for errata regarding the first follow-up version of table 17.)

**Table 17. ELS:2002 Item Response Theory (IRT)-estimated number-right reading and mathematics scores on the NELS:88 scale, by variable: 2002 and 2004**

Variable	Description	Range	Weighted mean	Weighted standard deviation
BYNELS2R	Reading—NELS-equated estimated 10th-grade number-right (1992 scale)	0–54	29.2	9.5
BYNELS2M	Mathematics—NELS-equated estimated 10th-grade number-right (1992 scale)	0–81	44.4	13.7
BYNELS0M	Mathematics—NELS-equated estimated 10th-grade number-right (1990 scale)	0–58	37.6	11.4
F1NELS2M	Mathematics—NELS-equated 12th-grade estimated number-right (1992 scale)	0–81	50.1	14.2

NOTE: NELS:88 = National Education Longitudinal Study of 1988.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), “Base Year, 2002” and “First Follow-up, 2004.”

**Table 18. Item Response Theory (IRT)-estimated number-right reading and mathematics scores on the ELS:2002 scale, by variable: 2002 and 2004**

Variable	Description	Range	Weighted mean	Weighted standard deviation
BYTXRIRR	Reading IRT-estimated number-right	0–51	29.4	9.9
F1TXMBIR	Mathematics IRT-estimated number-right, 10th-grade, re-estimated on longitudinal scale	0–85	42.2	14.0
F1TXM1IR	Mathematics IRT-estimated number-right, longitudinal scale, all first follow-up participants	0–85	48.3	15.1
F1TXM1IR	Mathematics IRT-estimated number-right, longitudinal scale, first follow-up participants who were in 12th grade	0–85	48.6	15.1

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), “Base Year, 2002” and “First Follow-up, 2004.”

**Table 19. Mathematics Item Response Theory (IRT)-estimated number-right scores, by analysis: 2004**

Analysis	Scale	Variable
10th-grade cross-cohort (1980, 1990, 2002)	0–58	BYNELS0M
10th-grade cross-sectional (2002)	0–73	BYTXMIRR
10th-grade cross-cohort (1990–2002) (NELS scale)	0–81	BYNELS2M
10th-grade longitudinal NELS scale (2002–2004) <sup>1</sup>	0–81	BYNELS2M
10th-grade longitudinal ELS scale (2002–2004) <sup>2</sup>	0–85	F1TXMBIR
12th-grade longitudinal NELS scale (2002–2004) <sup>1</sup>	0–81	F1NELS2M
12th-grade longitudinal ELS scale (2002–2004) <sup>2</sup>	0–85	F1TXM1IR
12th-grade cross-cohort (NELS scale) (1992–2004)	0–81	F1NELS2M
12th-grade cross-sectional (ELS scale) (2004)	0–85	F1TXM1IR

<sup>1</sup> Use this pair in conjunction for gain measurement.

<sup>2</sup> Use this pair in conjunction for gain measurement.

NOTE: NELS = National Education Longitudinal Study of 1988. ELS=Education Longitudinal Study of 2002.

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

**Table 20. Reading Item Response Theory (IRT)-estimated number-right scores, by analysis: 2002**

Analysis	Scale	Variable
10th-grade cross-sectional (2002)	0–51	BYTXRIRR
10th-grade cross-cohort (1990–2002) (NELS scale)	0–54	BYNELS2R

NOTE: NELS = National Education Longitudinal Study of 1988.

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

### 2.3.4.4 Criterion-referenced Scores: Probability of Proficiency

Gains made at different points on the score scale have qualitatively different interpretations. For example, students who made 5-point gains by mastering arithmetical operations are learning very different lessons from those gaining 5 points at the high end of the scale by learning more advanced mathematics. Although the gains in number of scale score points may be the same, the interpretation, and the relationship with other factors such as coursework, can be expected to be quite different. For this reason, a continuous score representing the probability of proficiency at each of five mastery levels in mathematics and three mastery levels in reading was generated.<sup>23</sup>

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. The three mastery levels for reading, and five for mathematics, are indicated below:

<sup>23</sup> For an illustration of the use of probability proficiencies in ELS:2002 math gain analysis, see Bozick and Ingels (2007). For further discussion of the nonequivalence of scale score points and consequent need (if achievement gain is to be fully interpreted) for multiple criterion-referenced proficiency levels that mark distinct learning milestones, see Rock (2007).

Probability of Proficiency, Reading Mastery 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 Proficiency, Mathematics Mastery Levels:

1. Simple arithmetical operations on whole numbers, such as simple arithmetic expressions involving multiplication or division of integers.
2. Simple operations with decimals, fractions, powers, and roots, such as comparing expressions, given information about exponents.
3. Simple problem solving, requiring the understanding of low-level mathematical concepts, such as simplifying an algebraic expression or comparing the length of line segments illustrated in a diagram.
4. Understanding of intermediate-level mathematical concepts and/or multistep solutions to word problems such as drawing an inference based on an algebraic expression or inequality.
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. Because the range of the scores is 0 to 1, means can be expressed in percentage form.<sup>24</sup> 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). The probability of proficiency scores are summarized in table 21 (base year) and table 22 (first follow-up) below.

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<sup>24</sup> On the interpretation of a probability as a proportion, see, for example, Fleiss, Levin, and Paik (2003, p. 1).

**Table 21. Reading and mathematics probability of NELS-equated proficiency scores, by variable: 2002**

Variable name	Description	Range	Weighted mean	Weighted standard deviation
BYTX1RPP	Reading—level 1	0–1	0.89	0.26
BYTX2RPP	Reading—level 2	0–1	0.46	0.40
BYTX3RPP	Reading—level 3	0–1	0.08	0.21
BYTX1MPP	Mathematics—level 1	0–1	0.92	0.20
BYTX2MPP	Mathematics—level 2	0–1	0.67	0.42
BYTX3MPP	Mathematics—level 3	0–1	0.46	0.46
BYTX4MPP	Mathematics—level 4	0–1	0.21	0.33
BYTX5MPP	Mathematics—level 5	0–1	0.01	0.07

NOTE: NELS = National Education Longitudinal Study of 1988.

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

**Table 22. ELS:2002 Item Response Theory (IRT) NELS-equated mathematics proficiency probability scores: 2004**

Variable name	Description	Range	Weighted mean	Weighted standard deviation
F1TX1MPP	Mathematics—level 1	0–1	0.96	0.12
F1TX2MPP	Mathematics—level 2	0–1	0.78	0.37
F1TX3MPP	Mathematics—level 3	0–1	0.62	0.45
F1TX4MPP	Mathematics—level 4	0–1	0.35	0.41
F1TX5MPP	Mathematics—level 5	0–1	0.04	0.14

NOTE: NELS = National Education Longitudinal Study of 1988.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), “First Follow-up, 2004.”

### 2.3.4.5 Psychometric Properties of the Tests

Information about the psychometric properties of the test items, the setting of difficulty levels, differential item functioning, and scoring procedures, are provided in the two field test documents (Burns et al. 2003, chapter 5, and Ingels et al. 2005b, appendix J). IRT scaling and linking procedures follow the NELS:88 precedent, using a 3-parameter IRT model in PARSCALE (Muraki and Bock 1991); the NELS:88 procedure is described in Rock and Pollack (1995).

Reliabilities were computed using the variance of the posterior distribution of plausible values for each test-taker’s *theta* (ability estimate), compared with the variance of the *thetas* across the whole sample (i.e., error variance versus total variance). The reliability estimates are the proportion of “true variance” (1 minus error variance) divided by total variance (see Samejima [1994] on this procedure).

For the combined base-year and first follow-up tests, the reliability was 0.92. This reliability is a function of the variance of repeated estimates of the IRT ability parameter (within-variance), compared with the variability of the sample as a whole (Ingels et al. 2005b). This 0.92 reliability applies to all scores derived from the IRT estimation. Imputed test scores were not included in the reliability estimation.

The use of IRT-scale scores and the adaptive testing approach used in ELS:2002 limit the concern that gain scores may be unreliable due to floor and ceiling effects.

### 2.3.4.6 Indicators of Student Motivation at Both Testing Points

One major concern in measuring achievement is whether students are motivated to do their best on low-stakes tests, such as the mathematics assessment in ELS:2002. This concern may be particularly strongly felt with reference to spring-term seniors, who may be in the process of disengaging from high school in anticipation of the transition to postsecondary education or the work force, and who may have had their fill of assessments, in the form of such high-stakes tests as exit exams and college entrance exams. Although the greatest concern may be felt about spring-term seniors, concerns about motivation rightly encompass high school sophomores as well.

While there is no single definitive measure of student motivation on the tests, there are several possible indicators of the comprehensiveness and quality of the test data collected. For example, in scoring the 2002 and 2004 tests, the assessment subcontractor examined “pattern marking”<sup>25</sup> and missing responses. They did not find evidence of pattern marking, nor high levels of omitted items. For example, in the ELS:2002 first follow-up with around 11,000 mathematics assessments completed, 17 assessments were discarded for these reasons: 11 test records were deleted because tests were incomplete (fewer than 10 items answered) and 6 more because response patterns indicated lack of motivation to answer questions to the best of the student’s ability. In the base year, 10 assessments were discarded for incompleteness, and none for pattern marking.

Given that participation in the survey was voluntary, and that a student could have opted to not participate, or to participate by completing the questionnaire only, the student response rate may also be an indirect indicator of student test-taking motivation. Generally NAEP sees a drop in participation in grade 12, compared to grades 4 and 8. For ELS:2002’s predecessor study, NELS:88, lower participation rates were registered in 12th grade as well.<sup>26</sup>

For the ELS:2002 base year, the weighted participation rate was 87 percent. Of the 15,362 participants, 95 percent (weighted) also completed the test. (Some who did not complete the test could not be validly tested for language or disability reasons.)

For the ELS:2002 first follow-up (2004), when most sample members were high school seniors, the overall participation rate increased slightly from the base year, to a weighted 89 percent. Of the test-eligible questionnaire completers, some 87 percent (weighted) of

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<sup>25</sup> An example of “pattern marking” would be responses of “A” for all answers or ABCABCABC through most or all of the test. Patterned responses such as “11111111...” or “12345432123454321...” or “1515151515...” can be identified by a simple algorithm sequentially comparing the difference between each test item and the next one, and calculating the variance of the absolute differences. In the first example given, the inter-item differences are always zero, in the second, always 1 or -1, and in the third, 4 or -4. In each case, the variance of the absolute differences is equal to zero, whereas for four- or five-choice test items, the variance of absolute differences for motivated respondents tends to be close to 1.0. All tests with variances of less than .5 were reviewed and those few with identifiable pattern marking were deleted.

<sup>26</sup> Fully interpreting the senior year decline in test completion in NELS:88 is difficult. There was sample dispersion, and the policy was to test transfer students, though the resources for doing so were limited. In consequence, often a questionnaire might be completed over the telephone and the test sacrificed, despite the student’s willingness to be assessed. In contrast, in ELS:2002, transfers were ineligible for the first follow-up test and did not count against the assessment response rate—however, test scores were imputed for all transfers. No test score imputation was undertaken in NELS:88. Because studies such as NELS:88 and ELS:2002 induct their initial samples prior to 12th grade, they may be less affected by a “senioritis” phenomenon, in that students have already committed to the study and may have developed a sense of membership in the panel. Certainly for HS&B, the prior longitudinal cohort study that in its sophomore cohort most closely resembles ELS:2002 in design, participation was higher in the modally 12th-grade first follow-up than in the 10th-grade base year (and higher than the 12th-grade participation rate for the HS&B senior cohort that was selected in the same schools in 1980).

questionnaire completers also completed the test. Looking specifically at questionnaire completion for senior cohort members who remained in the same school at both points in time, a 97 percent survey participation rate was obtained both overall and for each race/ethnicity groups (Ingels et al. 2005b, table 39). If voluntary participation rates are to some degree indicative of student motivation, then there is some evidence that seniors may have taken the assessment seriously.<sup>27</sup> The overall pattern—lack of high numbers of omitted response, lack of “pattern-marking,” high test reliability,<sup>28</sup> and high participation rates in both rounds of the study—argue for the credibility and quality of the test data. In short, while lack of motivation for some students surely affected test results in ways that could not be identified and edited out, most test takers answered all or almost all the items, and internal-consistency reliabilities were high for all subgroups examined, both in the field tests and full-scale studies. These are good indications that interpretation of test results in the aggregate should not be significantly compromised by low test-taking motivation.

#### 2.3.4.7 Score Linkages With External Assessments: NAEP and PISA

*The ELS:2002—NAEP 12th-grade linkage.* One new assessment variable has been produced subsequent to the release of the first follow-up student data in 2005. More specifically, the ELS:2002 12th-grade mathematics test has been linked to 12th-grade NAEP. The 2004 ELS:2002 first follow-up mathematics tests did not share common items with the NAEP 2005 mathematics assessment. As a result, common item equating was not possible, so score scales were linked by means of an equipercentile transformation.

Equating—“the process of developing a conversion from the system of units of one form of a test to the system of units of another form so that scores derived from the two forms after conversion will be equivalent and interchangeable” (Angoff 1982)—is the strongest form of test linkage. It ensures that the scores that are linked are truly equivalent and statistically and conceptually interchangeable. However, a variety of stringent conditions must be met to successfully equate. These conditions include essential likeness in content such that the two tests are congeneric (i.e., they measure the same underlying factor); the tests must measure the same populations; they should be of similar reliability; they should meet the condition of equity (it should be a matter of indifference to the result which test examinees take); and they should be symmetric (the function equating X to Y should be the inverse of the function equating Y to X) (see Kolen and Brennan 2004; Linn 1993; Lord 1980; Mislevy 1992).

Arguably, NAEP and ELS:2002 mathematics content is quite similar, and both tests attempt to measure the same underlying factor. At grade 12 in 2005, NAEP’s primary emphasis was on geometry/measurement and algebra (NAGB 2004). This is also the case for the ELS:2002 tests in both the high and medium form. (Of course the ELS:2002 assessment is individually adaptive, and for this reason, understandably, there is proportionately more arithmetic [number properties and operations, in NAEP parlance] and less geometry in the ELS:2002 low form [taken by the bottom 23 percent of examinees] than in the NAEP test.)

<sup>27</sup> Note that ELS:2002 sample members were given a cash incentive for participation. The effects of payment on test-taking motivation are unknown. Because test reliabilities were high and incomplete tests and pattern marking did not seem to be a problem, one interpretation might be that students made a reasonable effort, regardless of whether they did so out of a sense of obligation for being paid to do a task or for more idealistic reasons.

<sup>28</sup> Imputed test scores were not included in the calculation of reliabilities.

The tested populations are also highly similar—spring-term high school seniors—though not identical (ELS:2004 tested 2004 seniors, and NAEP 2005 seniors). However, there are also many important differences between ELS:2002 and NAEP that impact the linking procedures and interpretation of linked scores. Though test content is similar, item formats were somewhat different (a mixture of free response and multiple choice for NAEP, but only the latter for the ELS:2002 12th-grade math test). While both the NAEP and ELS:2002 mathematics assessments are highly reliable, they achieve this end through different means (the ELS:2002 tests assigned different forms to candidates of different ability; NAEP, on the other hand, includes auxiliary information in calculating the posterior estimates of ability). Nonetheless, the NAEP design is driven by the need to maximize reliability for group-level measurement, and, unlike ELS:2002 scores, NAEP scores are not designed to be reliable at the individual level (Beaton and Gonzalez 1995). The condition of equity (that examinees should be indifferent as to which test they take) is difficult to meet given the difference between an adaptive test in ELS:2002 and a test based on a matrix sample of items in NAEP. Finally, scoring methods differed in several respects, and may particularly have affected the ability to transform the scores in the tails of the distribution.

The NAEP-ELS:2002 linked mathematics score should therefore be described as a concordance<sup>29</sup> rather than an equating. Though the scores may be comparable (there is a linkage that is based on distributional similarities), no claim is made that the scores may be treated as equivalent (that is, that they have precisely the same meaning). The NAEP-scale score represents the score level achieved by students of the same percentile rank in two populations that were matched as closely as was possible given the differences in sample (e.g., only ELS:2002 12th-graders were used in the linking exercise). Linking scales to yield concordant scores relies on minimal assumptions about the comparability of the tests involved (on concordance, see Dorans 2004 and Pommerich and Dorans 2004). Neither means, standard deviations, reliabilities, nor standard errors of measurement are assumed to be the same. The tests need only be roughly congeneric in that they measure essentially the same basic underlying factor.

*Linking procedures for the ELS:2002 NAEP-scaled math score.* To maximize the likeness of the two linking samples, a subsample of ELS:2002 students was used to compute equivalent percentiles. Transformations were computed based only on the subset of ELS:2002 first follow-up participants who were in 12th grade in spring 2004 (using the “G12COHRT” flag to select cases, and the “F1QWT” weight to generalize to the national population of 12th-graders).

The equipercntile transformation was carried out using 3-moment smoothing of the weighted frequency distributions. Plots of the equipercntile-equated scores showed extreme deviations in the tails of the distribution from a trend line based on linear approximation. These deviations are probably due to the methodology employed in NAEP scoring: the NAEP scores are transformations of normally distributed IRT ability estimates, which if no shrinkage is imposed, tend to have long tails. The ELS:2002 scores, which are sums of probabilities, do not. As a result, the equipercntile conversion becomes distorted in the tails of the distributions. Throughout most of the score range, a 1-point difference in ELS:2002 mathematics scale corresponds to a difference of about 2.25 points in the NAEP metric. But in the extreme tails of the distribution a 1-point difference in ELS:2002 mathematics score corresponds to a difference of up to 4 points in the NAEP metric. Although these distortions occur only for a small number of students, a combination of the equipercntile transformation and a linear approximation of the

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<sup>29</sup> Another test score concordance appears on the ELS:2002 second follow-up data files, a concordance between sample members’ ACT and SAT scores.



transformation was used to assign scores. The cut points for using equipercentile versus linear transformation were selected such that the ELS:2002 to NAEP link would be monotonic, and are indicated in table 23.

**Table 23. Linking methods for implementing NAEP high school senior mathematics scales in ELS:2002/2004, by scale score range: 2004/2005**

ELS scale score range	Linking method	Weighted percent of data
15.20–27.49	Linear approximation	10.5
27.50–79.39	Equipercentile transformation	89.1
79.40–82.54	Linear approximation	0.4

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), “First Follow-up, 2004” and National Assessment of Educational Progress (NAEP), 2005.

The result of the linking exercise is the variable F1TXNAEP, a NAEP-scaled version of the ELS:2002 IRT-estimated number right score (F1TXM1IR). While the historical NAEP vertical scale has been expressed in a 0–500 range, NAEP 2005 12th-grade mathematics results have not been vertically scaled with 8th- and 4th-grade results, and are on a 12th-grade scale of 0–300. (The ELS:2002 scale has a range of 0–85.)

As further documentation of the linkage, sample differences in weighted population estimates were reviewed for each survey. Percentages of racial/ethnic groups were quite similar (given slightly different definitions). Detecting whether the small differences are due to sampling variability or adjustments, or other factors such as differences in race/ethnicity classification schemes, is impossible (table 24).

**Table 24. Comparison of ELS:2002 and NAEP 2005 12th-grade mathematics linking samples, by sex and race/ethnicity: 2004/2005**

ELS:2002 (2004)—Grade 12			NAEP (2005)—Grade 12		
Sex and race/ethnicity	Population	Weighted percent	Sex and race/ethnicity	Population	Weighted percent
Total	2,996,374	100.0	Total	2,877,208	100.0
Sex			Sex		
Male	1,494,597	49.9	Male	1,382,104	48.0
Female	1,501,777	50.1	Female	1,495,103	52.0
Race/ethnicity <sup>1</sup>			Race/ethnicity <sup>1</sup>		
American Indian or Alaska Native	28,375	1.0	American Indian or Alaska Native	27,709	1.0
Asian or Pacific Islander	134,933	04.5	Asian or Pacific Islander	146,698	5.1
Black or African American	399,745	13.3	Black or African American	390,286	13.6
Hispanic or Latino	450,727	15.1	Hispanic or Latino	385,519	13.4
More than one race	117,420	3.9	More than one race	—	—
Unclassified	—	—	Unclassified	21,193	0.7
White and all other races	1,865,174	62.3	White and all other races	1,905,802	66.2

— Not available.

<sup>1</sup> “White and all other races” is predominantly White, with a very small number of individuals from other race categories. All race categories exclude individuals of Hispanic or Latino origin.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), “First Follow-up, 2004” and National Assessment of Educational Progress (NAEP), 2005.

Note that while the equating sample was restricted to ELS:2002 spring-term 2004 12th-graders, once the transformation of ELS:2002 to the NAEP scale was determined, NAEP-scaled

scores could also be assigned for ELS:2002 first follow-up participants who were not high school seniors (for example, 2002 sophomores who were held back a grade between 2002 and 2004), making the NAEP-scaled score available for all 13,702 sample members with an ELS:2002 first follow-up mathematics score.

As described above, differences between the ELS:2002 and NAEP tests, scoring methods, and populations mean that the link reported here cannot be regarded as a true equating. Although procedures were carried out to compensate for population differences and scoring methods, no claim is made that the scores may be treated as equivalent. It is more appropriate to refer to this link as a concordance: the NAEP-scale score represents the score level achieved by students of the same percentile rank in two populations that were matched as closely as was possible given the differences described above.

*PISA linkage.* In addition to the NAEP linkage, two further external linkages were carried out, both of them with PISA—reading (2000) and mathematics (2003). The PISA-scaled reading score is BYPISARE; the PISA-scaled math score is BYPISAME. For full documentation of these linkages, see Ingels et al. (2004, 2005b).

## 2.4 High School Transcript Component; Course Offerings File

The ELS:2002 high school transcript data collection sought information about coursetaking from students' official high school records (e.g., courses taken while attending secondary school, credits earned, year and term a specific course was taken, and final grades). When available, other information, such as dates enrolled, reason for leaving school, and standardized test scores such as ACT and SAT<sup>30</sup> results, was collected. Because of the size and complexity of the file and the reporting variation by school, additional variables were constructed from the raw transcript file to facilitate analyses. These variables include standardized grade point averages, academic “pipeline” measures, and total credits earned by subject area. The construction of many of the transcript variables is based on Carnegie units. A Carnegie unit is equal to a course taken every day, one period per day, for a full school year. All transcript items and composite variables have been appended to the ELS:2002 restricted-use data files and require special access for individual analysis. However, summary variables, such as Carnegie units in the main academic subjects, have been included on the ECB and the Data Analysis System (DAS).

In addition to high school transcripts, information is also provided about the course offerings of the base-year schools. For analysis purposes, school course offering information can be attached to the student record.

## 2.5 Second Follow-up Questionnaire Content

A single web-based instrument was developed for ELS:2002 second follow-up sample members, in which the respondents could self-administer the interview or complete it assisted by a telephone interviewer or field interviewer. In all modes of administration, *the identical web-based instrument* was accessed. This approach eliminated the potential for mode of

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<sup>30</sup> Transcript-reported SAT and ACT scores have been augmented in the second follow-up by additional scores obtained through records-matching with the test developers. Data from the multiple sources were merged, and an SAT-ACT concordance was created, so that both sets of scores would be on a common scale.

administration effects due to differences in question wording or response options.<sup>31</sup> Also, content areas most susceptible to interviewer (versus self-administration) effects, such as sensitive items with high potential for eliciting social desirability biases, were largely avoided. Finally, the instrument design process took into account the need to ensure that items would reflect similar levels of cognitive demand across modes (e.g., formats requiring extensive visual information to be easily understood would not be appropriate, since visual cues could not be provided in a telephone interview).

The instrument development process was launched with a meeting of the study's TRP in August 2005. Panelists recommended that the full-scale interview capitalize on the study's rare opportunity to examine the transition from high school to postsecondary education. Project instrument development staff were urged to concentrate on issues related to college access and choice in this round of the study. The project team reworked the field test instrument, consulting with experts in postsecondary education as needed. Instrument items were drawn from a number of studies including Baccalaureate and Beyond, Beginning Postsecondary Student Longitudinal Study, HS&B, NELS:88, and the National Postsecondary Student Aid Study.

The interview was organized into four substantive sections: *High School*, *Postsecondary Education*, *Employment*, and *Community*. The interview concluded with a *Locating* section. Appendix E includes flowcharts for each of the four substantive sections of the interview. They document the sequence of questions and the web-based instrument's routing logic. A facsimile of the instrument, also found in appendix E, documents question wording and response options. An in-depth description of each of these sections follows.

The first section, *High School*, collected retrospective information about high school completion. The majority of respondents skipped this section entirely because their high school completion date and the type of high school credential they earned were preloaded into the instrument at the start of data collection. The preloaded information was drawn from high school transcripts when available or from the first follow-up early graduate (see F1S15 and F1E27) and dropout (see F1D41 and F1D45) interviews. The high school transcript data were still undergoing quality control procedures when the second follow-up data collection began. In an effort to preload only stable transcript data, transcript information was only preloaded for cases where the following conditions were met: (1) the high school completion date was May or June 2004, the modal dates of completion; (2) the credential was a high school diploma or a certificate of attendance; and (3) quality control had been completed.<sup>32</sup> In summary, second follow-up respondents were asked whether they had completed high school, the date they had completed high school, and the credential earned if they had not already provided this information in a first follow-up interview and any one of the following conditions were met: (1) their high school transcript was not collected, (2) their high school transcript data (at the start of data collection) indicated that they had completed high school in a month other than May or June 2004, (3) their high school transcript data (at the start of data collection) indicated they had earned a GED, or

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<sup>31</sup> Of course, eliminating these two sources of mode effects is not to say that mode effects could not have occurred (for example, on the basis of differences such as self- versus interviewer administration). However, methodological work with similar items, age groups, and populations in the NCES postsecondary longitudinal studies (which also employ both web self-administration and computer-assisted interviewer administration) has not uncovered mode effect problems (see, for example, the following NCES methodology and field test reports: NCES 2004-02, NCES 2006-01, and NCES 2005-02).

<sup>32</sup> Despite this effort, the preloaded transcript information was later determined to be incorrect for some of the cases. Consequently, the preloaded data do not match the final released transcript data for a small number of cases. F2PHSDG indicates the credential earned as it was preloaded. The preloaded high school completion dates are found in F2PHSDT.

(4) their high school transcript data (at the start of data collection) indicated that a high school credential had not been awarded by the high school(s) providing transcripts. As will be discussed in greater detail where appropriate, high school completion dates, as preloaded or reported in the interview, played an important role in instrument routing logic and composite variable construction (see section 7.2.2.1).<sup>33</sup>

A second important purpose of the *High School* section was to retrospectively classify respondents as spring-term 2004 12th-graders, spring-term 2004 dropouts, neither, or for a small set both (see G12COHRT and F2SP04DO). The spring term of 2004 is of interest as this was the reference period for the first follow-up data collection. For a more detailed description of the classification procedures see section 7.2.2.1.

First follow-up nonrespondents who were identified as spring-term 2004 dropouts as well as those identified as early alternative completers (earned a GED prior to April 2004) were asked a series of retrospective questions about why they had dropped out of high school prior to or during the spring term of 2004. These questions were repeated from the first follow-up dropout and early graduate interviews. Responses to these items from the first follow-up and the second follow-up interviews are combined in composite variables (see F2WYLV1–F2WYLV14).

First follow-up questions about the GED were also repeated in the second follow-up *High School* section. All second follow-up respondents who reported earning a GED since they were last interviewed were asked a series of questions on the topic of their high school credential. Like the questions related to dropping out of high school, data collected from both rounds of the study were combined in composite variables (see F2GEDPRG, F2GEDOTH, F2GEDST, and F2WYGED1–F2WYGED6).

Questions in the *High School* section of the interview also identified a small set of respondents who were attending high school in the spring term of 2006 (F2RTYPE = 6). Many of the questions in the remainder of the interview, particularly those related to postsecondary education, did not pertain to these individuals. Therefore, these high school students were not asked to answer the majority of the questions in the *Postsecondary Education* section and select questions thereafter.

The *Postsecondary Education* section of the interview, the point of entry for most respondents, focused on education *after* high school. Questions pertained to the application process, admissions, financial aid offers, institutions attended, experiences at these institutions, and educational expectations. Retrospective information about dual enrollment experiences at postsecondary institutions during high school was not collected.

Since the primary focus of this interview is the transition out of high school, respondents who submitted applications more than once, as for example, to transfer from one postsecondary institution to another, were asked to identify only those postsecondary institutions they had applied to as part of their *first* round of applications. For the same reason, the first postsecondary institution the respondent attended after high school received special attention in a series of questions (see F2PS1, F2B13A–F, F2B14, F2B15, F2B16A–C, F2B17A–D, F2B18A–G). In most cases, the school of interest in these questions was the postsecondary institution with the

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<sup>33</sup> The data user is cautioned that many of the variables that provide data as it was collected in the *High School* section of the second follow-up interview, that is, variables with an “F2A” prefix, are not standalone variables to be used in analyses. They serve as inputs to composite variables only. They are only provided on the ECB for reference or validation of composite variable construction.

earliest enrollment date after high school completion or exit. In cases for which enrollment in a fall-term postsecondary institution was immediately preceded by summer school attendance, the fall-term institution was selected as the first.<sup>34</sup>

Complete month-by-month enrollment histories for all postsecondary institutions attended after high school were collected in the *Postsecondary Education* section. These enrollment histories in conjunction with the date of high school completion or exit, as preloaded or reported in the *High School* section of the interview, were used to classify respondents into one of six mutually exclusive categories (see F2RTYPE): Standard enrollees, Delayers, Leavers, Delayer-Leavers, Nonenrollees, and High School students. Table 25 indicates the characteristics of each respondent type.

**Table 25. Classification rules for F2RTYPE, by respondent type: 2006**

Respondent type	Any postsecondary enrollment after high school?	“On time” postsecondary enrollment?	Any reported postsecondary enrollment in 2006?	Enrolled in high school when interviewed?
Standard enrollee	Yes	Yes	Yes	No
Delayer	Yes	No	Yes	No
Leaver	Yes	Yes	No	No
Delayer-leaver	Yes	No	No	No
Nonenrollee	No	†	†	No
High school student	†	†	†	Yes

† Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), “Second Follow-up, 2006.”

Broadly speaking, respondents may be divided into those who have attended a postsecondary institution after high school and those who have not. First we will address those who reported some postsecondary enrollment following high school. *Standard enrollees* were respondents who enrolled in a postsecondary institution “on time,” that is, within the first enrollment window following their high school completion or exit date<sup>35</sup> and had some postsecondary enrollment in 2006 prior to the date of their interview. *Delayers* were enrollees who started their postsecondary education *after* the first enrollment window following their high school completion or exit date<sup>36</sup> and had some postsecondary enrollment in 2006 prior to the date of their interview. *Leavers* were enrollees who began their postsecondary education “on time,” but had no postsecondary enrollment in 2006 prior to the date of their interview. Note that leavers did not necessarily drop out of their postsecondary program. Leavers may have completed a postsecondary credential. *Delayer-leavers* were both delayers and leavers.

<sup>34</sup> These questions pertained to a fall-term postsecondary institution following summer school enrollment when the following conditions were met: (1) the respondent completed high school, enrolled in a summer school (in May, June, or July), ended summer school (in May, June, or August), and enrolled in a postsecondary institution for the fall term (in August, September, or October) within the same calendar year; and (2) the earliest and most recent dates of enrollment at the fall-term postsecondary institution spanned a greater number of months than the dates of enrollment at the summer school.

<sup>35</sup> Respondents who completed or dropped out of high school from January through July were considered “on time” if they began their postsecondary education by October of the same calendar year. Respondents who completed or dropped out of high school from August through December were considered “on time” if they began their postsecondary education by the following February.

<sup>36</sup> Respondents who completed or dropped out of high school from January through July were classified as delayers if they did not begin their postsecondary education by October of the same calendar year. Respondents who completed or dropped out of high school from August through December were classified as delayers if they did not begin their postsecondary education by the following February.

Respondents in the remaining two categories had no postsecondary enrollment following high school. The vast majority had completed or dropped out of high school. These respondents were classified as *Nonenrollees*. As noted previously, a small number of respondents reported that they were still enrolled in high school. These respondents are identified as *High schoolers*.

Table 26 illustrates which questions associated with various postsecondary education topics were administered to each respondent type. All respondents, with the exception of high school students, were asked if they had applied to a postsecondary institution since high school. Those who reported that they had were asked follow-up questions about those applications, whether those applications were accepted, and the financial aid offers received. All of these post-high school respondents, regardless of whether they reported applying to a postsecondary institution, were asked whether they had attended a postsecondary institution following high school. Respondents who indicated they had not were then classified as nonenrollees. All others were then asked to name the institution(s) they had attended and provide the dates of their enrollment. Based on these enrollment dates and the date of their high school completion or exit, enrollees were subdivided into the standard enrollees, delayers, leavers, and delayer-leavers as described previously. The remaining postsecondary education topic areas and the respondent types to which they relevant are listed in table 26.

**Table 26. Administration of postsecondary education topics, by respondent type: 2006**

Respondent type	Standard enrollee	Delayer	Leaver	Delayer-leaver	Nonenrollee	High school student
Whether has applied	Yes	Yes	Yes	Yes	Yes	No
Questions about applications	If applicable	If applicable	If applicable	If applicable	If applicable	No
Whether was accepted	If applicable	If applicable	If applicable	If applicable	If applicable	No
Questions about offers	If applicable	If applicable	If applicable	If applicable	If applicable	No
Whether has attended	Yes	Yes	Yes	Yes	Yes	No
Enrollment history	Yes	Yes	Yes	Yes	No	No
Reasons for delaying	No	Yes	No	Yes	No	No
Reasons no longer enrolled	No	No	Yes	Yes	No	No
Why took a break from postsecondary enrollment	If applicable	If applicable	If applicable	If applicable	No	No
Why attended part-time	If applicable	If applicable	If applicable	If applicable	No	No
Why switched postsecondary institutions	If applicable	If applicable	If applicable	If applicable	No	No
Questions about first postsecondary institution	Yes	Yes	Yes	Yes	No	No
Major at 2006 postsecondary institution	Yes	Yes	No	No	No	No
Financing post-secondary education	Yes	Yes	Yes	Yes	No	No
Reason has not attended a postsecondary institution	No	No	No	No	Yes	No
Educational expectations	Yes	Yes	Yes	Yes	Yes	Yes

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

The administration of each of the five topic areas in the *Employment* section was also determined by the respondent type classification scheme (see table 27). The initial two topics pertained to employment nonconcurrent with postsecondary education. The questions in the first of these two sets of questions referred to the first job after high school. Delayers, delayer-leavers, and nonenrollees were eligible for these items since these respondents all had a significant period of time after high school when they were not enrolled at a postsecondary institution. The second employment module focused on employment at the time of the interview. Nonenrollees, delayer-leavers, leavers, and high schoolers were subject to this module because they were not enrolled at a postsecondary institution at the time of the interview. The next set of questions focused on jobs held by postsecondary students during the 2004–05 and 2005–06 academic years. All four types of postsecondary enrollees were eligible for these questions if their postsecondary attendance coincided with these academic years. In contrast, only nonenrollees were eligible for the next topic. They were questioned about months of unemployment when a gap existed between high school and their first job, their first job and their current job, and/or their first job and the date of the interview if they were not currently working. Based on these responses as well as the employment dates provided in the first two modules, month-by-month employment status variables were constructed beginning with June 2004 (see F2EM0206-F2EM0608–

F2EM0608). Most of the remaining questions in the *Employment* section pertained to all respondent types. Topics included income, finances, and occupational expectations at age 30.

**Table 27. Administration of employment topics, by respondent type: 2006**

Respondent type	Standard enrollee	Delayer	Leaver	Delayer-leaver	Nonenrollee	High school student
First job	No	Yes	No	Yes	Yes	No
Current job	No	No	Yes	Yes	Yes	Yes
Unemployment history	No	No	No	No	Yes	No
Postsecondary student jobs	If applicable	If applicable	If applicable	If applicable	No	No
Finances/occupational expectations	Yes	Yes	Yes	Yes	Yes	Yes

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

The final substantive section of the interview, *Community*, covered topics related to family formation, living arrangements, community involvement including military service, and experiences that may influence the life course. With one minor exception, all questions pertained to all respondent types. The interview concluded with the *Locating* section which collected information that will be used to contact the respondents in the next round of the study. Since these data are not provided on the ECB or the DAS, documentation for this section is not provided.

A complete list of variables provided on the second follow-up ECB and DAS is presented in appendix L. See appendix N for a discussion of ancillary data that were collected in the second follow-up to augment sample members' records. Several sources of extant data were tapped including the College Board, ACT, ACE GED testing service, and federal loan and grant databases. Appendix M lists second follow-up composite variables with brief descriptions. A descriptive overview of composite variables constructed from second follow-up data and extant data is provided in chapter 7 (section 7.2.2).



# Chapter 3

## Sample Design

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### 3.1 Base-Year and First Follow-up Sample Design

#### 3.1.1 Overview

This chapter describes the Education Longitudinal Study of 2002 (ELS:2002) base-year, first follow-up, and second follow-up sample designs, including the design of the first follow-up high school transcript component.

Section 3.1 provides a historical summary of sample design issues for the base year and first follow-up. Starting with section 3.2, the chapter provides an expanded discussion of the sample design in the context of the ELS:2002 second follow-up in 2006.

The ELS:2002 base-year sample design comprises two primary target populations—schools with 10th grades and sophomores in those schools—in the spring term of the 2001–02 school year. ELS:2002 used a two-stage sample selection process. First, schools were selected. These schools were then asked to provide sophomore enrollment lists, from which students were selected.

Schools and students are the study’s basic units of analysis. School-level data reflect a school administrator questionnaire, a library media center questionnaire, a facilities checklist, and the aggregation of student data to the school level. Student-level data consist of student questionnaire and assessment data and reports from students’ teachers and parents. (School-level data, however, can also be reported at the student level and serve as contextual data for students.)

The basis for the sampling frame for the first follow-up (2004) was the sample of schools and students used in the ELS:2002 base-year sample. There are two slightly different target populations for the first follow-up. One population consists of those students who were enrolled in the 10th grade in 2002. The other population consists of those students who were enrolled in the 12th grade in 2004. The former population includes students who dropped out of school between 10th and 12th grades, and such students are a major analytical subgroup, as are transfer students. Note that in the first follow-up, a student is defined as a member of the student sample; that is, an ELS:2002 spring 2002 sophomore or a freshened first follow-up spring 2004 12th-grader. In the first follow-up, high school transcripts were also collected. The basis for the transcript sample was all student sample members who had participated in either the 2002 base year, the 2004 first follow-up, or both.

#### 3.1.2 Base-Year Sample Design

The sample design for ELS:2002 is similar to the designs used in the three prior studies of the National Education Longitudinal Studies Program: the National Longitudinal Study of the High School Class of 1972 (NLS:72), the High School and Beyond (HS&B) longitudinal study, and the National Education Longitudinal Study of 1988 (NELS:88). ELS:2002 is different from NELS:88 (but similar to HS&B) in that the ELS:2002 base-year sample students are 10th-graders rather than 8th-graders. As in NELS:88, Hispanics and Asians were oversampled in

ELS:2002. However, for ELS:2002, counts of Hispanics and Asians were obtained from the Common Core of Data and the Private School Survey to set the initial oversampling rates.

ELS:2002 used a two-stage sample selection process. First, schools were selected with probability proportional to size.<sup>37</sup> School contacting resulted in 1,221 eligible public, Catholic, and other private schools from a population of approximately 27,000 schools containing sophomores. Of the eligible schools, 752 agreed to participate in the study. These schools were then asked to provide sophomore enrollment lists. In the second stage of sample selection, approximately 26 students per school were selected from these lists. Additional information on the base-year sample design can be found in chapter 3 and appendix J of the base-year data file user's manual (Ingels et al. 2004, NCES 2004-405).

The target population of schools for the ELS:2002 base year consisted of regular public schools, including state Department of Education schools and charter schools, and Catholic and other private schools that contained 10th grades and were in the United States (the 50 states and the District of Columbia).

The sampling frame of schools was constructed with the intent to match the target population. However, selected schools were determined to be ineligible if they did not meet the definition of the target population. Responding schools were those schools that had a Survey Day (i.e., data collection occurred for students in the school).<sup>38</sup> Of the 1,268 sampled schools, there were 1,221 eligible schools and 752 responding schools (68 percent weighted participation rate).

A subset of most but not all responding schools also completed a school administrator questionnaire and a library or media center questionnaire (99 percent and 96 percent weighted response rates, respectively). Most nonresponding schools or their districts provided some basic information about school characteristics, so that the differences between responding and nonresponding schools could be better understood, analyzed, and adjusted. Additionally, RTI field staff completed a facilities checklist for each responding school.

The target population of students for ELS:2002 consisted of spring-term sophomores in 2002 (excluding foreign exchange students) enrolled in schools in the school target population. The sampling frames of students within schools were constructed with the intent to match the target population. However, selected students were determined to be ineligible if they did not meet the definition of the target population. Of the 19,218 sampled students, there were 17,591 eligible sophomores. The 15,362 participants on the public-use file represent a weighted student response rate of 87 percent.

The ELS:2002 base-year survey instruments comprised two assessments (reading and mathematics) and a student questionnaire. Participation in ELS:2002 was defined by questionnaire completion. Although most students were asked to complete the assessment battery in addition to the questionnaire, there were some cases in which a student completed the questionnaire but did not complete the assessments. Guidelines were provided to schools to assist them in determining whether students would be able to complete the ELS:2002 survey instruments.

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<sup>37</sup> The size used was a composite measure of size based on school enrollment by race/ethnicity. See Appendix J of the *Base Year Data File User's Manual* (Ingels et al. 2004) for more details.

<sup>38</sup> One eligible school had no eligible students selected in the sample. This school was considered a responding school.

Students who could not complete the ELS:2002 questionnaire (by virtue of limited English proficiency or physical or mental disability) were part of the expanded sample of 2002 sophomores who were followed in the study and eligibility status was reassessed 2 years later. There were 163 such students. To obtain additional information about their home background and school experiences, contextual data were collected from the base-year parent, teacher, and school administrator surveys.

The student sample was selected, when possible, in the fall or early winter so that sample teachers could be identified and materials could be prepared well in advance of Survey Day. However, selecting the sample in advance meant that some students transferred into the sample schools and others left between the time of sample selection and Survey Day. To address this issue, sample updating was conducted closer to the time of data collection. Complete enrollment lists were collected at both the time of initial sampling and the time of the sample update.

One parent of the sample student and English and mathematics teachers of the sample student were also included in the base-year sample.

### 3.1.3 First Follow-up Sample Design

There are two target populations for the ELS:2002 first follow-up. Because of these two target populations and the major analytical subgroups, the sample included the following types of students:

- ELS:2002 base-year student respondents who were currently enrolled in either the 12th grade or some other grade in the school in which they were originally sampled. All such students were included in the first follow-up sample.
- ELS:2002 base-year student respondents who finished high school early, including those who graduated from high school early, as well as those who obtained alternative certification (e.g., exam-certified equivalency such as the General Educational Development credential). All such students were included in the first follow-up sample.
- ELS:2002 base-year sample students who were deemed unable to participate during the base year owing to disability or insufficient command of the English language. All such students were included in the follow-up sample.
- ELS:2002 base-year student respondents who dropped out of school prior to data collection in the 12th grade. All such students were included in the follow-up sample.
- ELS:2002 base-year student respondents who transferred out of the school in which they were originally sampled, including those who transferred to a homeschool setting. All such students were included in the follow-up sample.
- A subsample was included of base-year nonrespondents (including those who did not have parental consent). Some base-year nonrespondents had remained at the base-year school, while others finished high school early, transferred, or were dropouts or homeschooled in spring term 2004.
- Students at the base-year sample school who were enrolled in the 12th grade but who were not in 10th grade in the United States during the 2002 school year. During spring term 2002 such students may have been out of the country, enrolled in school

in the United States in a grade other than 10th, had an extended illness or injury, been institutionalized, been homeschooled, or temporarily dropped out of school. A spring term-based “freshening” sample of such students was included in the first follow-up.

If a base-year school split into two or more schools and ELS:2002 base-year sample members moved *en masse* to a new school, the study followed them to the destination school and sought the school’s participation in the first follow-up. These schools can be thought of as additional base-year schools in a new form. Specifically, a necessary condition of adding a new school in the first follow-up was that it arose from a situation such as the splitting of an original base-year school, thus resulting in a large transfer of base-year sample members (usually to one school, but potentially to more). Four base-year schools split, and five new schools were spawned from these four schools. At these new schools, as well as at the original base-year schools, students were tested and interviewed. Additionally, the 12th-grade sample was freshened, and the administrator questionnaire administered.

### 3.1.3.1 Eligibility

All spring-term 2002 sophomores in eligible schools (i.e., schools that matched the target population as defined in section 3.1.1), except for foreign exchange students, were eligible for the base-year study. Base-year-eligible students were assumed to again be eligible in the first follow-up, regardless of school enrollment status. Additionally, all spring-term 2004 seniors in the base-year schools, except for foreign exchange students, were eligible for the first follow-up. Some base-year students were out of scope for the first follow-up (but sometimes were in-scope again in the second follow-up). Reasons for being temporarily (for the particular round of data collection) out of scope included being institutionalized or out of the country and thus unavailable through the data collection period. Reasons for being permanently out of scope included mortality and correction of sampling errors in which a noncohort member had been mistakenly selected.

Several categories of students who were ineligible for HS&B and NELS:88<sup>39</sup> were eligible for ELS:2002 (though it did not mean that such students were necessarily tested or that they completed questionnaires). In NELS:88, the following categories of students were deemed ineligible:

- students with disabilities (including students with physical or mental disabilities, or serious emotional disturbance, and who normally had an assigned Individual Education Program) whose degree of disability was deemed by school officials to make it impractical or inadvisable to assess them (i.e., they could not validly be assessed, or testing them could cause harm or discomfort); and
- students whose command of the English language was insufficient, in the judgment of school officials, for understanding the survey materials and who therefore could not validly be assessed or surveyed in English.

In ELS:2002, such students were deemed (test and) *questionnaire-incapable*, while remaining eligible for the sample. Base year contextual data were collected for such students (who appear only on the restricted-use files), and their eligibility status was reassessed in the first follow-up. Some students could be administered a questionnaire but could not complete a test. Students

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<sup>39</sup> For a summary of ineligibility and exclusion issues in HS&B and NELS:88 see Ingels (1996).

deemed capable of responding to a questionnaire but not capable of completing an assessment<sup>40</sup> were treated as regular sample members.

### 3.1.3.2 First Follow-up Subsampling

A base-year nonrespondent student was defined as a student who was selected in the base year and did not complete a student questionnaire. For the first follow-up, a subsample of 1,000 nonrespondent students was selected from the 2,229 base-year nonrespondents. Initially, a subsample of 1,620 nonrespondents was selected. All nonresponding students were included with certainty (i.e., probability equal to one), except for White students in public schools who were randomly subsampled. Then, to help the response rate and to conserve resources, the subsample of 1,620 was randomly subsampled across all student types to 1,000 nonrespondents.

### 3.1.3.3 Sample Freshening

Because part of the target population consists of those students who were enrolled in the 12th grade in the spring of 2004, the first follow-up included students at the base-year sample school who were enrolled in the 12th grade in the spring<sup>41</sup> of 2004 but who were not in the 10th grade in the United States during the spring of 2002. During this time, such students may have been out of the country or may have been enrolled in school in the United States in a grade other than 10th (either at the sampled school or at some other school). In addition, some students may have reenrolled, although in spring 2002 they were temporarily out of school, owing to illness, injury, institutionalization, homeschooling, or school dropout. Some 238 new students were added to the study under the freshening procedure, although 31 of the 238 were incapable of completing the questionnaire.

The total sample for the public-use file in the first follow-up comprised 16,515 individuals of whom 14,989 participated for a weighted response rate of 88.7 percent.

### 3.1.3.4 High School Transcript Study Sample Design

In autumn 2004, high school transcripts were requested for all sample members who participated in at least one of the first two student interviews: the base-year interview or the first follow-up interview. Thus, sample members who were dropouts, freshened sample members, transfer students, homeschooled students, and early graduates are included if they were respondents in either the 2002 or 2004 interview. Transcripts were also requested for students who could not participate in either of the interviews because of a physical disability, a mental disability, or a language barrier. Further information about the transcript component may be found in Bozick et al. 2006 (NCES 2006-338), available to licensed users of the transcript data.

## 3.2 Second Follow-up Sample Design

The target populations of the ELS:2002 second follow-up (2006) were the 2002 sophomore cohort and the 2004 senior cohort. The sophomore cohort consists of those students

<sup>40</sup> For example, a student with vision problems might not be able to complete a written test, but might be able to respond to an interviewer's oral administration of a questionnaire.

<sup>41</sup> The ELS:2002 cohorts, like the NAEP 12th-grade samples and the prior high school longitudinal cohorts (NLS:72, HS&B, and NELS:88), are spring-defined. For ELS:2002 this means that fall-term 2003 12th-graders who were not in 10th grade in the United States 2 years before (spring term 2002) and were not in 12th grade in the spring term of 2004 are not represented in the sample. Such individuals would normally be either fall-term dropouts or fall-term 2003 early graduates.

who were enrolled in the 10th grade in the spring of 2002 and the 12th-grade cohort comprises those students who were enrolled in the 12th grade in the spring of 2004. The sophomore cohort includes students who were in the 10th grade in 2002 but not in the 12th grade in 2004 (i.e., sophomore cohort members but not senior cohort members). The senior cohort includes students who were 12th-graders in 2004 but were not in the 10th grade in U.S. schools in 2002; they were included through a sample freshening process as part of the first follow-up activities.

The basis for the ELS:2002 second follow-up sampling frame was the sample of students selected in the base year when they were 10th graders in 2002 combined with the sample of freshened students who were in the 12th grade in 2004.

Figure 2 shows the distribution of the approximately 17,600 eligible students sampled from 750 schools in the base year (BY) plus the 240 students added during freshening in the first follow-up.<sup>42</sup> For the first follow-up full-scale study, there were a total of 18,000 eligible sample members that included 15,400 BY respondents, 2,200 BY nonrespondents, 160 questionnaire-incapable<sup>43</sup> BY students, 210 freshened students, and 30 questionnaire-incapable freshened students.

For the second follow-up full-scale study, there were 17,900 eligible sample members who included all first follow-up eligible sample members except deceased students (approximately 20), study-ineligible<sup>44</sup> members (approximately 10), and base year nonrespondents or freshened sample members who were out-of-scope sample members in the first follow-up study (about 20). The second follow-up fielded sample consisted of 16,400 sample members (see figure 2) as follows:

- respondents for both the BY and F1 rounds (14,100);
- F1 nonrespondents who were BY respondents (1,200);
- BY nonrespondents who were subsampled in the F1 and responded in the F1 (650);
- BY or F1 questionnaire-incapable members (210);
- freshened respondents in F1 study (170); and
- BY respondents who were determined to be out-of-scope in the F1 (100).

The sample members listed above made up the second follow-up sample that was fielded, but there were some prior-round nonrespondents who, while eligible members of one or both of the ELS:2002 target populations, were not fielded.<sup>45</sup> These nonrespondents included the following types of sample members:

- BY nonrespondents who were also nonrespondents in the F1 study;

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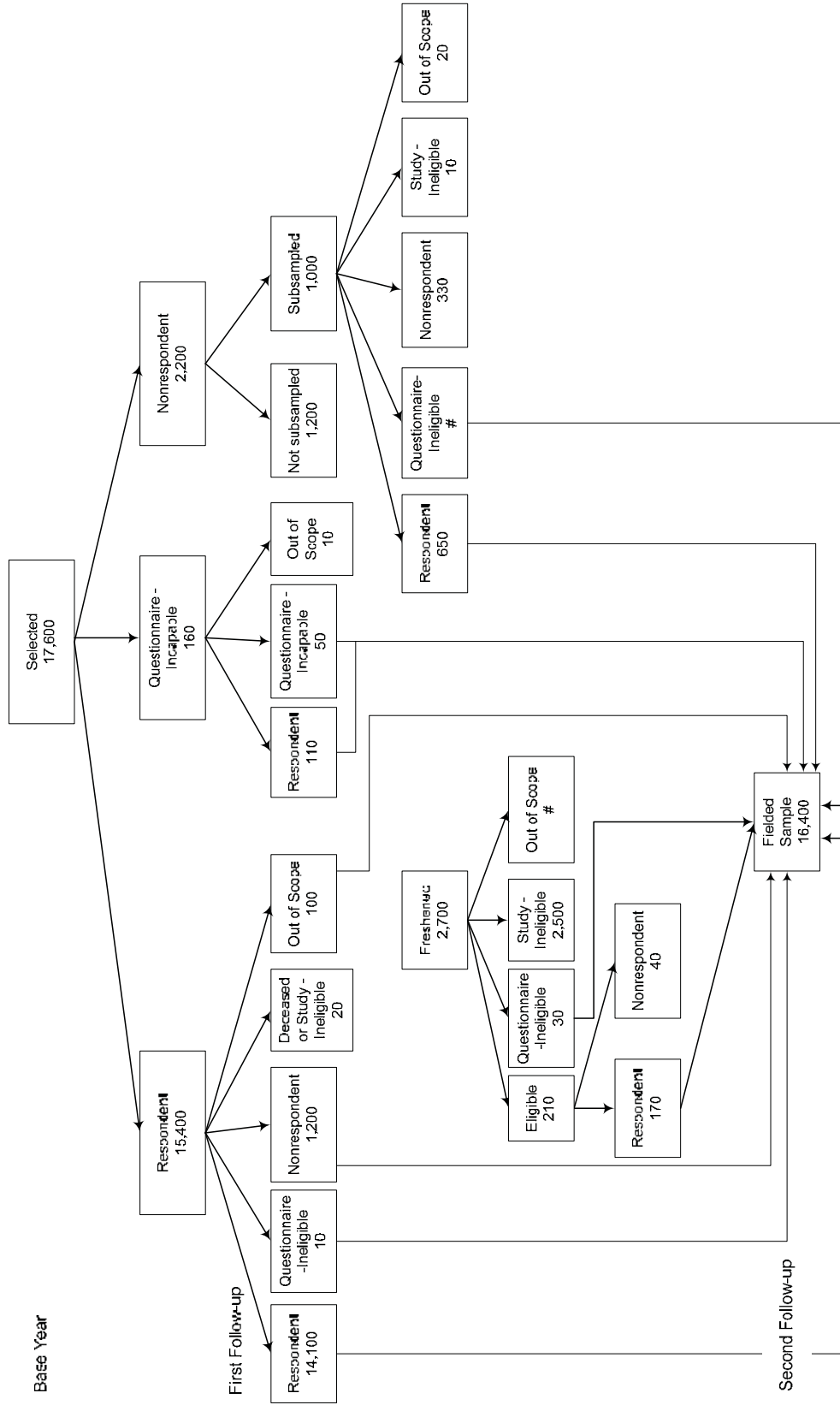
<sup>42</sup> Readers are reminded that second follow-up sample sizes for subgroups are approximate. There was no public-use data file for the second follow-up. Exact sample sizes from restricted-use data files cannot be published unless the data are perturbed in some way. The perturbation approach taken here was to round the exact sample sizes of cells to tens or hundreds.

<sup>43</sup> Questionnaire-incapable students were ineligible for questionnaire or test completion owing to language barriers or severe disabilities but were included in the sample; contextual data were collected for them, and their eligibility status reassessed.

<sup>44</sup> Study-ineligible sample members are individuals who were not members of the relevant cohort (2002 sophomores or 2004 freshened seniors) but were initially included owing to sampling error and subsequently reclassified as permanently out of scope.

<sup>45</sup> The nonfielded sample members who were base year-first follow-up nonrespondents or first follow-up freshening sample nonrespondents were treated as eligible sample members classified as nonrespondents for the weighting adjustments and in the nonresponse bias analysis.

Figure 2. ELS:2002 second follow-up full-scale sample: 2006



# Rounds to zero.

NOTE: "Study-Ineligible" means not a member of the spring-term 2002 sophomore cohort and not a member of the spring 2004 senior cohort for freshening; or, ineligible by virtue of being a foreign exchange student. All sample sizes have been rounded. Numbers of less than four digits have been rounded to tens. Numbers of four or five digits have been rounded to hundreds.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002," "First Follow-up, 2004," and "Second Follow-up, 2006."

- freshened nonrespondents; and
- sample members who asked to be removed from the study.

Some 330 base-year and first follow-up nonrespondents and 40 freshened nonrespondents were not fielded since lack of base-year and first follow-up high school information for these sample members meant that these sample members would have no analytical value in the full-scale study.<sup>46</sup> A handful of sample members who asked to be removed from the study were treated as permanent nonrespondents. The sample excluded members who were determined to be study-ineligible in either the base year or the first follow-up, such as sample members who are deceased (whose ineligibility begins with their date of death) or were sampled in error based on cohort membership information later found to be erroneous.

Once fielded, some members of the sample of 16,400 were determined to be out of scope. There were 460 out-of-scope second follow-up sample members, who fell into five basic groups, as indicated in table 28.

**Table 28. Numbers of out-of-scope cases in the second follow-up, by out-of-scope reason: 2006**

Out-of-scope reason	Number
Deceased	40
Out of country	210
Institutionalized/incarcerated	50
Questionnaire incapable/incapacitated	80
Unavailable for duration of 2006 data collection	80

NOTE: Numbers are rounded to tens.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

Apart from the deceased, these individuals are regarded as temporarily out of scope only. If available for future interviews, they will be asked to participate. The portion of the sample that is out of scope is in flux across rounds. However, sample members are more likely to temporarily out of scope, as they disperse after high school and assume new roles, including roles in the military or work force that may take them out of the country or otherwise render them inaccessible. (Military personnel could fall into any of the above categories; their status cannot be separately distinguished.)

<sup>46</sup> There were also 1,200 base-year nonrespondents who were sampled out of the study prior to first follow-up data collection, with another 1,000 base-year nonrespondents retained. The subsample of 1,000 base-year nonrespondents became the basis for nonfielded sophomore cohort cases in the second follow-up, in those instances in which they were nonrespondents in the first follow-up as well.



# Chapter 4

## Data Collection Results and Methodology

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### 4.1 Base-Year and First Follow-up Data Collection Results

This chapter briefly describes data collection for the Education Longitudinal Study of 2002 (ELS:2002) base-year and first follow-up surveys and, more expansively, data collection for the second follow-up. The discussion of the first follow-up includes data collection for the high school transcript component as well as information about the administration of the test and questionnaires.

More detailed accounts of the base-year and first follow-up data collections can be found in the following NCES publications:

- *Education Longitudinal Study of 2002: Base Year Data File User's Manual* (Ingels et al. 2004; NCES 2004-405);
- *Education Longitudinal Study of 2002: Base-Year to First Follow-up Data File Documentation* (Ingels et al. 2005b; NCES 2006-344); and
- *Education Longitudinal Study of 2002: First Follow-up Transcript Component Data File Documentation (DFD)*<sup>47</sup> (Bozick et al. 2006; NCES 2006-338).

Base-year data were collected in spring term 2002. The base-year survey collected data from students, parents, teachers, librarians, and school administrators. Pre-data-collection activities included securing endorsements from educational organizations and gaining cooperation from state education agencies, school districts, and individual schools. Self-administered questionnaires and achievement tests were the principal research instruments. Data collection primarily took place during in-school survey sessions conducted by an RTI field survey administrator.

First follow-up data were collected in spring term 2004, from students (including transfers) as well as dropouts; transcripts were collected in the next school year.

A total of 752 high schools participated in the base year, resulting in a weighted school response rate of 67.8 percent. School cooperation results are set out in table 29. Response and coverage rates for base-year and first follow-up student and student-contextual components (including transcript coverage) are provided in tables 30 through 33.

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<sup>47</sup> The transcript DFD report (NCES 2006-338) is available only to licensed users of the transcript data; however, substantial attention is given to the transcript component in the present document as well.

**Table 29. Unweighted school sampling and eligibility, and unweighted and weighted participation, by sampling stratum: 2002**

School sampling stratum	Sampled schools		Eligible schools		Participating schools		
	Number	Unweighted percent <sup>1</sup>	Number	Unweighted percent <sup>2</sup>	Number	Unweighted percent <sup>3</sup>	Weighted percent
Total	1,268	100.0	1,221	96.3	752	61.6	67.8
School sector							
Public	953	75.2	926	97.2	580	62.6	69.1
Catholic	140	11.0	140	100.0	95	67.9	74.0
Other private	175	13.8	155	88.6	77	49.7	62.9
Urbanicity							
Urban	434	34.2	414	95.4	250	60.4	67.3
Suburban	630	49.7	609	96.7	361	59.3	59.8
Rural	204	16.1	198	97.1	141	71.2	79.3

<sup>1</sup> Percent is based on overall total within column. Details may not sum to 100 percent due to rounding.

<sup>2</sup> Percent is based on number sampled within row.

<sup>3</sup> Percent is based on number eligible within row.

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

A total of 15,362 students participated, primarily in in-school sessions, for an 87.3 percent weighted response rate.<sup>48</sup> In addition, each sampled student's mathematics teacher and English teacher were given a questionnaire to complete. Weighted student-level coverage rates for teacher data were 91.6 percent (indicating receipt of a report from either the math teacher, the English teacher, or both). School administrators and library media coordinators also completed a questionnaire (weighted response rates were 98.5 percent and 95.9 percent, respectively). Mail questionnaires were sent to parents with a telephone follow-up for nonresponders. Student coverage for parent questionnaires was 87.5 percent (weighted). RTI survey administrators completed a facilities checklist at each school. The number of completed instruments and both weighted and unweighted response rates are summarized in table 30.

<sup>48</sup> In a two stage-sample, a final response rate should be viewed as the product of both levels of participation. For example, with a school response rate of 67.8 percent and a student response rate of 87.3 percent, the final response rate taking both stages of the design into account is  $67.8 * 87.3 = 59.2$  percent. A school nonresponse analysis was conducted in the base year to establish that nonresponse bias at the school level was minimal and to provide a fuller basis for nonresponse adjustments in the final weighting. Similar analysis and adjustment were undertaken at the student level. For details see Ingels et al. (2004), *Education Longitudinal Study of 2002: Base Year Data File User's Manual* (NCES 2004-405), chapter 3, section 3.2.6.

**Table 30. Summary of ELS:2002 base-year response and coverage rates, by instrument: 2002**

Instrument	Selected	Participated	Weighted percent	Unweighted percent
Student questionnaire	17,591	15,362	87.3	87.3
Student assessment <sup>1</sup>	15,362	14,543	95.1	94.7
Parent questionnaire <sup>2</sup>	15,362	13,488	87.5	87.8
Teacher ratings of students <sup>3</sup>	15,362	14,081	91.6	91.7
School administrator questionnaire	752	743	98.5	98.8
Library media center questionnaire	752	718	95.9	95.5
Facilities checklist	752	752	100.0	100.0

<sup>1</sup> Percentage of cases for which a student questionnaire and cognitive test were obtained. When a test was not obtained, test results were imputed.

<sup>2</sup> Indicates a coverage rate: the proportion of participating students with a parent report. More parents participated; completed case numbers reflect the records in the public-use data file, where parent (and teacher) data were excluded for students who did not complete a base-year student questionnaire.

<sup>3</sup> Indicates a coverage rate: ratings obtained from at least one teacher.

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

First follow-up in-school data collection occurred between January and June 2004. Out-of-school data collection took place between February and August 2004 and included telephone and in-person interviews. Results are summarized in table 31.

**Table 31. Summary of ELS:2002 first follow-up response and coverage rates, by instrument: 2004**

Instrument	Selected	Participated	Weighted percent	Unweighted percent
Total sample for public-use file	16,515	14,989	88.7	90.8
Student questionnaire	13,092	12,427	93.4	94.9
Student assessment <sup>1</sup>	12,427	10,995	87.4	88.5
School administrator questionnaire <sup>2</sup>	12,427	11,856	95.9	95.4
Transfer questionnaire	1,799	1,275	68.4	70.9
Dropout questionnaire	876	686	73.2	78.3
Early graduate questionnaire	687	560	80.6	81.5
Homeschool questionnaire	61	41	61.5	67.2

<sup>1</sup> Indicates a coverage rate: percentage of cases for which a student questionnaire and cognitive test were obtained. When a test was not obtained, test results were imputed.

<sup>2</sup> Indicates a coverage rate: percentage of students affiliated with base-year (2002) schools in 2004 (student questionnaire completers) for whom a school administrator report was obtained.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "First Follow-up, 2004."

Student questionnaire completers comprise those participating first follow-up sample members then currently (spring term 2004) associated with a base-year (2002) school. In other words, the student questionnaire sample was drawn from base-year sophomore cohort members who remained at their base-year school or seniors brought in through the freshening process at those same schools. There were 13,092 individuals in the sample eligible to complete a student questionnaire, and 12,427 did so. The overall response rate for this group was 93.4 percent, weighted (94.9 percent unweighted).

The mathematics assessment was administered to about 87 percent (weighted) of the student questionnaire sample (again, the individuals who remained in, or were freshened in, the

base-year schools). For this same sample (students associated with a base-year school 2 years later), school administrator data are available 95 percent (weighted) of the time.

Not all sophomore cohort members remained in their base-year schools. Many transferred to a new school. These students completed a transfer student questionnaire. (Although they did not complete the mathematics assessment, a mathematics score was imputed for them.) For transfer students, a 68.4 percent weighted (70.9 percent unweighted) response rate was achieved.

Dropouts were defined in ELS:2002 as sample members who were absent from school for 4 consecutive weeks or more at the time of the survey, and not absent due to accident or illness. The weighted sophomore cohort dropout participation rate was about 73 percent (over 78 percent unweighted).

For all sample types (including questionnaire-incapable students), high school transcripts were also collected in the first follow-up, in the course of the 2004–05 school year. About 91 percent of sample members had a complete or incomplete<sup>49</sup> transcript. Table 32<sup>50</sup> provides information about transcript coverage overall and by selected subgroups. Table 33 breaks out coverage information by cohort as well as subgroup.

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<sup>49</sup> Note that some transcript records were necessarily incomplete (for example, the transcripts of a dropout, or of a student who repeated a year between the two surveys), while other records may be incomplete (especially for transfers) because complete information could not be obtained.

<sup>50</sup> Note that because first follow-up transcript data (and second follow-up questionnaire data) are available in restricted-use electronic codebooks (ECBs) only (supplemented by a public-use Data Analysis System), sample size information has been perturbed, by a process of rounding, as an additional protection against inadvertent or deductive disclosure of respondents' identifying information. Because a public-use ECB was produced for the ELS:2002 base year and first follow-up (other than the transcript component), precise sample sizes for the public-use file (which differs slightly in number from the restricted use files [e.g., questionnaire-incapable sample members do not appear on the public-use files]) appear in text and tables describing the 2002 and 2004 rounds. Exact sample sizes are also provided for the second follow-up field test (2005); field test data are not released, even in restricted form, and therefore pose no danger of deductive disclosure.

**Table 32. Percentage of base-year and first follow-up students with a complete or incomplete transcript, by selected characteristics: 2004–05**

Student characteristic	Rounded sample size	Weighted percent	Unweighted percent
Total	16,400	90.7	91.1
<b>Sex</b>			
Male	8,200	89.9	90.9
Female	8,200	91.4	91.4
<b>Race/ethnicity<sup>1</sup></b>			
American Indian or Alaska Native	140	92.4	90.8
Asian or Pacific Islander	1,700	90.7	90.8
Black or African American	2,200	88.3	87.5
Hispanic or Latino	2,500	86.9	89.6
More than one race	800	91.4	91.2
White and all other races	9,100	92.2	92.5
<b>School sector</b>			
Public	12,900	90.6	90.6
Catholic	2,000	95.0	94.8
Other private	1,500	86.0	90.6
<b>Urbanicity</b>			
Urban	5,500	86.8	88.6
Suburban	7,900	92.7	93.0
Rural	3,000	91.3	90.9
<b>School region<sup>2</sup></b>			
Northeast	3,000	83.3	85.7
Midwest	4,100	91.8	92.6
South	6,000	91.2	91.0
West	3,400	94.3	94.3

<sup>1</sup> "White and all other races" is predominantly White, with a very small number of individuals from other race categories. All race categories exclude individuals of Hispanic or Latino origin.

<sup>2</sup> Region is defined by the U.S. Census Bureau based on the state in which the school is located.

NOTE: Detail may not sum to totals because of rounding. Because the transcript file is restricted use only, sample sizes have been rounded, and are thus approximate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "High School Transcript Component."

**Table 33. Percentage of base-year and first follow-up students with a complete or incomplete transcript, by grade cohort and selected characteristics (weighted): 2004–05**

Student characteristic	Cross-sectional		Panel
	10th-grade (G10) cohort <sup>1</sup> (student weight, F1TRSCWT) (unweighted, N = 16,170)	12th-grade (G12) cohort <sup>2</sup> (student weight, F1TRSCWT) (unweighted, N = 13,420)	10th- to 12th-grade panel (student weight, F1PNLWT) (unweighted, N = 13,250)
Total	90.6	93.1	93.1
Sex			
Male	89.8	92.7	92.7
Female	91.4	93.5	93.5
Race/ethnicity <sup>3</sup>			
American Indian or Alaska Native	92.3	94.6	94.5
Asian or Pacific Islander	90.5	92.7	92.4
Black or African American	88.2	91.8	91.8
Hispanic or Latino	86.9	90.0	90.0
More than one race	91.4	94.2	94.2
White and all other races	92.1	94.1	94.0
School sector			
Public	90.6	93.1	93.1
Catholic	94.9	95.5	95.5
Other private	85.6	90.8	90.6
Urbanicity			
Urban	86.7	89.9	89.8
Suburban	92.7	94.8	94.7
Rural	91.3	93.5	93.5
School region <sup>4</sup>			
Northeast	91.8	86.6	94.0
Midwest	83.2	94.0	86.5
South	91.2	93.6	93.6
West	94.3	96.7	96.7

<sup>1</sup> G10 cohort indicates the cross-sectional population of the nation's 2002 spring-term sophomores.

<sup>2</sup> G12 cohort indicates the cross-sectional population of the nation's 2004 spring-term seniors.

<sup>3</sup> "White and all other races" is predominantly White, with a very small number of individuals from other race categories. All race categories exclude individuals of Hispanic or Latino origin.

<sup>4</sup> Region is defined by the U.S. Census Bureau based on the state in which the school is located.

NOTE: Because the transcript file is restricted use only, sample sizes have been rounded, and are thus approximate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "High School Transcript Component."

## 4.2 Base-Year and First Follow-up Data Collection Methods

Although the results of base-year and first follow-up data collection have been described above, section 4.2 describes pre-data-collection and data collection activities—the basic data collection methodology followed in the in-high-school years of the study.

### 4.2.1 Base-Year Data Collection Methodology

Before public school recruitment could begin, it was necessary to obtain permission to contact the schools, first from the states and then from districts. For Catholic schools, permission was sought at the diocesan level, while other private schools were contacted directly, without intermediary.

Schools were initially contacted by mail, with a package of materials about the study. Several days after the package was sent, the school was contacted by telephone. If the school agreed to participate, a school coordinator was identified to serve as a point of contact and to help handle the logistical arrangements for the survey. Dates for a Survey Day and two Makeup Days were scheduled. At the same time, staff members were designated to receive the school administrator and library media center questionnaires. It was determined whether the type of parental consent used by the school was active (written) or passive (implicit). Schools were offered the opportunity to provide endorsement letters to be included with the consent letter to the parents. Every effort was made to “convert” noncooperating schools. Nonetheless, there were substantial numbers of refusals; indeed, about 38 percent (unweighted) of the contacted eligible schools refused to participate.

In each cooperating school, the coordinator was asked to provide an enrollment list of 10th-grade students, which was used as the basis for sample selection. Since some students may have transferred into or out of the school’s 10th grade over subsequent weeks, the sample was updated before the Survey Day, with new students given a chance of selection into the sample.

The actual survey session was conducted by RTI staff, as a group administration, for all students who wished to participate and whose parents had given their implied or explicit consent. First, students were given a timed routing test in math and reading. After completing the routing tests, the students completed the student questionnaire. While the students completed the questionnaire, the survey administrators graded the routing tests and used the resulting scores to determine which of the second-stage test forms in math and reading (low, medium, high ability) to assign to each student. While the students completed the second-stage tests, RTI survey administrators edited the student questionnaires for completeness by checking critical items and attempting to retrieve missing information or clarify ambiguities.

The routing test was allotted 12 minutes in math and 14 minutes in reading. The second stage test was 18 minutes for math and 16 minutes for reading. The questionnaire was to be completed in 45 minutes.

If less than 100 percent of the eligible students participated on Survey Day, the RTI survey administrator attempted to confirm the Makeup Day that had been scheduled during the school recruitment process. Of the 15,362 participants, 85.4 percent were surveyed in their school on Survey Day, another 11.1 percent were surveyed on a Makeup Day, and 3.5 percent were surveyed outside school over the telephone.

School administrator and librarian questionnaires were also collected. Survey administrators completed a facilities checklist that evaluated the school’s physical plant and safety features. Finally, by the end of the data collection period, at least one teacher report had been received for 92.4 percent of all of the participating students.

In addition to surveys of within-school populations, a parent survey was conducted. Parent questionnaires were mailed on or soon after the school’s scheduled Survey Day to all

parents for whom addresses had been obtained through the school. For parents with no address available, the parent questionnaire was not mailed until the student questionnaire was sent in and the locator information (which included home address) was recorded. Parents returned the questionnaire to RTI in a postage-paid envelope. RTI staff followed up with nonresponding parents by telephone and in person. Of the 15,362 responding students, parent data (either by mailed questionnaire or by telephone interview) were received from 13,488 of their parents for a weighted coverage rate of 87.4 percent.

#### **4.2.2 First Follow-up Test and Questionnaire Data Collection Methodology**

States and districts had been informed in the base year that there would be another study round 2 years hence. For districts, a courtesy letter was mailed reminding them about ELS:2002 and stating that their schools would be contacted to gain permission to collect follow-up data.

Some 752 schools participated in the base-year study (although one had no eligible selected 10th-graders). When base-year schools were recontacted for the first follow-up, it was learned that five of the schools no longer had sample members (enrolled in any grade at the school) or high school seniors (hence no freshening sample). These schools, therefore, were no longer eligible for the study. Of the eligible schools, 698 (93.4 percent) allowed RTI to return to collect data in the schools. In 44 cases, the school refused to allow RTI to return to the school to collect data. Three districts (representing a total of five schools) also refused to allow RTI to return to their schools to collect data. Data from students enrolled at these schools/districts were collected outside of the school setting. Students at the base-year schools completed student questionnaires and a math test at the in-school administration. School administrator questionnaires were collected. A handful of base-year schools split into multiple schools between 2002 and 2004. Thus, in addition to schools that participated in the base year, five schools that received pools of students from base-year schools were included as new schools in survey activities but were not added to the probability sample.

In the spring and again in the autumn of 2003, each base-year school was provided a list of ELS:2002 base-year sample members from its school. The school was asked to indicate whether each sample member was still enrolled at the school. For any sample member who was no longer enrolled, the school was asked to indicate the reason and date the student left. If the student had transferred to another school, the base-year school was asked to indicate the name and location of the transfer school. This information was gathered again in the spring of 2004, prior to the school's scheduled Survey Day. In the fall of 2003, each base-year school was also asked to provide a list of the 12th-graders enrolled at that school, so this information could be used as part of the freshening process.

As earlier noted, schools were asked to identify sample members who no longer attended the base-year school. At the time, contact information for those individuals was collected. However, further tracing of sample members was often required, using (when available) the locating information provided by parents and students in the base year.

The in-school survey sessions were essentially similar to those in the base year. However, there was no reading test. In addition, while there were multiple test forms each tailored to ability level, the math test form was not assigned on the basis of a routing test as in the base year. In the first follow-up, the math test form was assigned on the basis of the prior (base-year) test score, as was done in the National Education Longitudinal Study of 1988 (NELS:88). For the mathematics



assessment, 26 minutes was allotted, with 45 minutes for the student questionnaire. A school administrator questionnaire was also administered in the first follow-up, and course offerings information was collected for base-year schools as well. Of those who participated in in-school survey sessions, 87.5 percent (9,737) were interviewed on Survey Day, and the remaining 12.5 percent on a Makeup Day. Some 10.1 percent (1,126) participated on the first Makeup Day, and 2.4 percent (262) on a subsequent Makeup Day. Of course, for schools that did not allow a Makeup Day, students were pursued outside of the school setting.

Not all spring 2002 sophomores remained in their base-year schools. Some had dropped out of high school; others had transferred. A few shifted to a homeschool setting, while others graduated early. Therefore, a large segment of the data collection took place outside the school setting. No attempt was made to test students who had transferred out of their base-year schools by 2004; however, test scores were imputed for this group. For students not in their original schools, telephone data collection began in February 2004. For sample members under the age of 18, parental permission was obtained by telephone prior to initiating contact with the sample member. As a last resort, cases were also assigned to field staff for an in-person interview.

As shown in table 34, the majority of those who responded (74 percent) did so during the in-school Survey or Makeup Day. Approximately 20 percent participated as a result of the telephone interview follow-up. Just over 5 percent were interviewed by a field interviewer and less than one half of one percent completed a mail questionnaire.

**Table 34. Overall yield, by method of data collection (unweighted percentages): 2004**

Method	Number of responses	Percent of total response
Total responses	14,989	100.00
In school	11,125	74.21
Mail	43	0.29
Telephone	3,024	20.17
Field	797	5.33

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "First Follow-up, 2004."

### 4.2.3 Data Collection for Transcripts and Course Offerings

Transcripts were collected from sample members at the end of 2004 and early in 2005, a minimum of 6 months after most students had graduated from high school. Transcripts were collected from the students' base-year school. However, if it was learned during the first follow-up data collection that the sample member had transferred, transcripts were collected from two schools: the base-year school and the last known school of attendance. For students who were added to the study during the spring term of their senior year (known as "freshened" students), transcripts were only collected from their senior-year school. Transcripts were collected for regular graduates, as well as dropouts, students still in high school, early graduates, and students who were homeschooled after their sophomore year.

Transcripts were collected for all sample members who participated in at least one of the first two student interviews: the base year or the first follow-up. These sample members include base-year respondents who were first follow-up nonrespondents and base-year nonrespondents who were first follow-up respondents. Thus, sample members who were dropouts, freshened

sample members, transfer students, homeschooled students, and early graduates were included if they were respondents in either of the first two student interviews. Transcripts were also requested for students who could not participate in either of the interviews because of a severe physical disability, a mental disability, or a language barrier. A total of approximately 1,500 base-year and transfer schools responded positively to the transcript request by providing transcript data for ELS:2002 sample members. Ninety-one percent (weighted) of the ELS:2002 student sample have transcript information (about 14,900 out of 16,400).

Records were necessarily incomplete for sample members who had dropped out of school, had fallen behind their cohort's modal progression sequence, or were enrolled in a special education program requiring or allowing more than 12 years of schooling. Eighty-six percent of transcript respondents have 4 complete years of high school transcript information.

#### 4.2.3.1 Transcript Data Collection Materials

The development of data collection materials and procedures was informed by the NELS:88 high school transcript study, the National Assessment of Educational Progress high school transcript study, and the field test for ELS:2002 transcript data collection. Data collection materials were mailed to schools beginning in December 2004. The materials were sent to the ELS:2002 school coordinator at all schools that participated in ELS:2002. If the school was new to the study (e.g., a school attended by a sample member who transferred out of his or her base-year school), the materials were sent to the principal. The materials guided school personnel in the preparation of transcripts and related documents. Each school was asked to provide basic enrollment, testing, and coursetaking information for each student, as well as information about the school's grading and graduation policies and requirements. The information requested included the following:

- Student-level information, including
  - type of diploma awarded (e.g., standard, honors, or General Educational Development certification);
  - date diploma awarded;
  - date student left school;
  - reason student left school (e.g., graduated or transferred);
  - cumulative GPA; and
  - test scores for the Preliminary Scholastic Aptitude Test, Scholastic Assessment Test, ACT,<sup>51</sup> and Advanced Placement tests.
- Coursetaking histories for grades 9 through 12,<sup>52</sup> including
  - course title and number;
  - year, grade level, and term course taken;

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<sup>51</sup> Formerly called the American College Testing Assessment.

<sup>52</sup> Schools were also encouraged to provide information about coursetaking immediately prior to 9th grade, especially algebra or geometry courses. These courses appear on the course-level file but are not included in any of the composite measures on the student-level file.

- number of credits earned; and
- grade assigned.
- School-level information, including
  - grade scale;
  - course grade weighting system used, if any;
  - availability of student-level information;
  - GPA formula;
  - Carnegie unit conversion information;
  - term system;
  - course catalogs (if not collected previously);
  - types of diplomas granted; and
  - credits required for different types of diplomas.

The data collection materials requested from school personnel also included the following: cover letter, instructions for preparing transcripts, student transcript checklist, transcript cover sheet, disclosure notices, value and uses of transcript research document, and signed consent forms (if the school required explicit consent).

The instructions for preparing student transcripts requested that photocopies or printouts of transcripts be prepared for the students listed on the Student Transcript Checklist. They also requested that the transcripts, when available, include coursetaking histories for 9th through 12th grades. In the rare instances in which 9th-grade records were unavailable, the preparer was asked to submit photocopies or printouts of transcripts for the 10th through 12th grades.

#### **4.2.3.2 Transcript Data Collection Procedures**

From December 2004 through June 2005, survey materials were sent to over 2,000 schools. This group included schools that participated either in the base-year or first follow-up survey and transfer schools that were first contacted regarding ELS:2002 during transcript data collection. Transcripts were not requested from 10 base-year schools because they had refused to participate in the first follow-up survey. Additionally, transcripts were not requested from one base-year school that had no eligible students. Schools were paid \$5 for each transcript.

Transcripts were requested for over 16,000 sample members. Included were sample members who were ineligible to participate in the base year or first follow-up because of a physical disability, a mental disability, or a language barrier. Ninety-five schools required explicit consent from sample members or their parents/guardians before releasing transcript information. Of the sample members who attended these schools, about a quarter provided signed release forms.

Two weeks after the survey materials were sent to the school, a follow-up postcard was sent as a reminder to complete the data collection forms and to send the requested materials to RTI. If after an additional week RTI had not received the materials from the school, assigned institutional contactors (ICs) began telephone prompting to request that the materials be sent as

soon as possible. Nonresponding schools contacted during the telephone prompting frequently requested remailing of the data collection materials. During telephone contacts, the ICs also identified any additional requirements the school had for releasing transcripts.

Telephone follow-up with schools continued through June 2005. Additional measures were implemented to ensure an adequate response rate. In June 2005, data collection materials were sent to schools that had not yet provided all of the requested transcripts. In addition, in-person visits to nonresponding schools were conducted during April through June 2005 to collect the requested materials or to assist the school transcript preparer in assembling the information. For efficiency, the schools were selected for in-person visits by their proximity to other schools. In-person visits were made only to schools that had not sent transcript materials for any requested sample members.

Collection of transcripts for dropouts and alternative completers was impeded in some cases by the frequency with which sample members transferred schools or dropped in and out of school, and inaccurate school records. Dropouts occasionally were enrolled in a school for too brief a period to accumulate a coursetaking record. Consequently, there is often little or no record of their destination school. However, the strategy of beginning by collecting transcripts from the school of origin (base-year school) maximizes the number of 2004 dropouts for whom there are at least complete 9th and 10th grade (fall 2000 to spring 2002) records.

#### **4.2.3.3 High School Transcripts of Transfer Students**

In addition to collecting data from base-year schools, transcript data were collected from the transfer schools of students who left their base-year high school. Transfer students were identified at several points in the ELS:2002 data collection process. These time periods included enrollment status update contacts in spring 2003, fall 2003, and spring 2004, as well as the first follow-up data collection in spring 2004.

#### **4.2.3.4 Obtaining Permission for Collecting High School Transcripts**

Because the Department of Education, under the Family Educational Rights and Privacy Act, has the right to obtain transcripts without prior consent for evaluation purposes, and because RTI informed parents, students, and school personnel of the transcript data collection as part of base-year and first follow-up data collection/consent activities, the first approach to collecting transcripts was a direct mail request to each school. When RTI contacted schools to prompt for return of the transcripts and answer any questions, it was also noted whether the schools had additional consent requirements before they would release student transcripts. Approximately 100 schools requested explicit consent. For sample members who attended these schools, RTI sent a letter and form to the students and their parent/guardian informing them that a signed consent form was required in order for the school to release the transcript to RTI. The consent letters explained that a parent's signature was required if the sample member was under age 18 and a sample member's signature was required for students 18 years of age or older.

After explicit consent forms granting permission to release the transcript were received, a second set of data collection materials was sent to each school requiring consent, including a list of students for whom signed consent was received and photocopies of the signed consent forms.

#### **4.2.3.5 Course Catalog Data Collection**

RTI began collecting course catalogs in the 2001–02 school year as part of base-year data collection activities and continued in the 2003–04 school year as part of first follow-up data collection activities. Course catalogs were requested for four school years covering 2000–04 from base-year schools and for two school years, 2002–03 and 2003–04, from transfer schools. In the first follow-up, course catalogs were requested from both base-year and transfer schools, for use in coding transcripts. However, only information for base-year schools appears on the course offering file. During the transcript request activities, schools were prompted for catalogs that had not yet been collected. If a school did not have a conventional catalog, then a course list, master teaching schedule, or any other form of information from which course offerings could be extracted was accepted. The course offerings response rate for base-year schools (the basis for the course offerings file) was 88 percent.

#### **4.2.3.6 Definition of a Transcript Respondent**

A sample member was considered a respondent in the ELS:2002 transcript data file if the following criteria were met:

- The sample member had at least one transcript sent from one school.
- The sample member had at least one complete course record for at least one grade (9th, 10th, 11th, or 12th).

### **4.3 Second Follow-up Data Collection Methods and Results**

This section describes the data collection procedures and presents the data collection results for the ELS:2002 second follow-up survey. Section 4.3.1 details the data collection activities and procedures followed, including sample maintenance, tracing, respondent incentives, survey modes, and refusal conversion. Section 4.3.2 presents and discusses data collection outcomes and data quality indicators, including overall response rates, response rates across modes, response rates among key subgroups, interviewing effort, interview timing data, and quality assessment monitoring results.

#### **4.3.1 Data Collection Activities and Procedures**

This section describes the data collection activities and procedures followed in conducting the ELS:2002 second follow-up in 2006. The section is divided into five primary topics: pre-data collection tracing and sample maintenance activities, use of incentives, overview of data collection modes, intensive tracing efforts, and refusal conversion procedures. Procedures and activities under these five topics are described in this section, while the pertinent results and outcomes are presented in section 4.3.2. Maintaining data security is a requirement that pervades all tasks, including, of course, data collection. It is discussed in conjunction with the related topic of confidentiality protections associated with treatment of the analytic data in chapter 6, section 6.6.

Data collection for the 2006 round was significantly redesigned to include survey modes and procedures that were completely independent of the in-school orientation of the first follow-up survey. Almost all of the young adults in the 2006 sample transitioned from high school to postsecondary education, the workforce, or the military between the first and second follow-up data collection periods. The 2006 data collection procedures focused on two critical elements for

reaching and enlisting these sample members: tracing and sample maintenance activities and multiple modes of data collection (web self-administration, in-person or telephone computer-assisted interviewer administration). The tracing and sample maintenance activities involved a variety of techniques to maintain current contact information for sample members and continue their identification with ELS:2002 for the second follow-up round. Offering multiple modes of data collection maximized the opportunity for sample members to participate in the ELS:2002 second follow-up. Combined, these two important features of the 2006 round of data collection plan were designed to include a very high percentage of this mobile population in the survey. In addition to drawing on experiences from conducting the second follow-up field test data collection, the second follow-up procedures drew on the experiences of other education surveys with similar populations, including Baccalaureate and Beyond 2003 (B&B:03), the National Postsecondary Student Aid Study of 2004 (NPSAS:04), and the 2004/2006 Beginning Postsecondary Students Longitudinal Study (BPS:04/06).

In addition, key characteristics of second follow-up sample members were considered in developing plans to achieve a high response rate. While the overwhelming majority of F2 sample members participated in both the base-year (BY) and F1 waves, 14 percent participated in only one of the previous two rounds. The data collection procedures anticipated that those who did not participate in 2004 would likely be especially difficult to include 2 years later. Furthermore, the sample included high school dropouts, who proved more difficult to locate and include in the 2004 data collection. As a result, second follow-up data collection procedures included features to help maximize participation among these special subpopulations in the sample.

#### **4.3.1.1 Pre-Data Collection Tracing and Sample Maintenance Activities**

An important aspect of the ELS:2002 second follow-up (2006) data collection was that high schools were no longer involved in providing assistance with locating sample members. High schools had played a central role in facilitating contacts and interviews with participants in both the BY and F1 rounds. In addition, as the young adults in the sample transitioned from high school to different educational and work pursuits they moved away from their previous homes. For this reason, a more extensive set of tracing and sampling maintenance techniques was warranted for the second follow-up, including the following:

- batch tracing services for updated address information and telephone numbers;
- updated locating information obtained from student federal financial aid applications (FAFSA);
- direct contact with sample members and their parents via mail, telephone, or Internet;
- intensive tracing efforts by centralized tracing specialists;
- intensive tracing efforts by field locating specialists in local areas; and
- tracing students through postsecondary schools applied to or attended, as specified in the 2004 interview.

Another important tool in this process was to continually build on the positive relations ELS:2002 staff have established and maintained with sample members. All contacts with sample members were designed to maintain cordial and respectful relations with the young adults in the sample and their parents. This section describes the pre-data collection tracing and sample

maintenance activities implemented prior to the start of 2006 data collection. Section 4.3.1.4 describes intensive tracing activities conducted during the second follow-up data collection period. For reference, table 35 outlines the complete schedule of all tracing and sample maintenance activities for the 2006 sample.

**Table 35. Tracing and sample maintenance activities for the ELS:2002 sample: 2004–08**

Date	Activity
December 2004	NCOA and Telematch batch tracing of sample members and parents
October 2005	NCOA, Telematch, and CPS batch tracing of sample members and NCOA and Telematch batch tracing of parents
November 2005	Direct mailing to sample members/parents with toll-free line, e-mail, and website request to update contact information
January 2006	Pre-data collection intensive tracing of sample members without valid current contact information
February–September 2006	Intensive centralized tracing and field locating during F2 data collection
April 2007	NCOA, Telematch, and CPS batch tracing of sample members and NCOA and Telematch batch tracing of parents
April 2007	Direct mailing to sample members/parents with toll-free line, e-mail, and website response to update contact information
April 2008	NCOA, Telematch, and CPS batch tracing of sample members and NCOA and Telematch batch tracing of parents
April 2008	Direct mailing to sample members/parents with toll-free line, e-mail, and website response to update contact information

NOTE: NCOA = National Change of Address. CPS = Central Processing System, Free Application for Federal Student Aid (FAFSA), U.S. Department of Education federal educational loan application database.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

*Batch tracing activities.* Pre-data collection tracing and sample maintenance efforts for the 2006 sample began in December 2004 with the updating of sample members' contact information through batch tracing services. (To minimize costs, the full-scale sample was combined with the field test sample in these activities.) Batch tracing represents a cost-effective method of updating addresses and telephone numbers for the young adults in the sample and their parents. Two batch tracing services, National Change of Address (NCOA) and Telematch, were used to update the address and telephone information sample members provided in previous rounds. NCOA is a database consisting of change of address information submitted to the U.S. Postal Service. Matching ELS:2002 sample members' addresses against the NCOA database was useful for providing address updates, especially for those sample members who had recently moved. The Telematch service involves a database of over 130 million residential listings, including over 3 million unlisted numbers that have recently been assigned. Telematch was used to confirm or update the telephone number for each sample member matched to their most current known address. These two services are most effective when used in this sequence, because the updated addresses from NCOA can be matched to sample members' updated telephone numbers, when applicable. A total of about 16,400<sup>53</sup> second follow-up cases were submitted to these batch tracing services in December 2004. All information returned from these batch tracing services was then updated in the sample locator database.

<sup>53</sup> Readers are reminded that second follow-up sample sizes for subgroups are approximate. There is no public-use data file for the second follow-up. Exact sample sizes from restricted-use data files cannot be published unless the data are perturbed in some way. The perturbation approach taken here was to round the exact sample sizes of cells to tens (if less than four digits) or hundreds (if four or five digits). This convention has been followed even for methodological tables containing information excluded from the ECB.

The next set of tracing and sample maintenance activities for 2006 sample members began in October 2005. At this point, three batch tracing services were used to update sample member contact information—NCOA, Telematch, and the U.S. Department of Education’s Central Processing System (CPS) for federal financial aid applications. The CPS search was added to confirm or update contact information for those sample members who had submitted the FAFSA for one or more postsecondary institutions. The CPS database was another useful source of information for locating a significant number of sample members, because 74 percent of 2006 sample members had attended postsecondary schooling and an estimated 70 percent of these attendees completed a FAFSA.

A total of approximately 16,200 second follow-up sample members had sufficient information to send to NCOA and Telematch. Table 36, table 37, and table 38 provide the results for NCOA, Telematch, and CPS batch tracing, respectively. First, the NCOA database provided new address information for 2,300 sample members (14 percent). Approximately 210 cases (1 percent) were identified as no longer valid, but no new information was available. The most common result of this tracing service was reflected in the 13,800 cases for which no match was obtained in the NCOA database. This result could indicate that either these cases had current address information that had not recently changed or that they simply were not included in the NCOA database. Additionally, about 70 second follow-up sample members did not have sufficient current address information to be included in the NCOA batch tracing. Another 50 sample members had a finalized status such as final refusal or ineligible.

Once new information from the results of the NCOA batch tracing were updated in the locator database, about 16,300 cases were submitted to the Telematch batch service. Among these sample members, about 9,000 (56 percent) did not have a matching record in the Telematch database. Of the remaining 46 percent of cases, the majority (42 percent) resulted in confirmation of the telephone number on record. The other 500 cases (3 percent) did produce a match to a new telephone number.

The final step in this sequence of batch tracing was to match the contact information for sample members against the U.S. Department of Education’s CPS FAFSA application database. Because this process included both address and telephone information, the results were somewhat more complicated than the NCOA and Telematch services. For about 3,700 sample members (23 percent), the existing contact information was confirmed in the CPS database. New information was obtained for 1,300 sample members (8 percent), which were nearly evenly divided among new address information only, new telephone number only, and both new address and telephone, as indicated in table 38. A total of about 7,200 cases (44 percent) sent for CPS matching produced no match in the database. The remaining approximately 4,100 cases did not have valid Social Security numbers and therefore could not be matched against the CPS database.

In anticipation of potentially contacting sample members’ parents as part of 2006 data collection, address and telephone information was also sent to NCOA and Telematch for one “primary” parent of 16,000 sample members. The “primary” parent was selected by prioritizing all parents identified in prior rounds of ELS:2002 by their relation to the sample member, starting with mother. The remaining 320 sample members did not have sufficient information for one or more parents to be included in this batch tracing activity. Once again, the updated contact information obtained through these batch tracing activities was then used to update the second follow-up sample locator database in preparation for future contacts.



**Table 36. NCOA batch tracing results for second follow-up sample members: 2006**

Tracing outcome	Number of cases	Percent of cases
Total cases	16,400	100.0
Bad address—new information obtained	2,300	13.9
Bad address—no new information obtained	210	1.3
No match found in database	13,800	84.4
Insufficient address information to be included in batch	70	0.4
Finalized status of refusal or ineligible	50	0.3

NOTE: Detail may not sum to totals because of rounding. Case numbers have been rounded to tens or hundreds. NCOA = National Change of Address.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

**Table 37. Telematch batch tracing results for second follow-up sample members: 2006**

Tracing outcome	Number of cases	Percent of cases
Total cases	16,400	100.0
Obtained new telephone number	500	3.0
Confirmed telephone number	6,800	41.5
No match found in database	9,000	55.5
Finalized status of refusal or ineligible	50	0.3

NOTE: Detail may not sum to totals because of rounding. Case numbers have been rounded to tens or hundreds.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

**Table 38. CPS batch tracing results for second follow-up sample members: 2006**

Tracing outcome	Number of cases	Percent of cases
Total cases	16,400	100.0
New address and new phone number obtained	550	3.4
New address obtained	400	2.5
New phone number obtained	350	2.2
Confirmed existing address and phone number	3,700	22.6
No match found in database	7,200	44.1
Insufficient address information to be included in batch	4,100	25.4
Finalized status of refusal or ineligible	50	0.3

NOTE: Detail may not sum to totals because of rounding. Case numbers have been rounded to tens or hundreds. CPS = Central Processing System, U.S. Department of Education, Federal Loan Application Database.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

*Sample maintenance contacts.* In addition to maintaining current contact information for ELS:2002 second follow-up (2006) sample members and their parents, batch tracing efforts were also important preparation for direct contact with sample members and their parents. Periodic contacts with sample members and their parents maximized sample members' connection to ELS:2002 over the duration of the study. Direct mailings to sample members and their parents provided an opportunity to thank sample members for their continued participation in ELS:2002, inform them about the next steps in the research, and request that they review and update their contact information currently on record.

Between the F1 and F2 survey rounds, a direct mailing to sample members and their parents was sent in November 2005. A total of approximately 16,300 sample members and at

least one of their parents had sufficient address information for sending this packet. Of these, about 360 sample member packets (2 percent) and 770 parent packets (5 percent) were returned with no forwarding address information available. Another 670 sample member packets (4 percent) and 310 parent packets (2 percent) did return forwarding address information so that these packets could be remailed.

This mailing included a cover letter thanking sample members or parents for their continued participation, notifying them of the next round of data collection, and requesting that they update their contact information in anticipation of data collection. The packet also included a contact information form for sample members or parents to provide updated name, address, telephone, and e-mail information. Separate letters and forms were sent to sample members and parents to appropriately present and capture the contact information. The most current information for sample members and their parents was preprinted on the contact information forms, so that respondents could easily indicate any corrections to this information. The forms provided spaces for both permanent and current contact information, which was useful for sample members who were away at school or in the military, but still considered their parents' home address as their permanent address. Sample members and parents were provided with instructions on the form to either confirm or correct their contact information.

To respond to the sample maintenance mailing, sample members or their parents were able to update their contact information in one of four ways:

1. Completing and returning the hardcopy contact information form in the return envelope provided.
2. Updating the contact information via the ELS:2002 website, which provided a link ("Update your Contact Information") to online forms similar to the paper contact information forms.
3. E-mailing updated information to the dedicated ELS:2002 e-mail address.
4. Providing updated information by calling the dedicated ELS:2002 toll-free line.

This sample maintenance activity was useful for both maintaining contact with sample members and obtaining updated information from those who had recently relocated to attend college, take a job, or serve in the military. In addition, because letters were sent to parents as well, a number of parents either returned the contact information forms, logged on to the website, or called the toll-free number to update their child's information.

Like most sample maintenance activities of this kind, overall response to the November 2005 mailing to sample members was limited. Overall, about 1,620 sample members (10 percent) and about 1,850 parents (11 percent) returned the hardcopy contact information forms. The slightly greater response from parents is consistent with prior rounds of ELS:2002, where parents were consistently helpful sources of information about their children. Additionally, approximately 940 sample members or their parents updated their contact information using the study website, for an overall total of about 4,400 updates. Of the 940 updates entered via the website, about 160 were completed prior to the start of data collection on January 25, 2006, and 780 were completed once data collection began. Only a small number of those who responded to the sample maintenance mailing used e-mail or voicemail messages. The web option may have served to increase the overall response to the sample maintenance mailing by providing a mode with which sample members would be comfortable. This outcome cannot be directly assessed,

however, because use of the website may have simply substituted for returning the contact information forms among responding sample members.

*Pre-data collection intensive tracing.* The batch tracing activities and sample maintenance mailing conducted in November–December 2005 identified a set of 90 second follow-up sample members for whom no current contact information was available. These cases were sent to the centralized Tracing Operations Unit (TOPS), a part of RTI’s Call Center Services, for intensive tracing. Among these cases, tracing specialists obtained new information for 40 cases (48 percent). This new information was then used to update the 2006 sample locator database for these cases. One additional case was identified as being out of scope for the 2006 data collection through tracing efforts. For the remaining 40 cases (51 percent), TOPS was unsuccessful in obtaining any updated contact information. These cases were among the first to undergo further intensive tracing efforts during the data collection period.

#### 4.3.1.2 Use of Incentives

Incentive payments to respondents was one feature of the data collection plan for the ELS:2002 2006 study. Even following the best survey practices, collecting data from some respondent populations is difficult and expensive, making it almost impossible to obtain desired response rates without incentives. The results of the 2003 field test experiments and the success of the 2004 round of data collection provided evidence of the value of respondent incentives in achieving high response rates (see Ingels et al. 2005b, appendix J). A number of important factors were considered in developing and implementing the incentive plan:

- Almost all first follow-up sample members received an incentive, including both those who participated in school and those who participated outside of school. Paying incentives to almost all first follow-up participants raised the expectation among the sample cohort that they would receive payment again for participating in the 2006 round.
- Between the F1 and F2 surveys, the ELS:2002 sample cohort became further dispersed. In both the 2004 main study and second follow-up field test (2005) providing incentives was effective in making contact with sample members who were difficult to reach.
- Offering incentive payments can actually reduce data collection costs by limiting the effort required to pursue sample members who are difficult to locate or those who are initially unwilling to participate. Significant cost savings are gained by reduced computer-assisted telephone interview (CATI) and computer-assisted personal interview (CAPI) follow-up efforts, including repeated contacting attempts, refusal conversion calls, and field interviewer travel.
- Although cell sizes for important analytic subgroups were satisfactory after the success of the 2004 data collection, significant attrition among these subgroups was a threat to the analytic value of the second follow-up. The two most important subgroups that were offered higher incentives in the first and second follow-ups were high school dropouts and prior-wave nonrespondents. Paying differential incentives to both dropouts and first follow-up nonrespondents in 2006 was designed to ensure sufficient inclusion of these important subgroups.

The second follow-up incentive plan was designed to maximize respondent participation by meeting their expectations of compensation for their time and efforts, helping to locate widely dispersed sample members, and offering greater incentives to particular subgroups with limited representation in the sample. In addition, the incentive plan was generally similar to the 2004 plan and also incorporated elements of similar education studies, including NPSAS:04 and the BPS longitudinal study. In this way, the 2006 plan was as consistent as possible with both the prior round of ELS:2002 and other current education surveys of the young adult population.

The 2006 incentive plan was designed to address five key features of survey context:

1. First follow-up participation status—F1 respondent or F1 nonrespondent.
2. High school dropout status—identified in F1 as ever having dropped out or not.
3. Timing of participation—during the first 4 weeks of data collection or beyond this period.
4. Difficulty in contacting or enlisting cooperation with the sample member—meeting the criteria for difficult cases or not.
5. Partial prepayment of the incentive for sample members who had not participated after all other incentive conditions had been exhausted—completed prior to the final 8 weeks or beyond this period.

The first four of these five elements were approved by the U.S. Office of Management and Budget (OMB) and established prior to the start of the data collection period. The fifth element was implemented as a contingency during data collection based on discussions with and approval from OMB.

Because multiple criteria applied to many sample members, the incentive plan elements were combined to determine the appropriate payment level at each point of the study. In order to ensure that survey notification materials and interviewer statements matched respondents' expectations on how much they would be paid at each point in the data collection period, consistency was maintained across all points of contact with respondents regarding the amount of their incentive payments. This consistency was achieved initially and maintained throughout the study by using the same predetermined variables—dropout status, F1 participation status, difficult case status, and current date—in all study materials and computer programs to indicate the appropriate incentive amount. Materials included mailed letters and instructions and e-mail messages. Computer programs included web/CATI/CAPI scripts and instruments as well as the sample database. The same procedures followed in the 2006 round to ensure consistency had been used effectively in the 2004 data collection.

Table 39 summarizes the specific elements of the 2006 incentive plan. The regular or “base” incentive amount for all ELS:2002 sample members who had never been identified as dropouts and had participated in the F1 data collection was \$20. For those sample members who participated in the base-year study but did not participate in 2004, the regular incentive was higher at \$40. Likewise, those who had ever been identified as dropouts through the 2004 round were offered \$40 as a base incentive.

**Table 39. Second follow-up full scale respondent incentive plan: 2006**

Respondent type	Regular incentive	Early completion	Difficult case	Final difficult (\$10 prepaid)
F1 nonrespondent	\$40	\$50	\$50	\$60
Ever dropout	40	50	50	60
F1 respondent, nondropout	20	30	30	40

NOTE: F1 = First follow-up.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

In order to encourage sample members to participate early in the data collection period, either through web self-administration or by calling the toll-free number to complete a CATI interview, those who completed the survey (by either mode) prior to the start of outbound CATI calling were paid an additional \$10 on top of the regular incentive. The early incentive period ran from the opening day of data collection on January 25, 2006, through February 19, 2006, when outbound calling began. This element was designed to offer the most responsive sample members a bonus for participating prior to when more intensive data collection procedures were implemented.

A further addition to the incentive payment plan was to offer an additional \$10 over the regular amount to those sample members who proved extremely difficult to contact or enlist in the study during the course of the 2006 data collection period. This increase was implemented independently of each sample member's high school completion status or F1 participation status. The criteria for the "difficult" status increase included the following:

- more than 20 calls were made to contact the sample member without completing an interview;
- sample member refused to participate during an initial contact;
- others refused multiple times on behalf of the sample member;
- sample member could not be located through any of the telephone numbers previously provided, so the case was submitted for intensive tracing;
- case was sent to a field interviewer for tracing; or
- sample member had still not completed the interview as of June 15, 2006.

Once a case met one (or more) of these criteria, all computer programs and databases were updated with the higher incentive amount.

The preceding elements of the respondent incentive plan were all implemented at the beginning of the 2006 data collection period. On July 6, 2006, one final revision to the incentive plan was implemented for the final 8 weeks (or about 2 months) of data collection. All sample members who had not yet completed the survey were sent an express mail package with an additional \$10 check as a prepayment of the full incentive amount. The remainder of the incentive was payable upon completion of the survey. If mailed packages did not reach the intended sample members and at least one alternative address was available in the sample members' records, data collection staff mailed the \$10 prepaid check to these sample members. The purpose of the prepaid incentive was to assure remaining sample members that NCES and RTI were serious about obtaining their participation in the survey and compensating them for completing the survey. A total of 3,200 packages with the prepaid incentive check were mailed.

Another 10 sample members who had not yet completed the F2 interview did not have a current, valid address to be included in this mailing.

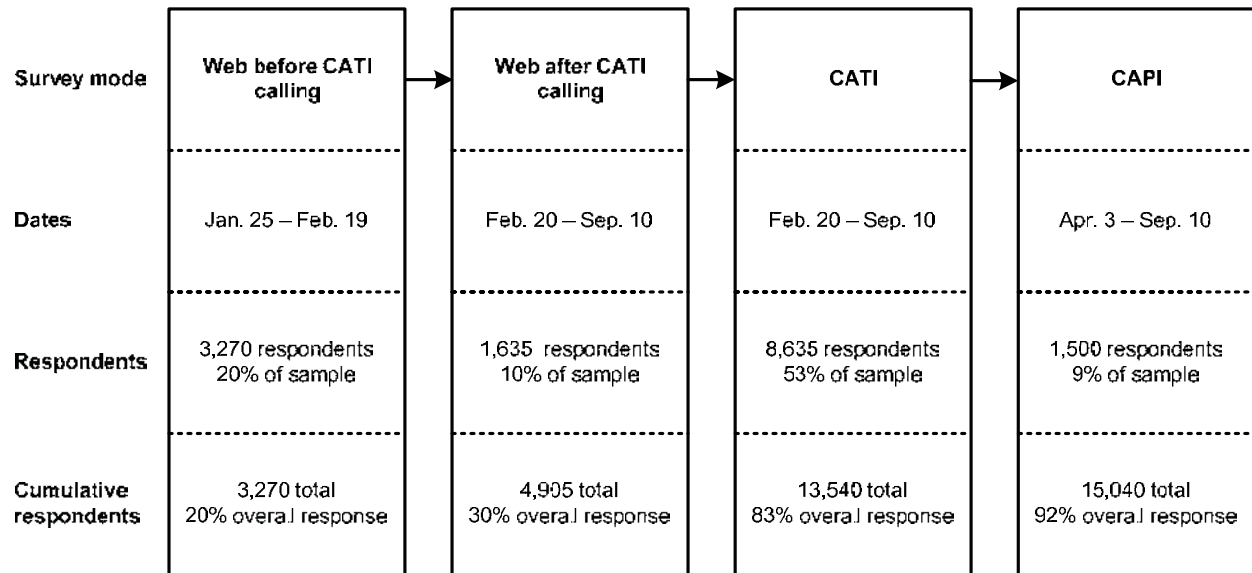
Throughout the 2006 data collection period, all incentive payments were provided in the form of checks. The data file for incentive payments was created at the beginning of each week and the incentive checks and thank you letters were mailed to participants at the address indicated during the last section of the interview. Because address information was occasionally incomplete or inaccurate, data collection staff investigated returned incentive checks to find an accurate mailing address so that these checks could be remailed. Subsequent sections present the counts and percentages for each type of incentive payment paid over the course of the 2006 data collection.

#### **4.3.1.3 Overview of Data Collection Modes—Web, CATI, and CAPI**

Multiple modes of data collection was a second important feature of the 2006 data collection. Figure 3 outlines the data collection schedule and targets for each survey mode—web computerized self-administered questionnaire (web CSAQ), CATI, and CAPI. Offering 2006 sample members web, CATI, and CAPI modes provided three viable, complementary modes for gaining cooperation. Providing these multiple modes also eliminated having to devise and administer a hardcopy version of the survey instrument. Because it would have been nearly impossible to anticipate the appropriate set of questions for each individual sample member, hardcopy questionnaires would have likely placed an undue burden on respondents to correctly navigate through the instrument. Furthermore, hardcopy questionnaires would not be directly comparable to the computer-assisted versions, as a number of 2006 survey items relied on computer logic, preloaded data, and help features that would not have been available in hardcopy format.

Offering sample members the self-administered web-based survey option in addition to CATI and CAPI survey modes was a major advance in the 2006 data collection. Web self-administration was viewed as a viable data collection mode based on data that the 19- and 20-year-olds who comprised the sample would have relatively high rates of Internet access and usage. In the second follow-up field test, nearly 28 percent of sample members participated via the Web. For 2006 data collection, the expectation was that appropriate procedures to facilitate and encourage participation via the ELS:2002 website would result in about 30 percent of sample members completing via web self-administration mode. The web-based mode was expected to make a substantial contribution to overall response to the 2006 data collection and, at the same time, conserve survey resources for CATI and CAPI follow-up with remaining sample members.

**Figure 3. Data collection flow across survey mode for the second follow-up full scale study: 2006**



NOTE: CATI = computer-assisted telephone interview; CAPI = computer-assisted personal interview.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

Data collection in 2006 began as scheduled on January 25, 2006. For the first 4 weeks, only web and call-in data collection was made available to sample members. To notify sample members about the start of data collection, all sample members and parent(s) were sent a packet that included the following:

- a cover letter explaining the goals of the ELS:2002 study;
- directions for accessing the ELS:2002 website;
- instructions for completing the interview on the Web or calling in to complete by phone;
- a unique user identification and password for each sample member to access the web interview (this was only included in the sample member letter);
- a toll-free help desk phone number to call for assistance with web self-administration or completing the interview by phone;
- a toll-free number and e-mail address for any general questions about the ELS:2002 second follow-up; and
- an informational brochure describing the ELS:2002 study.

To communicate the importance of each sample member's participation, the lead letter was sent on Department of Education letterhead and signed by the NCES project officer for ELS:2002.

At the start of data collection (January 2006) a total of 16,100 lead letter packets were sent to sample members and 15,800 to parents of sample members. Packets were not mailed to cases if no usable address existed or if a finalized status had been determined as a result of pre-data collection contacts with sample members or parents. Among those mailed, 350 sample

member packets and 130 parent packets were remailed with updated contact information returned from the original mailing. Another 270 sample members' packets and 490 parent packets were returned without forwarding address information. In addition to informing most sample members and parents about the start of data collection, the lead letter mailing identified a small set of cases for whom some or all existing contact information was no longer valid. Most of these cases had limited contact information in the database and the address used for the lead letter mailing proved to be no longer valid.

*Web self-administration.* Offering sample members the option of completing a self-administered interview via the ELS:2002 website was a major enhancement to second follow-up data collection. The web-based survey mode provided several important advantages in collecting data from the population of young adults who were included in the 2006 sample:

- A high percentage of sample members would be familiar with using the Web, and many were likely to have already completed other web surveys.
- Sample members could complete the web interview at any location where they had Internet access, which was convenient for young adults who are generally active and mobile.
- Sample members could complete the web interview at any time that was convenient for them, which was particularly advantageous for those who were busy with work or school in the afternoon and evening hours.
- Web self-administration allowed respondents to complete the interview at their own pace, which is attractive both to those who can move quickly through the instrument and those who need to take more time.
- Sample members who preferred not to discuss certain aspects of their high school experiences since the last interview could achieve greater privacy through using web self-administration.
- Because a web-enabled survey system was used to program the 2006 instrument, the web self-administered interview could be presented in a way that was virtually indistinguishable from CATI and CAPI modes.
- The web data collection mode was relatively cost-effective because it required a small support staff compared to the larger interviewing staffs required for CATI and CAPI data collection.
- Like CATI and CAPI interviews, web surveys provided faster access to data files than hardcopy questionnaires would have allowed, so this mode facilitated more timely review of survey data early during the fielding period.

A key assumption in implementing a web self-administration mode for the second follow-up was that a high percentage of sample members would have access to the Internet and be familiar with using web-based applications. Experience in the second follow-up field test indicated that the majority of ELS sample members had access to and familiarity with using the Internet. As a result, we expected a majority of second follow-up sample members to be comfortable using the Internet. Based on assumptions about sample members' access to and use of the Web, a total of 30 percent of sample members, or 4,900, were projected to complete the survey via web self-administration (see figure 3). It was expected that two-thirds of web



responders, or 20 percent of the sample, would respond during the early completion period when the early completion incentive was in effect. Another 10 percent of the sample was expected to complete web self-administration during the remainder of the data collection period.

*Web data collection procedures.* To facilitate web self-administration, a secure, dedicated ELS:2002 website was hosted on the NCES server. The ELS:2002 website could be used by sample members both to complete the survey and also to gain more information about the study. Respondents simply logged onto the website, clicked on a link labeled “Login to the Interview,” and then entered the study identification number and assigned password to begin the interview. A “Frequently Asked Questions” (“FAQs”) link also provided information about the study procedures and instructions for completing the web interview, so that respondents could obtain immediate help with any survey completion issues. Additional background information was also provided via the link “About ELS:2002.” Through the course of the study, information on the website was added or revised to communicate any updates on data collection procedures and study timeline to sample members.

The primary strategy for conducting successful web-based data collection was to make self-administration as easy as possible for second follow-up sample members when they went to the website. To avoid technical problems, the web-enabled survey system was designed to function appropriately in a wide range of computing environments, including different web browsers, different Internet connections, and different computer settings. The login procedures were fairly simple and clearly explained in the lead letter mailing to sample members. Each screen of the instrument was designed so that the response task was clear. Special instructions were available at the click of a button to guide respondents through potentially problematic screens or to provide definitions of technical terms used in items. Although web help desk staff were available to assist respondents who had difficulties starting or completing the interview, development and testing of the web interview were designed to minimize these situations. When needed, web help desk staff were available through the toll-free ELS:2002 telephone line to provide technical assistance to respondents with computer, Internet, or survey issues.

All second follow-up sample members were initially treated as potential web respondents in the 2006 case management system (CMS). When sample members completed the web survey, this information was transmitted to the CMS. Once this information was captured in the CMS, further data collection contacts to these sample members was discontinued and the address information provided by participants was used to mail incentive checks. As detailed in section 4.3.1.2, the most responsive sample members who completed the web interview (or called in to complete a CATI interview) during the first 4 weeks were offered an early completion bonus. The expectation was that web response would be quite high during the first 4 weeks of data collection as a result of the higher incentive, and then taper off significantly in the ensuing weeks. Web self-administration was available to sample members throughout the entire 2006 data collection period. The web mode was therefore supported and encouraged over the course of data collection by CATI and CAPI interviewing staff and direct reminder contacts. Section 4.3.2.1 presents the results for web self-administration.

*Web help desk staffing, training, and procedures.* Even though the web-based survey protocol and instrument were designed to be easily completed, web help desk staff were hired and trained so that they would be available to assist sample members in completing the web interview. Initial training for help desk staff involved 20 hours total from January 20 through January 22, 2006. During or following training, all web help desk staff were required to

successfully complete certification requirements for both help-desk procedures and CATI interviewing. Help desk staff were trained to support web self-administration, call selected sample members to encourage early participation, and contact and interview sample members once outbound CATI interviewing began. Newly hired staff also had to complete basic RTI interviewer training prior to ELS:2002 web help desk training.

The goal of the web help desk training program was to provide staff with the opportunity to familiarize themselves with the study goals, the specific procedures, and the survey instrument, as well as the technical requirements and procedures for web self-administration. Key information on the purpose and goals of ELS:2002 and specific help desk and interviewing procedures were compiled in a manual for help desk staff to reference. All help desk staff were trained on how to address common issues or concerns of web respondents, both procedural and technical. The training provided help desk staff with technical information about web-based data collection so that they would be able to address respondents' technical questions. Technical information was summarized in an appendix to the web help desk/CATI interviewing manual provided to all help desk staff. This appendix could then be used by help desk staff to diagnose and resolve technical problems. All training topics were reinforced by group discussion and interaction, trainer demonstrations, and class practice sessions. Role-playing and individual practice were also important elements of the training. At the end of training, web help desk staff were certified for 2006 data collection by completing tests, exercises, and practice, including the following:

- homework exercise on knowledge of the ELS:2002 study;
- verbal test on responding to frequently asked questions from sample members;
- verbal test on pronouncing key terms featured in the interview;
- two complete practice interviews;
- exercise on handling different help desk scenarios;
- coding exercise for postsecondary fields of study, postsecondary institutions, and occupations; and
- coding exercise on case outcomes from inbound and outbound calls.

Completing these activities ensured that web help desk staff were well prepared to assist sample members to complete the web self-interview, administer CATI interviews using best practices, and persuade sample members to finish either the web or CATI interview.

Once data collection began on January 25, 2006, help desk staff were available to take incoming calls and respond to e-mails from sample members 7 days a week. Help desk hours were Monday through Thursday from 9 a.m. to 11 p.m. Eastern time, Friday from 9 a.m. to 9 p.m. Eastern time, Saturday from 10 a.m. to 6 p.m. Eastern time, and Sunday from 1:30 p.m. to 10:30 p.m. Eastern time. Help desk staff monitored the toll-free call-in line for calls and voice mail messages from sample members. Each morning, help desk staff checked the ELS:2002 voice mailbox for messages left by sample members after operating hours. E-mail messages were handled similarly. Help desk staff regularly checked the inbox for e-mail messages from sample members during operating hours and checked each morning for e-mails sent after operating hours. Help desk staff primarily communicated with sample members by telephone, but also responded to e-mails as appropriate. Communication with sample members was predominantly

in English, but the help desk staff included a sufficient number of bilingual interviewers to communicate with sample members (or parents) in Spanish, as necessary.

*Additional web data collection activities.* Beyond offering an early completion incentive to second follow-up sample members who completed the interview during the first 4 weeks of data collection, a number of additional follow-up activities were undertaken to encourage web participation in both the early completion period and beyond. During the early completion period, help desk staff conducted prompting calls to F1 nonrespondents in the sample to encourage them to participate. Because prior-round nonrespondents were likely to be difficult to contact, the prompting calls were intended to inform these sample members about the start of data collection and motivate them to participate early, either by web self-administration or CATI interviews. A secondary purpose of the prompting calls was to identify sample members who are unable or unwilling to complete the survey by web, so that help desk staff could offer to complete a CATI. Prompting calls for this subsample began on February 7, 2006, or just under 2 weeks after the start of data collection. The prompting protocol included up to three calls to F1 nonrespondents in the sample or until the interview was completed. Help desk staff communicated a brief statement on the purpose of the call to live respondents or on answering machine messages.

A second set of prompting activities begun during the early completion period was periodic mail and e-mail reminders to sample members who had not yet participated in the 2006 round. The first e-mail reminder was sent on February 3, 2006, about 10 days after the start of data collection. A first reminder letter was sent to sample members only several days later on February 8. Two additional e-mail reminders sent during the early completion period were an e-mail to parents on February 10 and an e-mail to sample members on February 15. The February 15 e-mail included a reminder to sample members that only a few days remained in the early bonus period. Additional e-mail and mail reminders were sent to remaining sample members throughout data collection. While these reminders were intended to encourage sample members to participate by any mode available at that time, reminder e-mails generally produced a spike in web self-administration over the next few days following each reminder. Table 40 lists all of the reminder e-mail messages and mailed letters sent to sample members throughout the course of data collection. These reminders were designed to promote sample member interest by varying the approach and focus of each message. For example, the July 6 reminder letter and July 7 e-mail message to sample members and the July 7 e-mail message to parents were used to inform sample members and their parents of the \$10 prepaid incentive sent to them. Later e-mail messages in August and September emphasized the limited time remaining to participate. In addition, e-mails reminders were only sent to sample members who had not previously refused to participate. The e-mails and letters were also spread out sufficiently over the course of the data collection period so that sample members and parents had sufficient time to respond and did not feel inundated with contact attempts.

**Table 40. E-mail reminder messages and mailed letter reminders to sample members and parents: 2006**

Sample members	Parents of sample members
February 3—First reminder e-mail	February 10—First reminder e-mail
February 8—First reminder letter	March 23—Second reminder e-mail
February 15—Second reminder e-mail	April 14—Third reminder e-mail
March 10—Third reminder e-mail	May 18—Fourth reminder e-mail
March 31—Fourth reminder e-mail	June 22—Fifth reminder e-mail
April 28—Fifth reminder e-mail	July 7—Sixth reminder e-mail
June 9—Sixth reminder e-mail	July 20—Seventh reminder e-mail
June 30—Seventh reminder e-mail	August 10—Eighth reminder e-mail
June 30—First refusal reminder e-mail to sample	August 31—Ninth and final reminder e-mail
July 6—Second reminder letter	
July 7—Eighth reminder e-mail	
July 9—Second refusal reminder e-mail	
July 20—Ninth reminder e-mail	
July 27—Third reminder letter	
August 4—Tenth reminder e-mail	
August 14—Eleventh reminder e-mail	
August 23—Twelfth reminder e-mail	
August 31—Thirteenth reminder e-mail	
September 6—Fourteenth and final reminder e-mail	

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

*CATI data collection.* After the initial 4 weeks in which only web-based self-administration and call-in CATI interviewing were offered to sample members, outbound CATI data collection efforts were necessary to include more sample members in the 2006 round. The primary purpose of CATI data collection was to complete telephone interviews with sample members when contacted, or to set up an appointment to complete the interview. Outbound calls also served as reminders for some sample members who preferred to complete the survey via the Web. In this way, CATI interviewers often acted as proactive web help desk staff by offering assistance to sample members to complete the web survey. For example, CATI interviewers could provide sample members with their user IDs and passwords for logging in to the web survey, if they did not have their lead letter materials. For more technical problems, CATI interviewers who were not trained on help desk activities could quickly connect sample members to trained help desk staff for assistance. Overall, the expectation was that over half of all second follow-up sample members (53 percent) would complete the 2006 survey via CATI mode and another 10 percent would complete the survey via the Web after outbound CATI calling began.

The projections for CATI data collection anticipated completing interviews at a significantly higher rate in the first 3 months versus the last 3 months of the outbound CATI calling period. Still, the distribution was not expected to be as skewed as web data collection, because sample members were offered the incentive bonus to complete the interview prior to outbound CATI calls and CATI participation depended on contacting sample members by telephone at convenient times. Some sample members were easier to reach during the academic year of their postsecondary institutions, others were easier to reach in the summer months, and others were equally reachable (or unreachable) across the entire data collection period. In addition, many sample members were able to participate within the first few telephone contact attempts, while others required multiple callbacks to reach them at a good time to complete the

interview. The training schedule and staffing plan considered these factors to ensure that an appropriate level of resources were available for CATI interviewing over the course of the study. Section 4.3.2.1 presents the results for CATI interviewing.

*CATI data collection procedures.* All second follow-up sample members who had not yet completed web self-administration when outbound CATI data collection began were treated as part of the CATI sample in the CMS and managed via the CATI-CMS. The CATI-CMS facilitated sample management activities that included the following:

- providing sample members' and parents' contact information to interviewers;
- allowing scheduling of appointments to contact sample members at a specific time;
- automatically scheduling callback attempts for unsuccessful call outcomes such as ring-no answer, busy signal, and answering machine;
- appropriately coding sample members who were unable or unwilling to participate via CATI; and
- allowing for recording of relevant notes after each call attempt.

Cases that did not have any valid telephone numbers at the start of data collection were assigned to tracing in CATI-CMS, if they had not already been traced, or held for field tracing and data collection, if prior tracing had been unsuccessful. When sample members completed the web survey or otherwise reached a final status, this information was updated in CATI-CMS so that interviewers would discontinue calling these cases. Notes from each successive call attempt provided a "case history" that could be used by interviewers to make appropriate callback attempts and otherwise develop an effective strategy for reaching each sample member. Overall, CATI-CMS was the primary tool for facilitating efficient sample management for CATI data collection, tracing activities, and potential CAPI activities.

RTI's Call Center was open to receive and initiate calls Monday through Thursday from 9 a.m. to 11 p.m. Eastern time, Friday from 9 a.m. to 9 p.m. Eastern time, Saturday from 10 a.m. to 6 p.m. Eastern time, and Sunday from 1:30 p.m. to 10:30 p.m. Eastern time. Interviewers worked shifts to cover weekday, night, and weekend hours to ensure that both outbound and inbound calls from sample members were covered. Scheduling also ensured that outbound calls could be made at appropriate times across time zones and at times when sample members were likely to be reachable. Extended weekday hours until 12 midnight Monday through Thursday and 11 p.m. Sunday were also implemented during part of the data collection period to reach households in the Mountain and Pacific time zones.

When CATI interviewers contacted sample members, the CATI-CMS script prompted them to confirm the person's identity. The primary confirmation question (in addition to verifying the person's name) asked the sample member if he or she had attended the base year high school at any time in the past 5 years. If sample members did not verify attending the specified high school within the past 5 years, a follow-up question asked the person to provide his or her birthdate. If the birth date given matched, or very nearly matched, the birth date in the ELS:2002 database for the sample member, then the sample member's identity was confirmed. For a few cases, neither confirmation question was affirmed. These cases were identified as "problem" cases and reviewed by data collection staff to determine whether the person truly was not the sample member, or whether the high school and/or birth date in the database were

incorrect. CATI interviews were not completed until the interviewer confirmed the respondent's identity as the sample member. Once the person was confirmed, the interviewer read the informed consent script and then began the interview. All information collected in this part of the protocol was recorded by CATI-CMS for any further telephone contacts with the sample member.

The CATI instrument was virtually identical to the web self-interview. The only difference was that the CATI version provided an interviewer instruction on each screen to facilitate administration of each item. CATI interviewers adhered to standardized interviewing techniques and other best practices in administering the interview. Standardized interviewing procedures included reading questions and instructions exactly as scripted, probing insufficient answers in a nondirective way, recording respondents' answers exactly as given, and maintaining a neutral, nonjudgmental stance toward the substance of respondents' answers. This provided one potential advantage over web self-administration because CATI interviewers were able to provide appropriate guidance and probing whenever respondents were not completely clear on the response task for an item. CATI interviewers also functioned to reduce item nonresponse by ensuring that respondents attended to each question and probing respondents who were uncertain or hesitant about answering a question. All CATI interviewing procedures were conducted within the set of standardized interviewing techniques established prior to data collection and demonstrated in training. This not only ensured that interviewers were following appropriate interviewing procedures, but also minimized mode effects between self-administration and interviewer administration due to inappropriate guidance or feedback to respondents.

*CATI training and staffing.* A key to successful CATI data collection was hiring and training a quality, professional interviewing staff. The staffing plan was derived directly from the expectation for the interviewing hours needed each week to reach the goal for completed CATI interviews. Although all 2006 interviews were conducted in English, the CATI interviewing staff included a sufficient number of bilingual interviewers who could converse with parents or other relatives of sample members who communicate primarily in Spanish.

The CATI training sessions followed a similar agenda as the initial web help desk training in January. The key difference was that CATI trainings only included a basic overview of web help desk operations. This overview ensured that CATI interviewers were familiar with the kinds of technical assistance that the web help desk could provide and when to connect respondents to help desk staff. The reduced time spent on help desk issues in these CATI trainings was used to focus on effective strategies for enlisting cooperation among the young adults in the sample, as this was a central part of CATI interviewers' role in data collection. The enlisting cooperation sessions emphasized that the early stages of a call are most important for establishing trust and understanding among sample members and their parents. Interviewers were trained to effectively answer the common reasons for reluctance to participate. This training included developing a detailed knowledge of the purpose of ELS:2002 and why the participation of all sample members was vital to the success of the study. Small group discussions, refusal avoidance exercises, and other techniques were used to address these training issues. As with the help desk training, key information on the purpose and goals of ELS:2002 and specific interviewing procedures were compiled in a manual for CATI interviewers to reference.

At the completion of training, all telephone interviewers were required to be certified for data collection by successfully completing the tests, exercises, and practice, including the following:

- homework exercise on knowledge of the ELS:2002 study;
- verbal test on responding to frequently asked questions from sample members;
- verbal test on pronouncing key terms featured in the interview;
- two complete practice interviews;
- coding exercise for postsecondary fields of study, postsecondary institutions, and occupations; and
- coding exercise on case outcomes from inbound and outbound calls.

Completing these activities ensured that CATI interviewers were well prepared in both administering the interview using best practices and enlisting cooperation among sample members.

*Quality control measures in CATI.* In addition to training and certification procedures, a number of procedures were implemented to ensure and maintain data quality in CATI interviewing. Supervision and monitoring were maintained throughout data collection. Supervisors and monitors attended training alongside CATI staff so that they were familiar with the CATI interviewing procedures.

To directly assess the quality of telephone interviewing, RTI used two different monitoring protocols for CATI data collection. The first protocol, quality assessment (QA) monitoring, was designed specifically for U.S. Department of Education studies. This protocol focused directly on errors made by interviewers in administering individual survey items. While this monitoring protocol provided useful data on interviewer performance, its primary purpose was to track errors made for each survey question, to provide statistical evidence of data quality, and to ensure that the interviewing operations remained within acceptable statistical process control parameters. Each QA monitoring session involved a sample of up to 20 questions from an interview. In each session, monitors recorded the frequency of the following two types of errors:

1. Question administration errors that involve making changes in the question wording or response categories that significantly alters the intent of the question, or skipping the question inappropriately. Examples of question administration errors include the following:
  - changes to the reference period of the question;
  - changes to the “direction” of the question (e.g., from positive to negative wording);
  - changes to the frequency or duration of the question;
  - changes to a conditional term within the question; and
  - failure to read a question that should be asked.
2. Data entry errors such as keying an incorrect or inaccurate response to the question.

The data from QA sessions met multiple CATI data collection quality objectives, including identification of challenging questions, identification and reduction of any interviewer errors, and overall assessment of the quality of the data being collected. During the study,

ELS:2002 staff monitored daily results and charted the QA results on a weekly basis to detect any spikes in error rates and to make any necessary adjustments in data collection procedures. See section 4.3.2.4 for a presentation and discussion of the QA monitoring results for data collection.

A second CATI interviewer monitoring protocol focused more directly on interviewer behaviors related to performance. This standardized monitoring procedure was designed to record interviewer behaviors during the contacting and interviewing process that could then be used to provide interviewers with feedback to improve their performance. This monitoring served to reinforce appropriate behaviors in presenting the survey to respondents, enlisting respondent cooperation, delivering questions to respondents, probing inadequate responses, and maintaining professional and positive rapport with respondents. The interviewer-focused protocol for monitoring telephone interviewers focused on the following aspects of CATI interviewing:

- gaining respondent cooperation;
- delivering the introduction and informed consent;
- speech characteristics;
- reading skills;
- probing skills;
- professional skills in handling the interview situation;
- CATI navigation, coding, and data entry skills; and
- presentation skills.

Following individual monitoring sessions, CATI interviewers received timely feedback on any significant problems in enlisting cooperation or administering the interview. These monitoring session results were also compiled in a database to provide historical evidence of data collection quality for individual staff members, groups of staff members, and the entire project team.

Another important activity during CATI interviewing was holding regular quality circle (QC) meetings to ensure that procedures were being followed correctly and data quality was being maintained. The QC meetings provided a forum to focus on productivity goals, data quality, sample management, and related issues. The meetings also provided feedback to project managers on any issues that might require retraining of call center staff. After each meeting, managers summarized the issues discussed and provided resolutions of any problems to all call center staff in the form of QC memos. A total of 17 QC meetings were held during the course of CATI data collection, or about 1 every 2 weeks. To give all interviewers an opportunity to attend QC meetings regularly, separate meetings were held for day shift interviewers and night/weekend interviewers.

A final important set of activities to ensure data quality in CATI operations was to follow statistical process quality control principles, including the following:

- measuring key indicators of data collection quality and quantity;
- reducing variation in the data collection process to maintain consistency;



- monitoring data collection indicators closely; and
- improving the process to maintain targets for both quality and quantity.

These principles were applied to three specific aspects of CATI operations: question administration and data entry, interviewer performance goals, and overall production goals. During data collection, these statistics were monitored daily and reported weekly so that CATI data collection could be regularly evaluated and any corrective steps taken quickly. For each indicator, we set acceptable ranges of variation against which results could be evaluated. The results were then presented in table or graphic form to facilitate quick identification of “out-of-control” conditions.

*CATI data collection.* To reach sample members who had not yet participated by web or CATI modes, CAPI data collection commenced 8 weeks after the start of outbound CATI calling on April 17. Beginning field data collection in mid-April was intended to provide an opportunity to reach sample members in person before many of them became highly mobile over the summer. Many sample members would still be taking classes at a postsecondary institution at that time, and then follow other pursuits when classes ended in May. Experience from the F2 field test indicated that a significant number of sample members became more difficult to locate once spring classes ended. Starting CAPI data collection in April was intended to avoid situations where sample members had to be relocated once they began summer activities, such as working, traveling, or taking summer classes at another institution.

The data collection target for CAPI data collection was to complete 1,500 interviews, or about 9 percent of second follow-up sample members. Because of the flow of data collection across modes, field cases were expected to generally represent those cases that were most difficult to successfully locate and interview. CAPI projections followed a similar pattern as CATI data collection, but with the expectation that it would take some time to reach full production level. Field interviewing typically requires a critical mass of cases to maximize productivity, and the flow of cases from CATI or tracing to field was limited over the first few weeks of CAPI data collection. Field data collection was expected to begin to taper off in July and further still in August, as the number of pending cases ultimately declined. Section 4.3.2.1 presents the results for CAPI interviewing.

*CATI procedures.* The approach for CAPI data collection followed the strategy used successfully on B&B:93/2003 and other recent NCES studies. This approach first identified clusters according to the last known ZIP code of the sample members that could potentially be assigned to CAPI interviewing. Then, based on the distribution of cases by cluster, the geographic clusters that had the highest concentration of cases were staffed with one or more field interviewers. In reviewing caseloads across clusters, particular attention was also paid to those with a significant number of sample members identified as dropouts. Both the 2004 and F2 field test data collection indicated that dropouts would generally be more difficult to include in the study, so CAPI data collection attempted to maximize the yield from this subgroup in the sample.

Cases were assigned to CAPI data collection via a cluster control system (CCS). The CCS used geographic information systems based on ZIP codes to map out geographic clusters from where sample members reside. Clusters were identified in stages. Those with the highest concentration of cases were identified quickly and plans to staff them initiated. Initially, the 35 largest active clusters were identified and activated in the CCS. Among other potential clusters,

factors such as the potential caseload, distance from other clusters, and number of dropouts were used to prioritize activating these clusters. These additional clusters were activated as data collection progressed. The cluster identification and activation procedures remained flexible in the early stages of CAPI data collection to ensure that significant numbers of cases, and/or important cases such as dropouts, could be included in field efforts. Furthermore, field clusters were considered in two ranges, either a 50- or 75-mile radius from the center, to determine the optimal configuration of clusters. For example, clusters with high population density were set at the 50-mile radius, while those with a wider distribution of cases were set at the 75-mile radius. This approach was intended to optimize coverage of potential CAPI cases, while at the same time containing the costs associated with collecting data in person.

Across all clusters, the expectation was that a total of about 3,000 cases would eventually be assigned to CAPI data collection. Cases were assigned to CAPI data collection twice weekly on a flow basis, from the start of field data collection through the end of data collection. CAPI cases were composed of cases that met one of three criteria:

1. Unable to locate sample member through CATI and intensive tracing efforts.
2. The sample member declined to participate through CATI efforts or other prior contacts.
3. Substantial efforts were made to contact the sample member via CATI, mail, and e-mail, but had not yet been successful.

When a case was identified as requiring CAPI effort, one of these three codes was assigned to the case so that field supervisors and interviewers knew why each case was assigned to the field—unable to locate, prior refusal, or difficulty in contacting. This procedure assisted CAPI staff in developing an appropriate approach to each case.

After cases identified for CAPI data collection were assigned to specific clusters, the field manager and field supervisors used a web-based Assignment/Transfer System (ATS) to assign cases to specific interviewers. Some areas where sample is concentrated comprised a single cluster with only one field interviewer, while cases in more populous areas were assigned to multiple interviewers in the area. The web ATS also enabled field supervisors to initiate transfer of cases from one field interviewer to another, as necessary.

To assist CAPI interviewers in contacting each sample member, a record of prior CATI and tracing activities was provided for each case assigned to the field. Field interviewers, with the help of their supervisors, develop a strategy for making personal visits to various locations where sample members, parents, and other locator sources are known to have resided at some time. This included visits to addresses obtained during the base-year and first follow-up data collection efforts or from other sources used during previous tracing efforts. If the sample member is known to have attended a high school that did not provide a transcript, the field interviewer could occasionally contact the high school to attempt to confirm or ascertain the sample member's last known address and phone number. Field interviewers also followed up on any leads related to postsecondary institutions the sample member applied to or attended. Further locating steps taken included, for example, searching a postsecondary institution's website and/or contacting the institution by phone to confirm that the sample member was attending the school and to obtain any phone number or address information that was available. If the institution or new address obtained was beyond the interviewer's work area, field supervisors

determined the best course of action for pursuing the case. Next steps included transferring the case back to CATI data collection (when a new phone number was obtained), transferring the case to another field interviewer who was nearer the institution or new address, or sending an interviewer to the sample member's area. Field locators were also added to the CAPI staff beginning in July to assist interviewers with locating the most difficult-to-find sample members.

Field staff carried a Letter of Authorization signed by the NCES project officer to validate their legitimacy as a field interviewer for ELS:2002. The letter was intended to help overcome barriers to participation that are frequently encountered when making "cold" contacts face-to-face, especially with persons who had not previously seen the study materials. Field interviewers also carried copies of the lead letter and brochure so they could quickly provide these study materials to sample members, parents, or others who had questions about the study. In addition, because the introductory statement, respondent confirmation, and informed consent scripts were not built into the CAPI interview, field interviewers carried laminated hard copies of these scripts so that they could be sure to present them appropriately to respondents.

The CAPI interview was conducted on laptop computers via a web-based interface that used personal web server software. A local database resided on each laptop to assist with coding operations and other temporary storage of data during the interview. To maintain consistency across interviewing modes, the CAPI interview was identical to the CATI interview. The same interviewer instructions presented in CATI interviews were included in the CAPI interview. CAPI interviewers also followed the same standardized interviewing procedures as CATI interviewers, including techniques for reading questions, probing insufficient answers, recording answers, and maintaining neutrality with respect to respondents' answers. All CAPI interviewing procedures were conducted within this same set of standardized interviewing techniques established prior to data collection and presented in training.

CAPI interviewers were allowed to administer the interview over the telephone, which produced conditions even more similar to CATI interviewing. While this was not the preferred option, it proved useful for those cases where the sample member could be reached more easily by telephone than in person and was willing to do the interview when contacted. This option was also useful for completing interviews with mobile sample members who temporarily left the field interviewer's cluster area during the data collection period. For sample members who preferred to complete the survey via the Web, field interviewers ensured that they had the necessary information and instructions to complete web self-interviewing. Field interviewers typically allowed these sample members about a week to complete the interview through the Web. If they had not completed the survey during that time, field interviewers then called them back to ask if they had encountered any problems and to offer to complete the interview with them by telephone.

When they found sample members who had not yet participated in the survey, field locators were allowed to assist them to either access the web self-administered interview or call in to complete a CATI interview. If the sample member agreed to complete the interview by either mode, field locators could then wait in the home until the interview was finished to provide the respondent with his or her incentive in person. In these situations, the locator instructed the respondent to alert him as soon as the respondent completed the last item, which was described to him before beginning the interview. Overall, few field interviews were conducted in this manner. In all such cases, the field locator provided the respondent with the incentive as soon as the interview was completed.

At the end of each workday, CAPI interviewers electronically transmitted their completed interview data and status codes for each assigned case to RTI computers. The field transmission ensured that field interviewers regularly delivered data to the main ELS:2002 database in a timely fashion and that interview data could therefore be secured in the main data files. The transmitting system also allowed field interviewers to receive new cases when they were assigned and to capture updates to case information and the survey instrument as necessary.

*CAPI staffing and training.* Given the challenging nature of CAPI data collection, an experienced and skilled staff of field interviewers was critical to the success of this effort. CAPI staffing began with recruiting and hiring five experienced field supervisors to assist the CAPI manager in managing the field interviewing staff. Recruitment of the field staff targeted veteran field interviewers who had strong past performance on similar studies. In addition, those with extensive experience in locating difficult-to-find respondents and converting initial refusals were favored in staffing CAPI data collection. Because we were not able to exclusively hire interviewers with extensive experience and demonstrated skills, additional interviewer candidates with strong references, computer experience, and strong interpersonal skills were also recruited. In recruiting interviewing staff, we also considered the demographic characteristics of the set of field clusters, so that we could include interviewers experienced in interacting with persons of relevant ethnic and linguistic groups in the cluster, such as native Spanish speakers.

The first field interviewer training was conducted April 9 through April 12 and a second training May 21 through May 24. Both CAPI training sessions were composed of 2 hours of pre-classroom home study, three 8-hour days of training, and a final 6-hour day, for a total of 32 hours. Trainees who were new to interviewing attended an additional 8-hour day of training on general interviewing and computer skills prior to the first day of each training session.

A comprehensive, classroom-based training program was developed for the 2006 CAPI training. Key information on the purpose and goals of ELS:2002 and specific interviewing procedures was compiled in a manual for field interviewers to reference. The training emphasized quality aspects of interviewing (such as instructions on field tracing, enlisting cooperation, and correctly administering the interview) as well as data collection efficiency issues (such as using locating information and prioritizing visits to sample members or parents). Specific training sessions included the following:

- structured practice with the web-based program, CMS, e-mail, and data transmission systems;
- review of case documentation, procedures, and reporting, and administrative requirements;
- standardized interview administration techniques;
- specifics of the laptop computer and the use of the CMS; and
- role-playing exercises to practice administering the interview and gaining cooperation from respondents.

Most of these training modules were conducted by combining a presentation with hands-on practice or group discussions.

In addition to completing the home study exercise prior to training, all field interviewers were required to pass the following certification steps on the final day of training:

- A verbal test on responding to frequently asked questions from sample members and gaining cooperation.
- A mock interview with a trainer as respondent.
- A coding exercise for postsecondary fields of study, postsecondary institutions, and occupations.
- An exercise on selecting appropriate event codes and entering a code in the CMS.

Completing these activities ensured that the CAPI interviewers were well prepared in both administering the interview appropriately and enlisting cooperation in the most challenging situations.

*Quality control measures in CAPI.* Like CATI efforts, CAPI data collection included multiple procedures to ensure that data quality standards were being maintained. The CAPI task leader and field supervisors closely monitored CAPI production on a daily basis so that they could quickly address production issues and other field data collection challenges. Field supervisors held weekly conference calls with each of their field interviewers to discuss the status of each assigned case and ensure appropriate efforts were being made for each case. During these calls, particular emphasis was placed on handling refusal cases and determining appropriate steps for locating cases. The CAPI manager also held weekly conference calls with each field supervisor to discuss field production and strategies and to communicate any updates on data collection plans.

To maintain control of quality in CAPI data collection, verification interviews were conducted for a sample of each field interviewer's completed interviews. At the end of each CAPI interview, respondents were told that they might be contacted for quality control purposes. Verification calls and interviews were completed by in-house telephone interviewers. Training to conduct verification calls was held on May 8 and verification calls began immediately. Completed CAPI interviews were sampled randomly over the course of data collection and added to a modified CATI-CMS program to schedule the verification calls. The verification interview included a brief set of questions about the procedures followed during the original interview, including the date on which the interview occurred, the mode in which the interview was completed (by telephone or in person), the approximate duration of the interview, and the amount of the incentive paid. In addition, two key factual questions from the 2006 interview were asked again in the verification interview: whether the respondent had held a job for pay since high school, and whether the respondent had attended any postsecondary institutions since high school. Any problems detected through verifications were coded and displayed on a verification report. The report was monitored by the CAPI manager and field supervisors so that issues could be addressed with the field staff member in a timely manner.

#### **4.3.1.4 Intensive Tracing During Data Collection**

When sample members were determined to have insufficient contact information to reach them as a result of outbound CATI data collection efforts, more intensive tracing efforts were undertaken. The two primary intensive tracing modes were centralized interactive tracing and field locating. Centralized tracing was conducted by tracing specialists located in RTI's Call Center Services facility. The centralized tracing operations followed a comprehensive and proven set of procedures for locating sample members using Internet searches and telephone

contacts. Tracing specialists were trained exclusively in tracing procedures, resources, and investigative techniques and most had experience in tracing the young adult population that comprised the ELS:2002 sample.

When cases were assigned to CAPI data collection, field tracing was performed by field interviewers or field locators as needed. CAPI staff with experience in locating difficult-to-find sample members were favored in staffing the field effort. Field interviewers and locators relied on well-established techniques to trace sample members in their local communities. Field tracing was also combined with centralized tracing procedures when field locating efforts produced specific information that could be used by tracing specialists to perform online searches.

A third set of tracing procedures added during data collection was peer locating. This involved prompting participants to provide any information they might have about ELS:2002 sample members who attended the same high school. These activities were reserved for the latter half of data collection to assist the data collection team in obtaining leads on sample members who had proven most difficult to locate.

*Centralized interactive tracing procedures.* A total of 12 tracing specialists and 7 quality control specialists were trained for the interactive tracing effort. All tracing specialists had prior experience conducting interactive tracing, and many had worked on previous rounds of ELS:2002. Tracers and tracing supervisors were trained in a 2-hour session that included background information on sample maintenance activities and prior contacts with ELS:2002 sample members, an overview of interactive tracing procedures, discussion of particular challenges in locating the young adults in the sample, and responding to frequently asked questions when contacting sample members or others. Interactive tracing efforts began on February 27 and continued through September 7, 2006. Throughout data collection, quality circle meetings were held periodically with tracing staff to ensure that best practices were being followed and to discuss strategies for successful tracing.

The starting point for interactive tracing efforts was the contact information provided during the baseline or first follow-up data collection, and any updates to this information acquired through the batch tracing and sample maintenance activities conducted in fall 2005, as described in section 4.3.1.1. All of this information was included in the ELS:2002 locator database. In the BY and F1 rounds, participants had been asked to provide the following information as part of the interview protocol:

- respondent's full name, address, and current telephone number;
- respondent's Social Security number (SSN);
- full name, address, and telephone number of mother/father or female/male guardian of respondent;
- full name, address, and telephone number of a close relative not currently living with the respondent who would always be likely to know how to locate the respondent;
- full name, address, and telephone number of close personal or family friend not currently living with the respondent who would always be likely to know how to locate the respondent;
- respondent's nickname, if any;

- basic occupational information about both parents/guardians; and
- any postsecondary institutions to which they had applied and/or planned to attend.

Although information about postsecondary institutions obtained in the 2004 first follow-up was expected to have limited usefulness, this avenue was explored in tracing efforts. Given the high proportion of sample members expected to be enrolled in postsecondary institutions, any available school directories could be used to help locate sample members.

Another important aspect of tracing sample members was using parent information. Because sample members were now mostly 19 or 20 years old, a significant number had information to facilitate locating them through interactive tracing. For other sample members, parent information was the most useful route to locating sample members.

When CATI interviewing efforts were unable to locate sample members at any of the telephone numbers available, the case was identified as needing tracing. CATI supervisors then reviewed these cases to ensure that all available numbers had been exhausted. This effort varied in complexity, as the number of unique telephone numbers available for each sample member ranged from zero to five (or more).

Once reviewed cases were assigned to interactive tracing, tracing specialists implemented a systematic set of procedures for tracing sample members that had been shown to be effective on prior rounds of ELS:2002 and similar studies:

- Check preloaded information: Check case, source/contact, lead, and case history screens for any relevant information.
- Call all preloaded phone numbers: Verify that all preloaded phone numbers are working and whether the subject can be contacted through these numbers.
- Trans Union: Run “Trace” SSN search if provided. When one does not have SSN, run the “ReTrace” search.
- Experian SSN search/address update: Run SSN search if SSN is provided and address when SSN is not given.
- Fast Data address search: Run address search on the subject and contact for preload and developed contacts.
- Fast Data DA Plus: Run a DA+ search on the generated addresses.
- Fast Data reverse search: Run a reverse search on generated phone numbers not associated with physical addresses.
- Fast Data name search: Run a name search for the subject in the city and state in which there are contacts for the subject. Note: A surname search can also be used to develop information for relatives.
- Accurint: Perform name search, address search, reverse phone search, and neighbor search.
- Repeat any of the above steps as necessary, depending on any leads developed.

These steps were used interactively in that tracing specialists could change the sequence of subsequent steps depending on specific leads found in initial steps. Furthermore, when new

telephone numbers were found through any of these sources, tracers would attempt to confirm that the sample member was in fact residing at that telephone number. Direct confirmation was a key step in the interactive tracing process, as confirming telephone numbers allowed for cases to be returned to CATI data collection immediately without further tracing efforts. When new telephone numbers could not be directly confirmed, tracing specialists would generally conduct additional searches to corroborate this information.

All information obtained for cases through centralized tracing was added to CATI-CMS. The most current locating information for sample members was therefore readily available for additional data collection and tracing efforts. When new telephone numbers were found via interactive tracing (confirmed or unconfirmed), the new numbers would be exported to CATI-CMS for continued CATI data collection efforts. When only address information was obtained for sample members, the information was exported to CATI-CMS, but the case was also identified as requiring CAPI data collection efforts. Cases for which no new information was obtained would also be assigned to CAPI data collection.

Based on experience from the ELS:2002 2004 data collection, the expectation was that as many as 33 percent of sample members would require some level of interactive tracing during data collection. A total of 3,000 cases were assigned to interactive tracing at least once during data collection. Among these, 320 cases were assigned to interactive tracing a second time. Unlocated cases were assigned to a second round of tracing when one of the following conditions was met:

- no field interviewer was currently available in the local area to conduct field locating;
- new information was obtained from field locating that could be used more effectively in interactive tracing; or
- review of the initial tracing effort indicated one or more leads could be pursued further through additional tracing efforts.

Overall, 81 percent of cases traced interactively (one or more times) resulted in new information being obtained. No new information was obtained for 17 percent of cases traced, and work was stopped for the remaining 2 percent of cases. (Stop work orders resulted from cases being finalized prior to the completion of interactive tracing efforts.) Although the overall rate of locating information was relatively high, not all information obtained through interactive tracing was equally useful. For this reason, reports of case status were created for each type of locating information obtained (telephone, address, or both) and whether this information was confirmed. These reports allowed data collection staff to more accurately assess the ultimate value of information obtained via interactive tracing for locating and interviewing sample members. The overall response rate was highest for those cases where both a new address and telephone number were obtained through interactive tracing (83 percent), and lowest for those cases where only an unconfirmed address was found (65 percent). For cases where only sample members' parents could be located through interactive tracing, the success rate was even lower (61 percent).

*Field tracing procedures.* Despite the general success of finding new contact information for sample members via centralized interactive tracing, useful information could not be obtained for a significant portion of second follow-up sample members. For these cases, the next step was



to assign them to CAPI interviewers for field locating efforts. Locating issues and strategies were included as part of CAPI training.

The starting point for field locating was the last known address for each sample member. For each case assigned to CAPI data collection, a record of interactive tracing results as well as the CATI call history was provided to the interviewer. CAPI interviewers, with the assistance of their supervisors, developed strategies for visiting various locations where sample members, their parents, and other locator sources are known to have resided at some point. Initial field tracing steps included revisiting or recontacting leads documented by centralized tracing efforts, calling sample members' and parents' old phone numbers, and visiting sample members' and parents' previous addresses. One advantage of field locating over centralized tracing was that field staff could use information obtained locally in combination with the information provided from previous tracing and data collection efforts to determine where sample members most likely resided. Beginning in late July, 13 experienced field locators were hired and trained to augment field locating efforts.

When field interviewers or locators made contacts as part of field locating efforts, they asked a set of questions about the sample member's spouse or partner, work situation, recent moves, and related questions to generate further leads. Standard questions included:

- Is the sample member married? What is the spouse's name?
- Does the sample member work? Where? What kind of work does he or she do?
- Does the spouse work? Where? What kind of work does he or she do?
- When did the sample member move? Do you know where?
- Did the sample member own or rent the home?
- Does the sample member attend a local church?

If these questions did not produce useful information or leads, field staff would also ask contacts for suggestions on the most likely way to contact the sample member or parents. Field interviewers used a checklist of potential sources to document the steps taken to locate sample members, covering a variety of possible contacts and local institutions that could be useful for obtaining contact information or other leads. These records were useful for documenting efforts for additional field locating or centralized tracing steps.

In addition, field staff frequently attempted to locate sample members by using local information or leads obtained for conducting Internet searches. Websites such as <http://www.whitepages.com/>, <http://zabasearch.com/>, and <http://theultimates.com/> often produced good results, especially for looking for relatives of parents and other family members. Using information obtained in sample members' communities, such as information from neighbors, often provided an advantage for field staff in searching for sample members.

*Peer locating procedures.* One further tracing activity implemented during data collection was peer locating. Because of the challenges of locating highly mobile ELS:2002 sample members, peer locating was initiated in May. Peer locating involved two related activities: sending e-mail messages to participants asking for their assistance in locating sample members who attended the same high school and conducting outbound prompting calls to selected participants in order to request their assistance with locating these classmates. For both

participants and interviewers who were conducting prompting calls, a special, secure web interface was established to enter any contact information for pending sample members. This web application was accessible only to respondents who were contacted as part of the peer locating effort.

The first step in peer locating involved sending e-mails to 9,300 participants on May 19, 2006. Those receiving e-mails included all respondents who attended the same high school as at least one second follow-up sample member who had not yet completed the interview. The e-mail message explained to participants that the data collection team was seeking their assistance in locating pending sample members and provided instructions on how they could provide this information, including a direct link to the website. When respondents logged on, they were prompted with a list of one or more classmates who had not yet participated in the survey. Once these sample members did complete the survey, they were automatically removed from the peer locating list.

After allowing participants approximately 4 weeks to respond to the request for information on their peers, prompting calls were initiated to those respondents who had not yet logged on to the website to attempt to provide information for their listed classmates. Prompting calls began in late June, and included 7,500 participants. Up to three prompting calls were made to each respondent. Once successful contact was made with participants, prompting calls were completed. Otherwise, three attempts were made for each respondent.

Peer locating efforts targeted a total of 3,600 ELS:2002 second follow-up sample members who had not yet completed the interview and had at least one classmate who had completed the interview prior to May 19. A total of 1,600 unique pieces of information for these pending cases was obtained from peers. This information pertained to 1,000 sample members, or about 28 percent of the cases targeted.

Data collection staff then evaluated the information received through peer locating efforts in terms of its usefulness. Overall, about 20 percent of peer locating information was judged as likely to be useful, which included new telephone numbers, updated addresses, or other contact information. Another 70 percent of the information was evaluated as potentially useful, such as information on which postsecondary school the sample members may have attended. The remaining 10 percent of the information was considered not useful because it did not indicate where the sample member was currently living or how the person could be contacted. Information judged likely or potentially useful was then added to the locator database and/or communicated to interviewing staff.

#### **4.3.1.5 Data Collection Procedures for Initial Refusals and Difficult Cases**

Another important challenge in planning data collection was developing procedures for sample members who initially refuse to participate or who otherwise prove difficult to include in the study. As indicated in section 4.3.1.2, the design of the incentive plan considered factors likely to increase the difficulty of including certain sample members, such as those who did not participate in the previous wave and those who had dropped out of high school. The incentive plan was intended to reduce the potential for sample members to hesitate or refuse to participate when first contacted about the data collection. Because the incentive plan could not avert initial hesitation or refusal among all sample members nor address all reasons for hesitation or refusal, procedures were needed to overcome hesitation and avoid refusals among sample members. In addition, because not all refusal or difficult situations could be avoided, contingency procedures

were needed to address initial refusals or other difficult-to-complete cases during data collection. This section describes the procedures in place to avoid refusals, manage initial refusals, and handle other difficult situations.

*Procedures for avoiding refusals.* Procedures for avoiding refusal situations included three primary sets of activities: interviewer training sessions, web/CATI quality circle meetings, and sample management. Efforts to avoid sample member refusals began in the training sessions of web help desk and telephone and field interviewing staff. Training modules addressed common reasons for reluctance or refusal, strategies to address potential refusal situations, and consideration of specific reluctance or refusal statements and behaviors. Presentations, discussion, role-playing exercises, and a team competition were all used to prepare interviewers to address potential refusal situations. These training modules included specific objections from sample members or parents and potential interviewer responses that were directly based on experiences from prior rounds of ELS:2002 and other current education studies of young adults.

Another important focus of interviewer training was addressing potential reluctance or specific objections among gatekeepers. Experience from prior rounds of ELS:2002 demonstrated the ways in which parents and other household members can either help or hinder efforts to contact sample members. Training modules also focused discussion and exercises on how interviewers can successfully address common gatekeeper concerns and objections. To assist CATI interviewers, the CATI-CMS program included scripted probes for interviewers to use when asking parents' or other contacts' cooperation in reaching sample members. Because many sample members had completed high school and moved out of their parents' household, gaining parent assistance in contacting sample members was often the first step in the survey participation process.

These training sessions all followed the same general strategy for addressing reluctant sample members or gatekeepers, including the following:

- understanding the reason(s) for the subject's or gatekeeper's reluctance as quickly as possible;
- being prepared to address the concern(s) quickly and directly;
- focusing responses on why the sample member's participation is important to ELS:2002; and
- using an effective tone and maintaining a professional approach.

This strategy was illustrated through specific examples used in training modules.

In addition, all interviewers were required to complete an exercise in responding to sample member or gatekeeper concerns as part of the certification process mentioned in section 4.3.1.3. This certification process reinforced using the refusal avoidance strategy to communicate the importance of sample members' participation in ELS:2002. The most important points interviewers were trained to communicate to sample members and other contacts included:

- reminding sample members and parents of their previous participation;
- the importance of sample members' continued participation;
- the importance of ELS:2002 for education in the United States;

- the incentive payment provided to sample members;
- explanations of the 2006 data collection procedures and options; and
- a toll-free number to talk with the data collection manager about the study.

Key talking points and refusal avoidance strategies were regularly reinforced in quality circle meetings held with help desk and telephone interviewing staff. As mentioned in section 4.3.1.3, QC meetings were held biweekly during 2006 data collection to ensure procedures were being followed correctly. QC meetings provided a forum for interviewers to discuss specific examples of reluctance or refusal responses among sample members and possible steps to address these concerns. After the first few QC meetings focused on basic issues, data collection managers began to regularly add a session at the end of each QC meeting devoted to role-playing potential refusal situations. These sessions provided regular practice and discussion for interviewing staff so that they were prepared to address these situations effectively. For CAPI data collection, weekly calls between field supervisors and field interviewers addressed the same kinds of issues in one-to-one conversations.

Sample management activities in CATI data collection were also an important part of refusal avoidance procedures. Call scheduling procedures were designed to avoid inundating households in the sample with too-frequent calls. For example, when answering machines were reached and a message left, the CATI-CMS call scheduling system held these cases for at least 3 days to give sample members or their parents some time to return the call. When sample members or parents requested a callback for a specific day and time, interviewers entered these appointments in CATI-CMS so that the appointment cases would be delivered to interviewers at the appropriate time. Telephone supervisors were continually aware of the need to keep all appointments, and monitored the status of upcoming appointments to ensure all appointments were covered. These procedures ensured that appointments were kept regularly, which was a significant issue for sample members and parents with busy schedules. Another important feature of CATI-CMS that provided assistance in avoiding refusal situations was the call history log. After each call, interviewers entered relevant information about the results of the call and any interaction with sample members or other contacts in this log. These notes ensured that interviewers who made subsequent calls to contact sample members were aware of the results of previous calls. The call history log allowed interviewing staff to be sensitive to any concerns sample members, parents, or other contacts had about the 2006 data collection process and to be prepared to address those concerns in subsequent contacts.

CAPI staff also used sample management techniques to avoid refusal situations. A key difference between CAPI and CATI was that field efforts to avert refusals were based on collaborations between field supervisors and field interviewers. Field interviewers worked with their supervisors to develop an individual approach to each case based on the reason the case was sent to the field, the CATI call history for the case, and the results of any initial contact attempts by the CAPI interviewer. Field staff maintained detailed documentation of contact attempts on a “Record of Actions” form and also entered this information in the field CMS. Field interviewers could then review this information when planning future contacts with each sample member and, if the case was transferred to another interviewer, provide information for those subsequent contact attempts.

*Procedures for converting refusals.* Despite the procedures in place to avoid refusal situations, a total of 660 initial refusals occurred among sample members. Another 1,400 initial

refusals occurred across all contact attempts, including refusals where parents or other contacts attempted to decline on the part of sample members. Whenever a call resulted in a refusal, CATI interviewers followed a predetermined set of steps to classify the refusal situation. CATI-CMS produced a series of screens that allowed interviewers to specify the following information:

- person who refused (sample member or other);
- point at which the refusal occurred (prior, during, or after the introduction);
- strength of refusal (mild, firm, or hostile); and
- any specific reasons mentioned for the refusal.

Most of the initial refusals by sample members (70 percent) were coded as “mild” by interviewers, indicating that in most cases interviewers simply contacted the sample member at a time or in a situation where he or she was not prepared to participate. Table 41 provides a breakdown of the point of refusal and primary reasons for sample member refusals, when provided. This table records both the timing and reason(s) for refusals, so cases are often represented two or more times. The first three rows provide support to the conclusion that a significant number of initial refusals were often quick interactions where sample members, parents, or other contacts either did not fully understand the purpose of the call or were not in a situation where they were able to participate. Just about half of all initial hangups occurred prior to the reading of the introductory script, during the introduction, or just after the introduction when the sample member’s identity was being confirmed. Among reasons for refusal, the two most common reasons reported were not being interested in general (22 percent) and specifically not being interested in participating in ELS:2002 again (21 percent). Another 12 percent of sample members indicated that they were too busy to participate and 14 percent provided various other reasons for declining the interview. For some 10 percent, no information was provided as to either the timing of or reason for refusal. These results provided an overview of the nature of refusals that data collection managers and interviewing staff used to adapt procedures for converting refusals.

**Table 41. Timing of and reasons for initial sample member refusals: 2006**

Refusal outcomes	Number	Percent
Hung up before introduction	50	6.7
Hung up during introduction	200	35.6
Hung up during sample member verification	50	7.6
Too busy/no time	80	12.0
Not interested (no mention of ELS:2002 study)	150	21.8
Not interested in participating in ELS:2002 again	100	20.9
Concerned about purpose of study	#	0.7
Concerned about how long survey will take	#	1.2
Concerned about how their contact information was obtained	#	0.6
Other reason specified	100	14.1
No information reported	70	10.5

# Rounds to zero.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), “Second Follow-up, 2006.”

Interviewing staff used both general strategies and the specific information in CATI-CMS, including the call history log, to develop a refusal conversion approach to each individual case. After a call resulted in a refusal and the information about the interaction was entered,

CATI-CMS moved the case to a special refusal queue. Cases in the refusal queue were held for at least 1 week after the initial refusal before being made available by the call scheduler for subsequent refusal conversion attempts. In practice, the time interval between the initial refusal and the next contact was often longer than 1 week, as multiple subsequent calls were often required to contact these sample members again.

Delaying subsequent contact attempts was a key sample management procedure used to maximize the success of refusal conversion efforts. This break provided a short period to allow sample members to reconsider their participation in the study and, in some cases, to be in a more favorable situation to participate. For the same reason, CAPI interviewers who were assigned initial refusal cases from CATI data collection typically waited a week before attempting to contact these sample members. All refusal cases assigned to field data collection were reviewed carefully by the field supervisor and field interviewer. Field staff would review the statements made by the prospective respondent or gatekeeper when they declined participation and develop a refusal conversion approach for each individual case. The approach of field staff sometimes included having the supervisor contact the household first, in some cases, or transferring the case to another CAPI interviewer when the original interviewer was unable to make progress with the case.

Because data collection staff anticipated that a significant number of refusals would ultimately transpire, plans were made early in data collection to conduct specialized refusal conversion training sessions for telephone interviewing staff within a few weeks after the start of outbound CATI calling. The first refusal conversion training was conducted about 3 weeks after outbound CATI data collection, and a second training session was held 2 weeks later. For both training sessions, data collection staff selected interviewers with strong performance ratings to attend these trainings. Interviewers were also identified based on qualitative feedback from telephone supervisors and monitors. As a general rule, interviewers selected to be refusal conversion specialists were interviewers who had demonstrated skills in enlisting cooperation among sample members and avoiding initial refusals. The training sessions emphasized specific refusal conversion techniques tailored to the ELS:2002 sample of young adults, including overcoming objections, addressing concerns of gatekeepers, and providing alternatives for participation. Both group discussions and individual role-playing exercises were used in refusal conversion training. Only interviewers who had successfully completed one of these training sessions were allowed to call initial refusals. Section 4.3.2.3 presents the results of refusal conversion efforts across all modes of data collection.

*Procedures for addressing other difficult situations.* In addition to sample member refusals, 2006 data collection efforts encountered other difficult cases. As described in section 4.3.1.2, a number of criteria (including refusal) were used during data collection to designate cases as difficult. The most common nonrefusal situations that led to the difficult case designation included the following:

- more than 20 contact attempts were made without completing the interview;
- the case was submitted to intensive tracing because the sample member could not be located;
- the case was assigned to field data collection, either because the sample member could not be located or could not be contacted by telephone; or
- the sample member had not completed the interview as of June 15, 2006.

As noted in section 4.3.1.2, meeting any of these criteria resulted in an increase in the incentive amount. Section 4.3.1.4 describes procedures for intensive field tracing of sample members who were difficult to locate. This section describes procedures for addressing other kinds of difficult situations, especially sample members who were difficult to reach by telephone.

Similarly to refusal conversion efforts, a number of additional procedures beyond the incentive increase were implemented to manage difficult-to-reach sample members. When cases were designated as difficult, CATI-CMS moved them to a special queue. Cases in the difficult queue were assigned to interviewers in a similar manner as refusal cases. Only telephone interviewers who had demonstrated skills in enlisting cooperation among sample members and handling difficult situations were assigned to call cases in the difficult queue. As with refusals, interviewing staff used both general strategies and the specific information in CATI-CMS, including the call history log, to develop an approach to address each difficult case. Based on the criteria established by the data collection staff, all pending nonrefusal cases were moved to the difficult queue on June 15, 2006. At that point, all CATI interviewing staff were prepared to call difficult cases. Like refusal situations, difficult nonrefusal scenarios were discussed with telephone interviewers in QC meetings and with field interviewers in regular calls with field supervisors.

One of the most common reasons for nonrefusal cases to become designated as difficult was inability to contact sample members at any of the telephone numbers available in the locating database. An important challenge in CATI data collection efforts was overcoming call-screening behavior. A significant number of households did not respond to telephone calls even after multiple attempts had been made and answering machine messages had been left. This challenge was exacerbated by the fact that contact information for many cases was initially limited only to phone numbers for sample members' parents and other relatives. As a result, telephone interviewers had to make contact with the parent households first to determine a current number where the sample member could be reached. For this reason, the number of calls required to contact sample members by phone was often increased, particularly when the parent households were screening calls and not responding to answering machine messages. A third factor that increased the difficulty in reaching sample members was that many were only reachable by cellular phone. Even when parents or other contacts provided cell phone numbers for sample members, many sample members were concerned about the costs of using their cell phone to complete a CATI interview. This same concern about costs also led some parents to be reluctant to provide cell phone numbers for sample members to telephone interviewing staff. All of these factors combined to increase the challenges of contacting some sample members and completing interviews by telephone, resulting in a significant number of cases being designated as difficult.

Similarly to circumstances for refusal cases, the call history log in CATI-CMS was an important resource for telephone interviewers in attempting to contact difficult cases. In addition to detailed notes, the call history log provided CATI staff with the distribution of call attempts across all numbers and the results of each call attempt. Interviewing staff could then use this information to determine the telephone number where contact was most likely to occur and the day and time when contact was most likely to occur. Likewise, the call history indicated numbers where productive contact had and had not been made, so that interviewers could prioritize calling across multiple telephone numbers. As calling attempts to reach difficult cases continued to

prove unproductive, data collection managers increasingly assigned such cases to CAPI data collection.

Field staff experienced significant success with making telephone contact with difficult cases that had not been successful in CATI. At least part of this success likely resulted from attempts to contact households that had previously been screening calls from telephone interviewers. All calls from RTI's Call Center provide the same telephone number in caller ID systems. When field interviewers called these same households, a new, local number would appear in caller ID systems. The novelty of a new phone number, voice, and/or approach likely contributed to field interviewers' success in contacting difficult cases after substantial CATI data collection efforts had been unsuccessful. Consistent with the data collection plan, switching the most challenging cases from CATI to CAPI modes was often an effective strategy for contacting difficult-to-reach sample members. When telephone contacts did not initially prove successful for field interviewers, a personal visit to the sample member or his or her parents' homes was the next step. Field interviewers also used in-person contact as the first step to reach some difficult cases, especially when a high number of prior calls had proven unsuccessful and no alternative telephone numbers were available. Personal visits not only increased the likelihood of face-to-face contact with sample members or their parents, but also proved effective for obtaining updated telephone numbers from parents or other contacts.

### **4.3.2 Data Collection Results: Outcomes and Indices of Data Quality**

The following section provides select data collection and data quality results. Several data collection outcomes are discussed, including:

- response rates by various subgroups;
- refusal and conversion rates;
- distribution of respondents by month of interview;
- distribution of respondents by questionnaire administration mode;
- interview completions by incentive type;
- telephone interviewer hours expended and call counts;
- field interviewing results;
- interview completion time;
- analysis of field of study and occupation recoding; and
- interviewer error rates.

#### **4.3.2.1 Outcomes: Case Response Rates by Subgroup and Data Collection Mode**

Response rates by subgroup and mode of administration are presented in this section. For the second follow-up (but not the base year or first follow-up), the response rate is a conditional



one, based on the cases that were fielded.<sup>54</sup> In addition, refusal and refusal conversion rates are reported for both the sample member and the gatekeeper. Interview completions by select subgroups (such as sex, race/ethnicity, socioeconomic status (SES) quarter, first follow-up response status, and respondents classified as ever having dropped out) are provided overall and by mode.

*Overall response rates.* The ELS:2002 second follow-up sample consisted of 16,400 members overall. The sample represents a subset of the combined population of 10th-graders in the spring term of 2002 and 12th-graders in the spring term of 2004. Some members belong only to the 10th-grade population, some only to the 12th-grade population, but most belong to both. Of the total sample, approximately 15,900 (97 percent) were considered to be in-scope for the 2006 round. Cases classified as permanently out of scope (deceased, sampling errors) or temporarily out of scope (unavailable for duration of study, out of the country, incapable, incarcerated, institutionalized) were not counted in the response rate.<sup>55</sup>

Second follow-up response rates by select characteristics are presented in table 42. Weighted and unweighted completion rates<sup>56</sup> are provided for demographic subgroups in addition to various student and school characteristics associated with the base-year and first follow-up rounds. Response rates for each subgroup are based on the number of eligible sample members who completed the interview. Completed cases included about 14,200 fully and partially completed web and interviewer-administered interviews. Weighted response rates were calculated using the design weight (i.e., the base weight—the weight that reflects the selection probability but has not been adjusted for nonresponse and indeed is available for respondents and nonrespondents alike). The weighted response rate, therefore, represents the proportion of the combined 10th- and 12th-grade population that was in-scope for the second follow-up, was fielded, and that responded.

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<sup>54</sup> An unconditional response rate would include cases that were not fielded in the second follow-up: double (base-year + first follow-up) nonrespondents, senior freshening sample nonrespondents, and sample members who withdrew from the study. The response rate as reported here excludes these unfielded cases, that is, it is conditional on the fielding of the case. The unconditional weighted response rate was 84.5 percent overall. The weighted conditional response rate (response rate as used in second follow-up reporting in this document) was 88.4 percent. Ineligible (permanently or temporarily out-of-scope cases) count neither in the case completion rate nor the response rate calculation though their numbers have been documented.

<sup>55</sup> In addition, a handful of previously cooperating sample members asked to be removed from the sample.

<sup>56</sup> Weighted response rates using the base weight are presented because of the importance of population estimation and because NCES survey response standards are based on weighted completions. On the other hand, this chapter's *methodological* tables show unweighted proportions, because of their different focus.

**Table 42. Response rates, by select characteristics: 2006**

Subgroup	Number eligible	Number of respondents	Unweighted percent	Weighted percent
Total	15,900	14,200	89.1	88.4
Sex				
Male	7,800	6,800	87.2	86.2
Female	8,100	7,300	90.9	90.5
Race/ethnicity <sup>1</sup>				
American Indian or Alaska Native	130	100	87.2	87.5
Asian or Pacific Islander	1,600	1,400	87.4	87.2
Black or African American	2,100	1,900	87.9	87.4
Hispanic or Latino	2,400	2,100	86.4	85.7
More than one race	750	670	89.3	88.0
White	8,900	8,000	90.4	89.5
Socioeconomic status (SES)				
Lowest quarter	3,800	3,300	87.0	86.4
Second quarter	3,800	3,300	87.8	86.5
Third quarter	3,900	3,400	89.0	88.4
Highest quarter	4,500	4,100	92.1	92.5
F1 response status				
F1 respondents	14,700	13,300	91.0	90.2
F1 nonrespondents	1,200	830	66.5	67.4
"Ever dropped out" as of F1 <sup>2</sup>	1,200	1,000	85.2	85.0
Student characteristics				
Movers <sup>3</sup>	1,700	1,400	82.5	81.6
Stayers <sup>4</sup>	11,900	10,800	91.2	90.8
Early graduates <sup>5</sup>	660	580	87.6	85.6
Dropouts <sup>6</sup>	830	700	82.8	83.1
Sophomore cohort	15,700	14,000	89.1	88.4
Senior cohort <sup>7</sup>	13,100	12,000	91.3	90.6
BY school sector				
Public	12,500	11,100	88.6	88.2
Catholic	2,000	1,800	92.3	92.4
Other private	1,400	1,300	89.2	88.5
BY school region				
Northeast	2,900	2,600	88.9	89.4
Midwest	4,000	3,600	90.6	89.6
South	5,800	5,200	89.2	88.8
West	3,200	2,800	87.3	85.7

See notes at end of table.

**Table 42. Response rates, by select characteristics: 2006—Continued**

Subgroup	Number eligible	Number of respondents	Unweighted percent	Weighted percent
BY school locale				
Urban	5,400	4,800	88.8	87.2
Suburban	7,600	6,800	89.1	88.8
Rural	2,900	2,600	89.6	89.1

<sup>1</sup>All race categories exclude individuals of Hispanic or Latino ethnic origin.

<sup>2</sup>Classified as “ever dropped out” as of first follow-up (F1) if at least one of the following conditions was met: school reported that respondent had dropped out of school at any one of the enrollment status updates, respondent was a dropout as of spring term of 2004, or respondent was an alternative completer, that is, earned a GED on or before March 15, 2004.

<sup>3</sup>Includes transfer and homeschooled students. Classification groups reflecting enrollment status (movers, stayers, early graduates and dropouts) were created using a combination of the variable F1QSTAT (for first follow-up respondents), and F1ENRFIN (for first follow-up nonrespondents—spring-term 2004 enrollment status was generally known for nonrespondents, but when unknown was imputed).

<sup>4</sup>Includes students still attending base-year school in spring term of 2004.

<sup>5</sup>Received diploma, GED, or certificate of attendance on or before March 15, 2004.

<sup>6</sup>Completed (respondent) or would have completed (nonrespondent) F1 dropout questionnaire.

<sup>7</sup>Includes spring-term 2004 freshened seniors and sophomore cohort members who remained in modal grade sequence (12th grade) 2 years later.

NOTE: Detail may not sum to totals because of rounding. BY = Base year. GED = General Educational Development credential. Response rate calculation excludes those cases that are permanently out of scope (deceased) or temporarily out of scope (incapable, or unavailable for duration of second follow-up data collection: e.g., out of the country, incarcerated or institutionalized). Total number of permanently or temporarily out-of-scope second follow-up sample members = 460. In addition, unfielded cases are not counted in the denominator of the response rate for the second follow-up. In addition to a handful of sample members who asked to be withdrawn from the study, the following in-scope sample members were not fielded in 2006: double (base-year + first follow-up) nonrespondents (n = 330) and first follow-up freshened senior nonrespondents (n = 40).

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), “Second Follow-up, 2006.”

Of the approximately 15,900 eligible sample members, about 14,200 completed the ELS:2002 second follow-up survey for an overall unweighted response rate of 89 percent. The overall weighted response rate was 88 percent. Eighty-six percent of males and 91 percent of females completed the interview (weighted). Response rates across racial/ethnic subgroups ranged from a weighted 86 to 91 percent, with White respondents at the high end. Response rates by SES quarter ranged from 86 to 93 percent (weighted), with highest SES quarter respondents at the high end.

The greatest variability in response rates is in the first follow-up response status. As expected, and due to difficulty in locating and contacting (as well as to their presumably higher nonresponse propensities) a large number of first follow-up nonrespondents did not participate in the second follow-up study. Of eligible first follow-up nonrespondents, 67 percent (weighted) completed the interview. However, the weighted response rate for those who had responded in the first follow-up was 90 percent.

Dropouts also historically have been a challenging group to survey. Maintaining the representativeness of this small, select subgroup is critical because the policy relevance of dropouts is high. Two response rates are provided for different classes of dropouts: those identified as ever having dropped out (who were offered a higher incentive) in the second follow-up and a subset of this group—those who completed (or were eligible to complete) the

dropout questionnaire in the first follow-up.<sup>57</sup> Of those offered the “ever dropped out” incentive, the weighted response rate was 85 percent. For first follow-up dropouts, the second follow-up weighted response rate was 83 percent.

Response rates for additional *respondent types* (as determined by completed questionnaire type for first follow-up respondents or assumed questionnaire type for first follow-up nonrespondents) and *cohort type* (2002 sophomore cohort or 2004 senior cohort) are also provided. Weighted response rates by the four first follow-up respondent types ranged from 82 to 91 percent, with “stayers” (those who, in 2004, remained at the 2002 base-year school) at the high end and “movers” (those who transferred to a new school) at the low end. Weighted cohort response rates were similar: 88 percent of those belonging to the 2002 sophomore cohort and 91 percent of those belonging to the 2004 senior cohort participated in the 2006 data collection.

Base-year school characteristics (sector, region, and locale) were also used to classify sample members. Weighted response rates by base-year school sector ranged from 88 to 92 percent, with respondents from Catholic schools at the high end. Weighted regional response rates ranged from 86 to 90 percent, with respondents from the Midwest at the high end. Weighted response rates by school locale ranged from 87 to 89 percent, with respondents from urban schools at the low end.

*Refusal and conversion rates.* Sample members may refuse to participate for a variety of reasons, including being too busy, not being interested, or having a misconception of what is involved. In addition to refusals made directly by the sample member, gatekeepers—such as a parent or spouse—may refuse to provide access to the sample member or to share locating information. Table 43 and table 44 present unweighted<sup>58</sup> refusal and conversion rates for the 2006 data collection. Table 43 includes both sample member and gatekeeper refusals. Table 44 includes only sample member refusals. A comparison of the refusal rates illustrates the extent to which gatekeepers affect response rates.

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<sup>57</sup> To be classified as a dropout in the ELS:2002 first follow-up (F1), one had to be a sophomore cohort member who had been out of school at the time of the F1 data collection for at least 4 consecutive weeks not due to accident or illness, or a returnee who had been in school less than 2 weeks after a dropout episode of 4 consecutive weeks or more. The class of those with “ever dropped out” status is broader in that it also includes students identified by school personnel as out-of-school in tracing who had returned to school by the spring term of the 2003–04 school year and were therefore not classified as sophomore cohort dropouts eligible for the dropout questionnaire but rather as students. An additional group included in the “ever dropped out” category comprises students who had left school and earned a GED prior to March 15, 2004, but had not earned a high school diploma.

<sup>58</sup> Readers are reminded that while both weighted and unweighted percentages were calculated for the *completion rate tables* (because of the importance of weighted data to population estimation) the *methodological tables* (which are concerned not with national estimates but rather with the characteristics and behavior of survey respondents) display unweighted percentages only.

**Table 43. Sample member and gatekeeper refusal and conversion rates, by prior response status: 2006**

Prior response status	Total	Percentage of sample ever refused F2 interview	Percentage of sample interviewed, after refusal
Total	15,900	12.8	7.8
F1 respondents	14,700	12.4	7.9
F1 nonrespondents	1,200	18.4	6.6

NOTE: Detail may not sum to totals because of rounding. F1 = first follow-up; F2 = second follow-up. Percentages are unweighted. Second follow-up response rate calculation excludes those cases that are permanently out of scope (deceased) or temporarily out of scope (incapable, unavailable for duration of second follow-up data collection: e.g., out of the country, incarcerated or institutionalized). Total number of permanently or temporarily out-of-scope second follow-up sample members = 460. Also, unfielded cases are not counted against the response rate. In addition to a handful of sample members who asked to be withdrawn from the study, the following in-scope sample members were not fielded in 2006: double (base-year + first follow-up) nonrespondents (n = 330) and first follow-up freshened senior nonrespondents (n = 40).

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

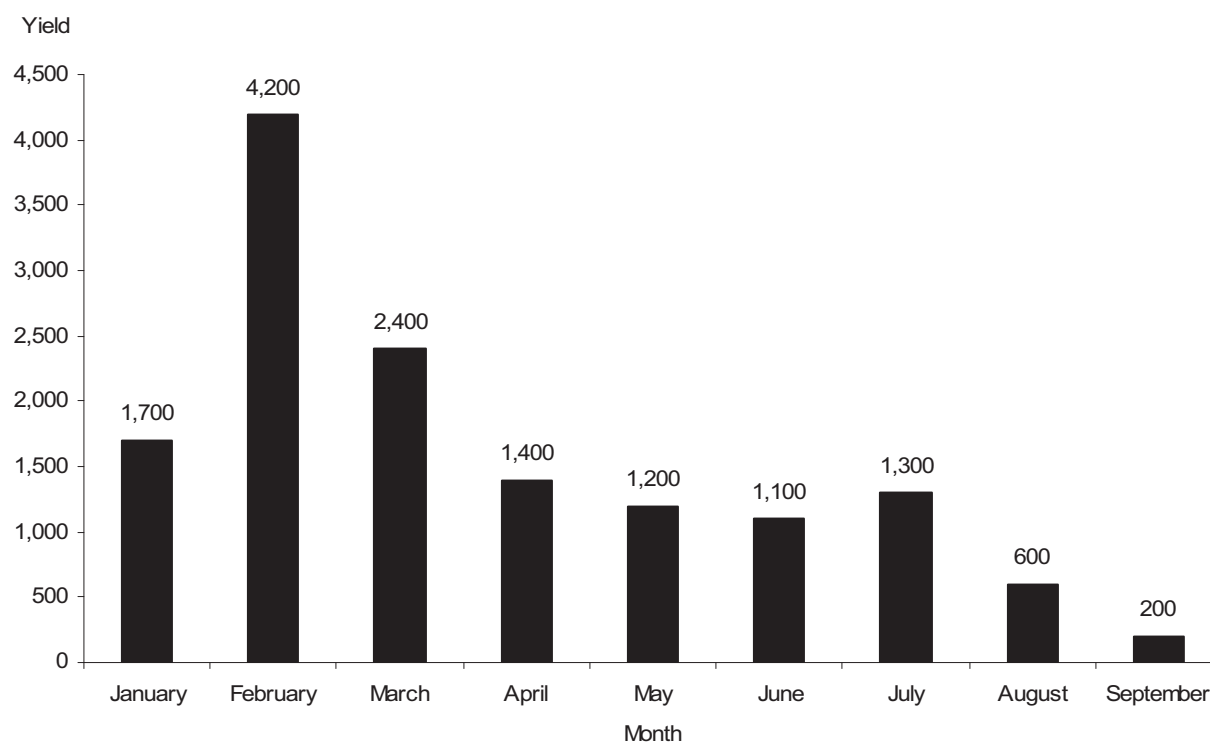
**Table 44. Sample member only refusal and conversion rates, by prior response status: 2006**

Prior response status	Total	Percentage of sample ever refused F2 interview	Percentage of sample interviewed, after refusal
Total	15,900	8.2	4.3
F1 respondents	14,700	7.8	4.4
F1 nonrespondents	1,200	13.0	3.9

NOTE: Detail may not sum to totals because of rounding. F1 = first follow-up; F2 = second follow-up. Percentages are unweighted. Response rate calculation excludes those cases that are permanently out of scope (deceased) or temporarily out of scope (incapable, unavailable for duration of second follow-up data collection: e.g., out of the country, incarcerated or institutionalized). Total number of permanently or temporarily out-of-scope second follow-up sample members = 460. Also, unfielded cases are not counted against the second follow-up response rate. In addition to a handful of sample members who asked to be withdrawn from the study, the following in-scope sample members were not fielded in 2006: double (base-year + first follow-up) nonrespondents (n = 330) and first follow-up freshened senior nonrespondents (n = 40).

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

*Completions by date (month) of administration.* The ELS:2002 field period was relatively lengthy, beginning in January 2006, and ending in September 2006. The point in time at which a respondent was interviewed may affect the data collected—for example, a change in enrollment status as of April might be recorded for a sample member interviewed in June, but not for a sample member interviewed in March. Figure 4 shows the distribution of respondents by month of interview.

**Figure 4. Distribution of respondents by month of interview: 2006**

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

*Completions by mode of administration.* The ELS:2002 second follow-up survey was multimodal. Three modes of administration were used: self-administered web, and interviewer administration via CATI and CAPI.

Two caveats concerning mode analyses should be entered at the outset. First, no analysis of mode of administration effects on individual survey items was conducted. This is because the validity of such an analysis would depend on random assignment of respondents to modes, and this was not a practical methodology for the survey. Second, while to a great extent mode was "self-assigned"—that is, sample members had the option of selecting web self-administration, or refusing it in preference to CATI or CAPI—not everyone had equal opportunity to do so. For example, sample members who were initially unlocatable and had to be traced had less opportunity to complete a web interview: calendar time had elapsed, early completer incentives for web self-administration had normally expired, and typically the hard-to-locate sample members were urged to complete a telephone or in-person interview at first contact. Certain respondent types—for example, first follow-up nonrespondents and dropouts—were more likely to be hard to locate, and certain demographic subgroups associated with these statuses thus had less opportunity to opt for web self-administration. That said, given the magnitude of differences, there remains evidence that web self-administration was more attractive to some groups than to others.

Table 45 provides the unweighted distribution of completed interviews by mode of administration. Some 47 percent of completions were achieved via self-administered web questionnaire. Some 43 percent were conducted in CATI, and 10 percent were gathered via

CAPI. When combining the CATI and CAPI modes, a little more than half of the cases were interviewer-administered and a little less than half self-administered (53 percent versus 47 percent).

**Table 45. Distribution of respondents, by select characteristics and mode: 2006**

Subgroup	Total	Web		CATI		CAPI	
		Number	Percent	Number	Percent	Number	Percent
Total	14,200	6,700	47.4	6,100	43.0	1,400	9.5
<b>Sex</b>							
Male	6,800	3,000	43.5	3,200	46.1	720	10.5
Female	7,300	3,700	51.2	2,900	40.2	630	8.6
<b>Race/ethnicity<sup>1</sup></b>							
American Indian or Alaska Native	120	40	32.8	60	55.2	10	12.1
Asian or Pacific Islander	1,400	800	56.5	500	36.5	100	7.0
Black or African American	1,900	490	26.3	1,100	58.1	290	15.6
Hispanic or Latino	2,100	680	33.4	1,000	50.0	340	16.7
More than one race	670	300	45.0	300	44.0	70	11.0
White	8,000	4,400	54.8	3,100	38.6	530	6.6
<b>Socioeconomic status (SES)</b>							
Lowest quarter	3,300	1,000	31.6	1,800	53.4	500	15.1
Second quarter	3,300	1,400	42.2	1,500	45.5	410	12.3
Third quarter	3,400	1,700	50.7	1,400	41.2	280	8.1
Highest quarter	4,100	2,500	61.6	1,400	34.2	170	4.1
<b>F1 response status</b>							
F1 respondents	13,300	6,500	48.5	5,700	42.9	1,100	8.6
F1 nonrespondents	830	250	30.3	370	44.4	210	25.3
"Ever dropped out" as of F1 <sup>2</sup>	1,000	240	24.7	550	56.3	180	18.6

<sup>1</sup> All race categories exclude individuals of Hispanic or Latino ethnic origin.

<sup>2</sup> For "ever dropped out," classified as dropout if at least one of the following conditions was met: school reported that respondent had dropped out of school at any one of the enrollment status updates, respondent was a dropout as of spring term of 2004, or respondent was an alternative completer; that is, earned a GED on or before March 15, 2004.

NOTE: Detail may not sum to totals because of rounding. Provided percentages are unweighted and based on total number of respondents within row. F1 = first follow-up. CATI = computer-assisted telephone interview; CAPI = computer-assisted personal interview. GED = General Educational Development credential.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

Across all subgroups, completions ranged from 25 to 57 percent for self-administered web, 34 to 58 percent for CATI, and 4 to 25 percent for CAPI. Many subgroups showed different mode of administration propensities, and several subgroups significantly differed from each other in this respect. Mode differences by sex showed that more females completed self-administered web questionnaires than did males (51 percent versus 43 percent [ $z = 9.17$ ,  $p < .01$ ]).

Several racial/ethnic subgroups had higher proportions of completions via CATI/CAPI than self-administered web, including American Indian (67 percent versus 33 percent,  $z = 3.71$ ,  $p < .01$ ); Black (74 percent versus 26 percent,  $z = 20.49$ ,  $p < .01$ ); Hispanic (67 percent versus 33 percent,  $z = 15.06$ ,  $p < .01$ ); and more than one race (55 percent versus 45 percent,  $z = 2.58$ ,  $p < .01$ ). Asian and White respondents, however, were more likely to complete the self-administered web instrument—for Asians, 57 percent of completions were web self-administrations, as contrasted to 43 percent as interviewer administrations ( $z = 4.90$ ,  $p < .01$ ). For Whites, 55 percent were web completions, and 45 percent ( $z = 8.57$ ,  $p < .01$ ) CATI or CAPI.

SES subgroups also differed by mode of administration. The self-administered web option was completed by 62 percent of highest SES quarter respondents—as opposed to 32 percent for the lowest quarter ( $z = 25.68, p < .01$ ).

As expected, more first follow-up nonrespondents were interviewed via CATI/CAPI than self-administered, 70 percent as opposed to 30 percent ( $z = 11.34, p < .01$ ). Furthermore, 25 percent of the interviewed cases were conducted via CAPI, which is indicative of the importance of the field option for difficult cases. Similarly, respondents who were offered the “ever dropped out” incentive also were more likely to be interviewed in CATI or CAPI (75 percent, versus 25 percent for web self-administered [ $z = 15.64, p < .01$ ]).

#### 4.3.2.2 Incentive Results

As earlier noted, the incentive plan took into account sample member status, timing of interview completion, and degree of case difficulty. Specifically, a higher incentive was offered to sample members who qualified as ever having dropped out, first follow-up nonrespondents, early web respondents, and sample members requiring extra effort to find, reach, or gain cooperation. Sample members were offered incentive amounts ranging from \$20 to \$60 depending on the above criteria.

Incentive results are presented in two ways. Table 46 provides incentive type by overall interview completions. Table 47 provides incentive/subgroup type by number of cases remaining. Four incentive types are shown: Early, Regular, Difficult, and Final Difficult. Those who completed the survey by web within the first 4 weeks of data collection received the Early incentive, where \$10 was added to sample members’ base amounts. Once the early completion window had closed, respondents received the Regular incentive which included base incentive amounts only. As data collection efforts continued and case difficulty increased, many sample members became eligible for the Difficult incentive, which once again added \$10 to base amounts. By July, all remaining sample members became eligible for a final push, or Final Difficult incentive, which added an additional \$10 or \$20 depending on respondent type.<sup>59</sup>

**Table 46. Interview completions, by incentive type: 2006**

Response status and incentive type <sup>1</sup>	Number of cases	Number of completed interviews	Percentage of cases completed
Total	15,900	14,200	89.1
Early	15,900	5,000	31.4
Regular	10,900	5,000	31.4
Difficult	5,900	2,000	12.6
Final Difficult	3,900	2,200	13.6

<sup>1</sup> The Early incentive (base amount plus \$10) was offered upon completion by web during the first 4 weeks of data collection. The Regular incentive constituted the base amount. The Difficult incentive added \$10 to the base amount. The Final Difficult incentive added an additional \$10 or \$20 depending on respondent type. See section 4.3.1.2 for actual incentive amounts.

NOTE: Detail may not sum to totals because of rounding. Provided percentages are unweighted. Response rate calculation excludes those cases that are permanently out of scope (deceased) or temporarily out of scope (incapable, unavailable for duration of data collection: e.g., out of the country, incarcerated or institutionalized). Total number of permanently or temporarily out-of-scope second follow-up sample members = 460. Also, unfielded cases are not counted in the second follow-up response rate. In addition to a handful of sample members who asked to be withdrawn from the study, the following in-scope sample members were not fielded in 2006: double (base-year + first follow-up) nonrespondents ( $n = 330$ ) and first follow-up freshened spring-term senior nonrespondents ( $n = 40$ ).

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

<sup>59</sup> Refer to section 4.3.1.2 for actual incentive amounts.



**Table 47. Interview completions, by incentive type and prior response status: 2006**

Incentive type and response status <sup>1, 2</sup>	Number of cases	Number of completed interviews	Percentage of cases completed
Total	15,900	14,200	89.1
Early	15,900	5,000	31.4
F1 respondent, ever dropped out	1,000	250	25.8
F1 nonrespondent, dropout	180	10	7.9
F1 respondent, all others	13,700	4,600	33.6
F1 nonrespondent, all others	1,100	140	12.7
Regular	10,900	5,000	45.9
F1 respondent, ever dropped out	720	270	37.0
F1 nonrespondent, dropout	160	40	22.0
F1 respondent, all others	9,100	4,500	49.4
F1 nonrespondent, all others	930	200	21.5
Difficult	5,900	2,000	34.0
F1 respondent, ever dropped out	450	170	37.2
F1 nonrespondent, dropout	130	30	19.5
F1 respondent, all others	4,600	1,700	36.0
F1 nonrespondent, all others	730	160	22.0
Final Difficult	3,900	2,200	55.5
F1 respondent, ever dropped out	280	170	61.3
F1 nonrespondent, dropout	100	40	40.8
F1 respondent, all others	2,900	1,700	58.9
F1 nonrespondent, all others	570	210	37.5

<sup>1</sup> The “early incentive” (base amount plus \$10) was offered upon completion by web (or CATI call-in) during the first 4 weeks of data collection. The Regular incentive constituted the base amount. The Difficult incentive added \$10 to the base amount. The Final Difficult incentive added an additional \$10 or \$20 depending on respondent type. See section 4.3.1.2 for actual incentive amounts.

<sup>2</sup> For “ever dropped out”: classified as dropout if at least one of the following conditions was met: school reported that respondent had dropped out of school at any one of the enrollment status updates, respondent was a dropout as of spring term of 2004, or respondent was an alternative completer, that is, earned a GED on or before March 15, 2004.

NOTE: Detail may not sum to totals because of rounding. Provided percentages are unweighted. Response rate calculation excludes those cases that are permanently out of scope (deceased) or temporarily out of scope (incapable, unavailable for duration of second follow-up data collection: out of the country, incarcerated or institutionalized). Total number of permanently or temporarily out of scope second follow-up sample members = 460. Also, unfielded cases are not counted in the second follow-up response rate, which is condition on cases being fielded. In addition to a handful of sample members who asked to be withdrawn from the study, the following in-scope sample members were not fielded in 2006: double (base year + first follow-up) nonrespondents (n=330) and first follow-up freshened senior nonrespondents (n=40). F1 = first follow-up. CATI = computer-assisted telephone interview.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), “Second Follow-up, 2006.”

Of the completed interviews, 63 percent of the sample either completed the interview early or during the regular data collection period, while 26 percent completed the interview in the final incentive phases. Interestingly, just as many responded during the initial month of data collection as did those during the regular period from mid-February through June. Almost one third of respondents (31 percent) took advantage of the early web option in the first month of data collection. Respondents, however, were motivated at both ends of the data collection window. When combining the Early and Difficult incentive types, 58 percent of respondents received an incentive that was higher than the base amount offered.

Table 47 provides additional detail across sample member subgroups, including prior response status and “ever dropped out” status. For each subgroup at each incentive level, the number of cases remaining and the number of completed interviews is provided, with a

calculated percent of respondents per row. The incentive strategy was implemented in a series of stages, to balance costs, timing, and methods. Both “nondropouts” (59 percent) and “ever dropped out” qualifiers (61 percent) completed the interview when \$50 and \$60 were offered, respectively. The \$10 sent to sample members in the form of prepayment may conceivably have helped to encourage participation. The smallest gain in cooperation for first follow-up nonrespondents (both nondropouts [13 percent] and ever dropped out qualifiers [8 percent]), came in the Early incentive period. Overall, the Regular and Final Difficult incentive opportunities proved productive, given the total number of cases remaining, 46 and 56 percent, respectively.

#### **4.3.2.3 Process Statistics: Interviewer Effort**

Select evaluations of processes related to interviewer effort are provided in this section. In particular, telephone interviewer hours, call counts by response status, and field interviewing results are discussed.

*Telephone interviewer hours.* The CATI component of data collection required focused effort by telephone interviewers and related staff. The main tasks of contacting and interviewing sample members take many hours, and exclude associated tasks such as training, monitoring, and supervising. Telephone interviewers for the ELS:2002 second follow-up required a total of 20,636 hours, with an average of 3.27 hours spent per completed interview. With an average interview completion time of 27.5 minutes for CATI cases, about 2.8 hours were spent in activities outside the actual interview. The majority of this time was dedicated to locating and contacting efforts. Interviewers were provided multiple contacts per sample member. Interviewers used multiple efforts to locate sample members. Other time was spent on case maintenance, including pulling up a case, reviewing the call history, and closing the case, which may have involved rescheduling an appropriate callback, providing a comment, or updating the case status accordingly.

*Number of calls.* The majority of interviewer time was dedicated to locating and contacting sample members. This activity requires an extensive outbound calling effort, with some respondent types requiring more calls than others. Table 48 provides call counts by present and prior response status, including counts by mode overall and for second follow-up respondents. About 294,000 calls were made to sample members in the ELS:2002 second follow-up survey. An average of 19 calls were made per case regardless of present or prior response status.

**Table 48. Call counts, by present and prior response status: 2006**

Response status	Overall		
	Number of cases	Total number of calls	Average calls per case
Total	15,900	293,900	18.5
F2 respondent			
F1 respondent	13,300	195,400	14.7
F1 nonrespondent	800	18,100	21.9
F2 nonrespondent			
F1 respondent	1,300	66,900	50.8
F1 nonrespondent	400	13,600	32.6

NOTE: Detail may not sum to totals because of rounding. Response rate calculation excludes those cases that are permanently out of scope (deceased) or temporarily out of scope (incapable, unavailable for duration of second follow-up data collection: e.g., out of the country, incarcerated or institutionalized). Total number of permanently or temporarily out-of-scope second follow-up sample members = 460. Also, unfielded cases are not counted in the second follow-up response rate, which is conditional on a case being fielded. In addition to a handful of sample members who asked to be withdrawn from the study, the following in-scope sample members were not fielded in 2006: double (base year + first follow-up) nonrespondents (n = 330) and first follow-up freshened senior nonrespondents (n = 40). F1 = first follow-up; F2 = second follow-up.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

Of those who completed the 2006 interview, first follow-up respondents received an average of 15 calls and first follow-up nonrespondents received an average of 22 calls. A concentrated effort was made to survey second follow-up nonrespondents. In particular, those who had responded in the first follow-up but declined to participate in the second follow-up were called an average of 51 times. Conversely, those who did not respond in the first follow-up were called an average of 33 times per case.

*Field interviewing.* Field interviewers were able to pursue contacting efforts both by telephone and in person, and had advantages including local area calling and face-to-face interaction with sample members. With this enhanced accessibility, interviewers employing CAPI efforts are often able to secure participation when other data collection efforts are not successful.

Table 49 presents response rates by field interviewing status. The majority of the sample (81 percent) was successfully interviewed without field follow-up. However, more than 1,330 cases (8 percent of the sample) were successfully interviewed only with the help of field follow-up. Of all cases sent to the field, 57 percent were successfully interviewed and 43 percent were not. Some outstanding cases (730) were not sent to the field owing to such factors as firm refusal or unusable contact information.

**Table 49. Interview completion and noncompletion rates, by field status: 2006**

Case type	Number of cases	Percent
Total	15,900	100.0
Interviewed without field follow-up needed	12,800	80.7
Interviewed, field follow-up required	1,300	8.4
Not interviewed, field follow-up attempted	1,000	6.3
Not interviewed, no field follow-up attempted	730	4.6

NOTE: Provided percentages are unweighted. Detail may not sum to totals because of rounding. Response rate calculation excludes those cases that are permanently out of scope (deceased, sampling error) or temporarily out of scope (incapable, unavailable for duration of data collection: e.g., out of the country, incarcerated, institutionalized). Total number out of scope = 460. Also, unfielded cases are not counted in the second follow-up response rate. In addition to a handful of sample members who asked to be withdrawn from the study, the following in-scope sample members were not fielded in 2006: double (base-year + first follow-up) nonrespondents (n = 330) and first follow-up freshened spring-term senior nonrespondents (n = 40).

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

#### 4.3.2.4 Evaluation of Data Quality

This section includes select evaluations of the quality of data collected in the 2006 interview. Interview completion time is discussed overall, by questionnaire section, and by mode (web, CATI, or CAPI). Coding systems within the instrument for field of study and occupation are also discussed, including an analysis of coding accuracy. Telephone interviewer performance in question delivery and data entry is also assessed.

*Interview completion time.* To calculate the time required to complete the survey, start and end time stamp variables were associated with each question. Time stamps were recorded using the respondent's or interviewer's computer clock time. As respondents or interviewers moved from screen to screen, actual on-screen times and transit times between screens were recorded and summed. Section times and total instrument times were then calculated accordingly.

On average, respondents took about 27 minutes to complete the ELS:2002 second follow-up survey. Table 50 shows average completion time overall and by section, and mode of administration.

**Table 50. Average minutes to complete interview, by interview section and mode: 2006**

Instrument section	Respondents			
	All	Web	CATI	CAPI
Total interview	27.2	26.5	27.5	28.8
Section A—High school	1.5	1.2	1.5	2.3
Section B—Postsecondary	11.0	11.7	10.6	8.9
Section C—Employment	7.1	6.5	7.3	8.8
Section D—Community	3.3	3.1	3.4	3.3
Section E—Locating	5.5	4.9	5.8	6.8

NOTE: Outliers were excluded from analysis. An outlier was defined as any question requiring more than 5 minutes' response time. Interview times are based on completed interviews only. Abbreviated English, Spanish, and partial cases were excluded from analysis. CATI = computer-assisted telephone interview; CAPI = computer-assisted personal interview.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

Section B (postsecondary education) had the longest average completion time (11 minutes). Section A (high school) was inapplicable for most respondents, lowering the average time to less than 2 minutes.

Section C (employment) showed the second longest time, 7 minutes. Most respondents, in particular standard enrollees, were asked limited questions about employment due to being currently enrolled. Section D (community) was a relatively quicker section, taking about 3 minutes to complete. The last section, Section E (locating), took over 5 minutes to collect contact information for future follow-up.

*Analysis of field of study and occupation recoding.* The ELS:2002 second follow-up instrument enabled sample members and interviewers to code verbatim responses given for field of study and occupation. Currently enrolled respondents were asked for their field of study, while all respondents were asked about the job they expected to have at age 30. A subset of respondents, depending on their enrollment status and history, was asked about first job after high school and/or current job.

Both coding systems used an assisted-coding approach. Entered text describing the field of study or occupation interfaced with a database to provide a candidate for the best category match or provide a set of comparable matches. The assisted-coding approach—as opposed to search-and-select or manual coding—presents less burden on the respondent and interviewer, requiring less time to code, and streamlining the selection process. If the system could not make a match (e.g., owing to misspelling) or if a selection could not be made from the list displayed, respondents and interviewers were routed to a double or triple dropdown screen to make a selection manually.

For field of study, the category names provided by assisted coding were synonymous with the general and specific categories provided by the manual dropdowns. The field of study coder provided 33 general categories and 192 specific categories. The categorical framework was largely based on the most recent version of the Classification of Instructional Programs (CIP-2000), which provides a taxonomy of instructional program classifications and descriptions.

The occupation coding system used O\*NET (Occupational Information Network; <http://online.onetcenter.org/>). The O\*NET database was developed for the U.S. Department of Labor and represents an extensive set of worker attributes and job characteristics. O\*NET provides a nested coding scheme; 23 general-level categories expand to 96 midlevel categories, which expand to 821 specific-level categories.<sup>60</sup> Specific level occupations can therefore roll up to broader categorizations. If an occupational match could not be found using assisted coding, a triple dropdown menu enabled manual selection. For job expected at age 30, however, the manual coder was bypassed altogether. This was done due to the hypothetical nature of asking about a future job that may be more difficult to assign a specific code. Any verbatim responses that were not coded during the interview were coded by expert staff after data collection.

To assess the reliability of coding procedures, two occupational coding specialists evaluated random samples of coded responses. Ten percent of field of study responses and 10 percent from each occupation variable were assessed for coding accuracy. Table 51 shows the

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<sup>60</sup> Refer to appendix F for a detailed occupational crosswalk providing all O\*NET classifications (general, midlevel, specific), in addition to their paired mappings to the original 16 occupational categories used in the base year and first follow-up of ELS:2002.

results of the recode analysis, including the number of responses sampled by mode, accuracy of the original code, and the percentage of strings too vague for recoding. Assessment of coding accuracy is based on the specific level of coding, meaning responses were deemed correct or incorrect at the most specific category level for both field of study and occupation.

**Table 51. Summary of recode results, by mode: 2006**

Type of coding	Web respondents			CATI/CAPI respondents		
	Coding attempts sampled	Percent original code correct	Percent text string too vague to code	Coding attempts sampled	Percent original code correct	Percent text string too vague to code
Total	940	73.5	1.3	1,400	82.0	1.9
Major/field of study	390	74.5	0.3	240	86.4	0.0
Occupation	550	72.8	2.0	1,100	81.0	2.3
First job after high school	130	65.6	1.6	290	77.2	3.5
Current job	90	75.0	2.3	210	80.8	1.4
Job expected at age 30	330	74.9	2.1	620	82.9	2.1

NOTE: Detail may not sum to totals because of rounding. Provided percentages are unweighted. CATI = computer-assisted telephone interview; CAPI = computer-assisted personal interview.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

Overall, both coding systems fared well in usability and accuracy, lending support for the use of an assisted-coding approach. Coding accuracy generally ranged from 77 to 86 percent for CATI/CAPI interviews and 66 to 75 percent for web respondents. As expected, interviewer-administered cases showed higher accuracy overall compared to self-administered cases—82 percent as opposed to 74 percent ( $z = 4.87, p < .01$ ). Specifically, interviewers correctly coded field of study at a higher rate than web respondents—86 percent as opposed to 75 percent ( $z = 3.58, p < .01$ ). Interviewers also coded occupation more accurately—81 percent as opposed to 73 percent ( $z = 3.81, p < .01$ ). All interviewers were trained in using the coding systems, and became familiar with the mechanics of coding to minimize coding time during the interview. Web respondents, however, were provided with on-screen brief instructions to assist with coding. Any originally incorrect responses were recoded accordingly (18 percent of CATI/CAPI responses and 26 percent of web responses), in order to reflect accurate field of study or occupation categorizations and improve data quality.

Given the structure of O\*NET, coding accuracy can be assessed at three levels of detail (general, midlevel, specific). Specific-level codes can roll up to midlevel and general-level categories. The 23 general-level categories within O\*NET represent a comprehensive and manageable set of contemporary job categories. When assessing coding reliability at the general O\*NET level, as one would expect, matches were greater at more general levels. Excluding the small number of cases deemed too vague for recoding purposes, occupation at the general level was coded correctly 88 percent of the time overall. Interviewer-administered cases showed higher accuracy compared to self-administered—90 percent as opposed to 84 percent ( $z = 3.38, p < .01$ ). For both modes, this is a large gain in accuracy at the level containing 23 categories; an 8 percent increase for CATI/CAPI and a 10 percent increase for web respondents.

Further assessment of coding accuracy can be seen in the mapping of O\*NET codes to ELS:2002 occupation codes. The base-year and first follow-up rounds of ELS:2002 used an occupation coding scheme consistent with predecessor studies, including NELS:88. To use the efficiency of O\*NET, yet also provide consistency with previous rounds, all 821 specific-level

O\*NET codes were mapped accordingly to the ELS:2002 occupation coding schema of 16 categories.<sup>61</sup> Given this crosswalk, coding accuracy to the ELS:2002 schematic can also be assessed. With the exclusion of vague responses, associated ELS:2002 categories were coded correctly 85 percent of the time overall. CATI/CAPI also had the advantage compared to web, with 88 percent correct as opposed to 80 percent ( $z = 4.27, p < .01$ ).

*Question delivery and data entry error rates.* CATI interviews were regularly monitored throughout data collection, from late January through early September. Monitoring helps improve interviewing and enhances data quality. For studies with an interviewer component, ensuring both standardized interview delivery and appropriate data capture is important. Monitoring helps to meet the following objectives: identify problematic items, reduce interviewer error, improve interviewer performance by reinforcing procedures and strategies, and assess the quality of data collected.

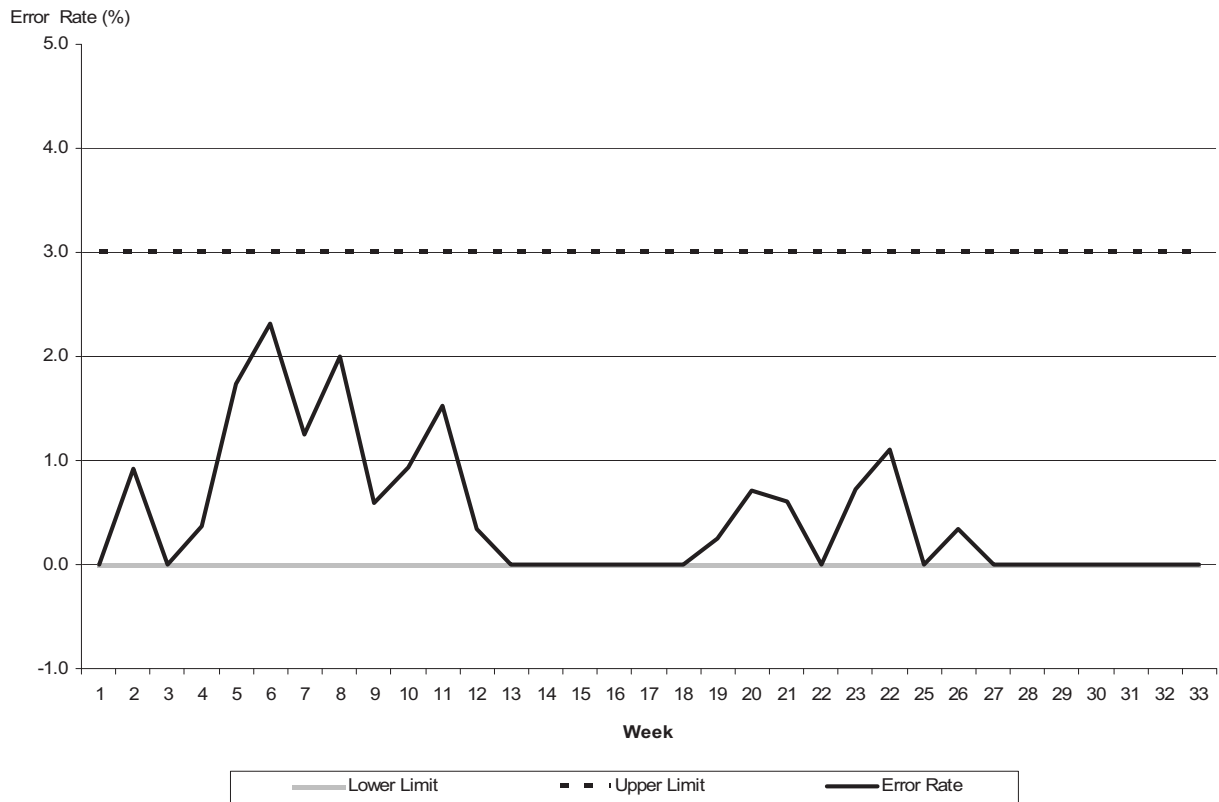
Interviewer performance was evaluated in two ways: (1) how interviewers administered items to the respondent and (2) how interviewers recorded responses. Specially trained monitors were able to concurrently view and listen to live CATI interviews without disturbing the interviewer or respondent. Monitoring equipment facilitated remote observation with the flexibility to tune into any interview. Monitors observed blocks of up to 20 questions per interview, and evaluations were conducted during all shifts, including day, evening, and weekend.

During CATI data collection, 9,885 items were monitored. Of these, monitoring staff observed 89 total errors, yielding an overall error rates of just 0.9 percent. Three percent was defined as the boundary for the weekly error rate, above which direct intervention would be required. Question delivery incurred 71 errors (a 0.7 percent error rate; data entry incurred 18 errors [an error rate of 0.2 percent]). Question delivery errors and data entry errors are illustrated in figures 5 and 6, respectively. Typically, weekly error rates fell below 2.3 percent. Most fell below 1 percent; many weeks showed no errors at all. The peaks in error rate are attributable to the addition of new interviewer staff, who are more prone to errors due to inexperience. Monitoring efforts were the most intensive early on in data collection, particularly after the first major CATI interviewer training, from late February through late March. By early August, monitoring efforts were reduced given the lighter caseload and consistently low error rates.

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<sup>61</sup> Refer to appendix F for a detailed occupational crosswalk providing all O\*NET classifications (general, midlevel, specific), in addition to their paired mappings to the original 16 occupational categories used in the base year and first follow-up of ELS:2002.

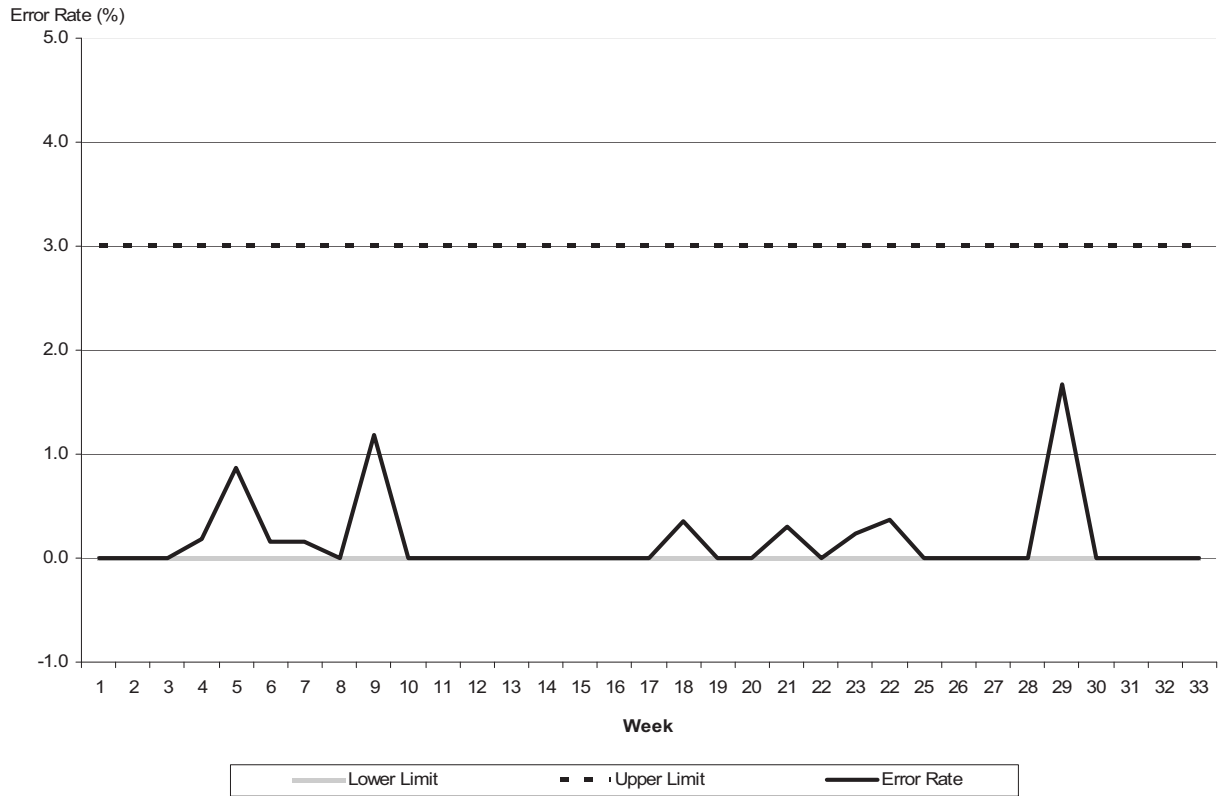
**Figure 5. ELS:2002 second follow-up quality assurance monitoring results by week for question delivery error rates: 2006**



SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."



**Figure 6. ELS:2002 second follow-up quality assurance monitoring results by week for data entry error rates: 2006**



SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."



# Chapter 5

## Data Preparation and Processing

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### 5.1 Base-Year and First Follow-up Data Preparation and Processing

This chapter describes the automated systems used to control survey processes for the Education Longitudinal Study of 2002 (ELS:2002), including procedures used to maintain receipt control; aspects of data preparation (such as coding); and the various procedures for data capture, cleaning, and editing. The discussion in this chapter includes data obtained from questionnaires, academic records (transcripts and course catalogues), and all other sources.

#### 5.1.1 Overview of Systems Design, Development, and Testing

Most systems were developed in the base year, then redesigned if necessary during the first follow-up field test with concern for the processes needed for the first follow-up main study. The effort was to test systems in a smaller environment to reveal points in which improvements could be implemented on a larger scale. After the field test, improvements were implemented and checked in a test environment.

The following systems were developed in the base year and refined and tested in the first follow-up field test:

- a recruiting system;
- a Survey Control System (SCS);
- a Survey Day materials generation program;
- a questionnaire receipt application;
- a web-based Integrated Management System;
- production reports;
- Teleform (application used for scanning questionnaires);
- a mail return application;
- an incentive tracking application;
- a field reporting system to help field supervisors track the status of in-school data collection and field interviewing;
- a Structured Query Language (SQL) server database to store scanned data responses;
- a scanned image database; and
- a student computer-assisted telephone interview (CATI) instrument.

A full development process, including design, programming, testing, and implementation, was used in the creation of these systems. Specifications were developed in word processing documents and flowchart applications, and progress was tracked using Microsoft Project and Microsoft Excel. Specifications for questionnaires were designed in word processing documents

and were updated to reflect what changed between the field test questionnaires and the full-scale questionnaires.

Between the field test and full-scale studies, systems and procedures were evaluated and the following functionality was added to the full-scale operations:

- a field assignment system;
- a field materials generation system;
- mail generation invoked by requests in CATI;
- a computer-assisted data entry program for the field screener;
- Teleform versions of out-of-school hardcopy questionnaires (i.e., transfer, dropout, early graduate);
- quality control steps implemented during scanning, rather than later during data delivery processes;
- data cleaning and editing programs;
- a scanned image archive server that allowed instant access to scanned questionnaires during the data cleaning and review process;
- a cleaning and editing application that allowed editors to review and correct questionnaire data as appropriate, working in conjunction with actual scanned images in cases in which inconsistent data occurred;
- a data review system that allowed reviewers to randomly review questionnaires with data to detect data deficiencies (e.g., scanning problems); and
- an occupation coding application.

### **5.1.2 Base-Year and First Follow-up Data Receipt**

The data preparation facility received all materials returned to RTI after a school's survey was complete or school officials sent in completed questionnaires. Procedures were established to systematically receive and record all required forms; this process included the scanning of bar-coded labels. Receipt events were available for the full-scale study to identify questionnaires that were not completed fully or accurately and to allow project staff to follow up promptly. Different versions of questionnaires (e.g., student, transfer, early graduate, etc.) were easily distinguishable within the receipt process and were automatically batched separately based on the questionnaire type.

After questionnaires were received and added to the receipt system, a batch number was assigned to the questionnaire. To assist the project team in cases that required referring to a questionnaire, the system was able to access dynamically the status of an individual questionnaire and provide its batch number. If the questionnaire had moved beyond the scanning stage, the scanned image could be accessed as well. Questionnaires were occasionally identified for data removal (e.g., when parental consent was lacking). Rather than deal with the removal process manually, a spreadsheet was developed to document these cases, and case removal was integrated into the data delivery process. This approach was useful because it did not disrupt the

questionnaire processes and provided the ability to add cases back to final data files when appropriate (e.g., when parental permission was obtained).

### **5.1.3 Occupation Coding for Hardcopy Instruments**

In the base year, occupation was coded from text in the parent and student questionnaires. In the first follow-up, occupation was coded from the student questionnaire and new participant supplement. Occupation text was loaded into a coding application in which a coding specialist could select the correct code from the 16 occupation categories. The resulting codes were merged back into the data files.

### **5.1.4 Base-Year and First Follow-up Data Capture for Scanned Instruments**

After questionnaires were received and batched, they were ready for Teleform scanning. A Teleform questionnaire contained text fields that could be recognized by scanning machines and interpreted forms text to data through optical character recognition. Verifiers reviewed data that were not interpreted accurately by the scanning machines or were not consistent with expected ranges. Once verification was complete, the data were converted to an American Standard Code for Information Interchange (ASCII) file, and the questionnaire image was written to the server. This process provided immediate access to raw questionnaire data and a repository of images accessible by ELS:2002 staff.

Teleform development began with the field test Teleform document and specifications in Microsoft Word that indicated changes made between the field test and the full-scale study. Modifications were easily made, and variable names were updated appropriately. Any new Teleform documents were first developed in Microsoft Word as a specification. As changes in the Teleform document were required, the corresponding Microsoft Word document was updated using the “Track Changes” tool. Reviewers would compare the specifications to the printed version of the Teleform document to ensure that all questionnaires were the latest version. When a Teleform document was confirmed as final, internal testing of the scanning and data-writing processes occurred. About 10 forms were printed and filled out for testing purposes. The test forms were scanned so that the resulting data could be compared to the original questionnaire; this comparison would detect problems with the printed questionnaire, the scanning program, or the SQL server database.

### **5.1.5 Base-Year and First Follow-up Cleaning and Editing for Hardcopy Questionnaire Data**

An application was developed in which case/item-specific issues were reviewed and new values were recorded for subsequent data cleaning and editing. Records were selected for review based on one of the following criteria: random selection, suspicious values during frequency reviews, values out of expected ranges, and values not adhering to a particular skip pattern. The review application provided the case/item-level information, reasons for review, and a link to the scanned image of the questionnaire. Reviewers determined scanning corrections, recommended changes (if respondents had misinterpreted the question), and reviewed items randomly to spot potential problems that would require more widespread review.

The application was built on an SQL server database that contained all records for review and stored the recommended data changes. Editing programs built in SAS read the SQL server database to obtain the edits and applied the edits to the questionnaire data. Questionnaire data

were stored at multiple stages across cleaning and editing programs, so comparison across each stage of data cleaning could be easily confirmed with the documentation on recommended edits. Raw data were never directly updated, so changes were always stored cumulatively and applied each time a cleaned dataset was produced. This process provided the ability to document all changes and easily fix errors or reverse decisions upon further review.

Editing programs also contained procedures that output inconsistent items across logical patterns within the questionnaire. For example, instructions to skip items could be based on previously answered questions; however, the respondent may not have followed the proper pattern based on the previous answers. These items were reviewed, and rules were written to either correct previously answered (or unanswered) questions to match the dependent items or blank out subsequent items to stay consistent with previously answered items.

### **5.1.6 Base-Year and First Follow-up Data Capture and Editing for CATI**

In the base year, a CATI version of the parent questionnaire was employed. In the first follow-up, for the out-of-school data collection effort, the following CATI instruments were developed to administer to sample members: student (developed from the Teleform abbreviated version), transfer, not currently in school (dropout), early graduate, and homeschool. A screener at the beginning of the CATI survey was responsible for determining which questionnaire module a respondent was to be administered.

CATI logic was designed such that the Teleform and CATI records could be concatenated into one data file. CATI instruments were developed with logic based on the skip patterns in the questionnaires. Questions were automatically skipped during administration. The questionnaire development program (Blaise) stored data for each item answered, but respondents were allowed to go back to previously answered items. In rare cases, a previously answered item could be changed in such a way that the questionnaire logic was inconsistent with data already answered from a different logical path. Blaise automatically corrected the previously administered responses so that the skip logic was consistent.

### **5.1.7 Base-Year and First Follow-up Data Processing and File Preparation**

All Teleform questionnaire scans were stored in an SQL server database. CATI data were exported nightly to ASCII files. Cleaning programs were designed to concatenate CATI and Teleform SQL server data into SAS datasets, adjusting and cleaning variables when formats were not consistent. Special attention was focused on this concatenation to verify that results stayed consistent and to rule out possible format problems.

Once questionnaire data were concatenated and cleaned across modes and versions, the following cleaning and editing steps were implemented:

- anomalous data cleaning based on review of data with original questionnaire image (e.g., scanning errors);
- rule-based cleaning (changes that were made based on patterns in data, rather than review of images);
- hard-coded edits based on changes recommended by a reviewer if respondents misunderstood the questionnaire (e.g., respondent was instructed to enter a

percentage, but there was strong evidence that the respondent entered a count instead); and

- edits based on logical patterns in questionnaire (e.g., skip pattern relationships between gate and dependent questions).

All respondent records in the final dataset were verified with the SCS to spot inconsistencies. For example, it was possible that data were collected for a respondent who later was set to an ineligible status. It would not be appropriate to include those data, and the SCS served as a safeguard to ensure data integrity. Furthermore, the data files served as a check against the SCS to ensure that all respondent information was included in production reports.

Item documentation procedures were developed to capture variable and value labels for each item. Item wording for each question was also provided as part of the documentation. This information was loaded into a documentation database that could export final data file layouts and format statements used to produce formatted frequencies for review. The documentation database also had tools to produce final electronic codebook input files.

## 5.2 First Follow-up Transcript and Course Offerings Procedures

This section summarizes procedures associated with the processing of high school academic transcripts and course catalogs. For detailed information on archival records collection and processing based on student transcripts and high school course catalogs, see Bozick et al. (2006), which is available only with the restricted-use transcript files. The Institute of Education Sciences/National Center for Education Statistics will only accept restricted-use data license applications through its electronic application system (see <http://nces.ed.gov/statprog/instruct.asp>). More information about applying for restricted-use data licenses is available at <http://nces.ed.gov/statprog/instruct.asp> and in the “Restricted-Use Data Procedures Manual” at <http://nces.ed.gov/statprog/rudman/toc.asp>.

A concise introduction to the transcript data is provided by Planty, Bozick, and Ingels (2006).

### 5.2.1 First Follow-up Transcript Procedures

#### 5.2.1.1 Receipt Control

Incoming data collection forms, transcripts, and course catalogs were logged into the survey control system by staff in RTI’s data preparation unit. Data editors reviewed each school’s packet of materials for completeness and legibility. Data editors first recorded whether the Transcript Cover Sheet and Student Transcript Checklist were completed and returned by the school. The Transcript Cover Sheet was examined to determine if any of the requested items were unavailable, and this information was recorded in the survey control system. Data entry clerks keyed the data from Transcript Cover Sheet and Student Transcript Checklist forms in the survey control system. Assigned institutional contactors (ICs) called schools to follow up regarding any missing materials. Missing materials were retrieved by telephone or mail. The results of each school contact were recorded in the survey control system.

At the student level, individual transcript receipts were recorded in the survey control system by data preparation staff. Once the items were recorded, data editors reviewed them for legibility and completeness. Packets with edit problems were routed to a supervisor for

resolution. Electronic reports were produced and monitored to identify missing or unclear information at the school and student levels. ICs followed up to obtain missing documents and to clarify information on the student transcripts. Items that were both legible and complete were routed to keying and coding.

### **5.2.1.2 Course Catalog and Transcript Entry**

Course catalog and transcript data were entered using a web-based, computer-assisted data entry system. This system consisted of sequential data entry screens grouped by type of information requested (school-, student-, or course-level data). Identifying information such as identification number, school name, and student names were preloaded into the data entry system. Quality checks such as valid ranges, data types (e.g., numeric or character), and field sizes were specified for each data element; keyer-coders were required to reenter data failing these checks. Keyer-coders were responsible for keying school-, student-, and course-level data and for coding course data. A quality control team verified all keyed data. A supervisor and a team of experienced keyer-coders were on site at all times to manage the effort and provide guidance when needed.

### **5.2.1.3 Course Catalog Entry**

Course catalogs from ELS:2002 base-year schools were keyed and coded for the preparation of course offerings data. Only course offering information for base-year schools appears on the course-level file. While catalogues were collected for up to four academic years, whenever possible a school's 2003–04 course catalog was used. Each school was assigned to a single keyer-coder for course catalog entry. Information entered included the following:

- School-level information:
  - catalog type and year;
  - term system;
  - grading system;
  - credits equal to one Carnegie unit (schools were asked how many credits a student would earn for taking a course that meets every day, one period a day, all school-year long); and
  - credits required for each type of diploma.
- Course-level information:
  - course name, school-assigned course number, course department name;
  - state/district-assigned course number;
  - credits offered;
  - program type;
  - term(s) course offered;
  - restricted enrollment, if applicable;



- grade level(s) to which course is offered; and
- Classification of Secondary School Courses (CSSC) code (see section 5.2.1.4).

The data entry system included a mechanism for setting the status of each school catalog, such as “assigned for keying/coding” and “quality control needed.” System-generated reports based on these statuses were used by project staff to monitor progress and to review/edit when necessary.

All transcripts received from any one school were assigned to a single keyer-coder for both student- and course-level data entry. Keyer-coders thoroughly reviewed transcripts and all related materials (e.g., Student Transcript Checklist, Transcript Cover Sheet, and course catalogs) before abstracting data. The Student Transcript Checklist was helpful in providing school-reported student-level data, such as participation in special programs. The following information was entered:

- Student-level information:
  - Participation in specialized programs.
  - Date sample member left school—the graduation or final withdrawal date was entered. Keyer-coders also entered the date the student rejoined the school, if applicable.
  - Reason sample member left school (e.g., graduated or transferred).
  - Type of diploma or equivalency certification received (e.g., standard, honors, or General Educational Development).
  - Cumulative grade point average (GPA), weighted and unweighted—the GPA was entered as reported by the school. When a transcript provided a GPA but did not specify whether it was weighted or unweighted, it was entered as unweighted.
  - Preliminary Scholastic Aptitude Test, Scholastic Aptitude Test (SAT), ACT, Advanced Placement (AP), and/or SAT subject test scores and date taken—the data entry system allowed for multiple test score entries per test type.
- Coursetaking histories:
  - Course name and school-assigned course number—course titles were keyed verbatim, except for the use of approved abbreviations and the conversion of Roman numerals to Arabic. When available, school-assigned course numbers were entered as separate data elements.
  - School year in which the course was taken.
  - Grade level (grade in which the sample member was enrolled at the time the course was taken).
  - School where the course was taken.
  - Term when the course was taken.
  - Credits received (number of credits awarded for the course as reported on the transcript).

- Raw grade (grade received for the course as reported on the transcript).
- Grade received—a standardized letter grade was entered, converted from the raw grade based on the school’s grading scale.
- CSSC code (see section 5.2.1.4).

School transcripts provided coursetaking histories at the year or term level. Year-long courses might be reported with a distinct listing (and separate grade) for each term in that school year. For example, a year-long algebra course might appear on a transcript twice, once for fall semester and once for spring semester. When the transcript reported a final (year-end) grade, the course was entered as a year-long course, along with the grade received. When no final (year-end) grade was reported, the course was entered as two semester-long courses, each with the corresponding grade received.

#### **5.2.1.4 Course Catalog and Transcript Course Coding**

The CSSC, updated from the 2000 National Assessment of Education Progress high school transcript study, was used for coding all ELS:2002 catalog and transcript courses. The CSSC is designed to describe course offerings in secondary education and to provide a coherent means for classifying these courses. Each CSSC code comprises six digits, with an associated course title, alternate titles, and a course description. The first two digits identify the main program area (e.g., mathematics), the second set of two digits represents a subcategory of courses within the main program area (e.g., pure mathematics), and the last two digits are associated with the specific courses in each of the main and subcategories (e.g., trigonometry).

For ELS:2002 base-year schools that provided them, courses listed in course catalogs were keyed and assigned the appropriate CSSC code before transcript keying and coding. This order of procedures enhanced the quality and consistency of the coding process. Then, transcript courses could be accurately coded by simply matching their titles with the titles of courses in the course catalogs. Otherwise, each course on the transcripts would have to be matched one by one to a CSSC code based only on the course title and the CSSC course title, with none of the information describing the course content usually included in the school’s course catalog.

For each catalog course entered, keyer-coders selected an appropriate course code from the CSSC look-up table in the data entry system. The look-up table included CSSC course codes, titles, and descriptions. Keyer-coders could search course codes by course title, description, keywords, or a combination of these. Using the look-up table in the system reduced hardcopy look-up time. The CSSC code was selected after reviewing the course description and any relevant school-level information from the course catalog. The data entry system checked the validity of each selected CSSC code before accepting it. To further increase coding efficiency, RTI developed a subset of frequently used CSSC codes. This list was also available as a look-up table in the data entry system and was expanded and maintained throughout the coding process. Because of changes in the curriculum, a handful of “new” courses were identified and assigned new CSSC codes.

All transcripts received from a school were assigned to a single person for keying and coding. Each sample member’s courses were coded individually. For ELS:2002 base-year schools that provided transcripts and a course catalog, transcript coding took place after that school’s catalog had been coded and keyed. Coding consistency and speed were increased

because the data entry system allowed keyer-coders to select CSSC codes for transcript courses by matching them with corresponding catalog courses. When prompted for a transcript course code, keyer-coders were supplied with a list of all courses keyed from the school's catalog. Keyer-coders could browse the entire list, or search by course name or course number. Upon selecting a matching catalog course, the keyer-coders could assign the catalog course's code to the transcript course. If the keyer-coders could not find an acceptable match, a CSSC code was selected from the master CSSC list. If no CSSC code was deemed appropriate, the keyer-coders marked the course as uncodeable (600000).

Course catalogs from non-base-year schools were not keyed. These schools' transcript courses were coded using the school-provided course catalog as a resource to provide a course description, an overview of the school curriculum, and other valuable information. The keyer-coder used the look-up table to select the appropriate CSSC code, and the data entry system checked the validity of each CSSC code before accepting it.

Of the 1,557 schools that provided transcripts, only 24 (2 percent) did not provide a catalog. When possible, a substitute catalog was identified from the pool of sampled schools that provided one to use as a resource for coding. Substitute catalogs were selected from schools in the same district (or state, if necessary) and on the basis of size and type (public or private; and school affiliation, where applicable). Keyer-coders then used the substitute catalog as a resource for coding transcript courses. In rare cases where no suitable substitute catalog was available, transcript courses were coded according to course title, grade level, course level, and track indicators.

Data entry of each catalog and transcript was reviewed for accuracy by a supervisor or by a group of keyer-coders trained to perform these reviews. Any inconsistencies between the source document and corresponding data entered were corrected. The data entry system recorded the corrected errors and calculated error rates for each keyer-coder. Those with high error rates were identified and retrained as necessary.

Quality control of course entry and coding involved several components. First, preliminary work performed by each newly trained keyer-coder was reviewed. After a hands-on examination of source documents and selected codes, a coding supervisor met with each keyer-coder individually to provide feedback and to make corrections. Individual guidance continued, if necessary, until the keyer-coder reached an acceptable level of independence and coding mastery.

Course coding was reviewed by expert coders in several key areas: coding of AP courses, coding of special education courses, coding consistency within schools, and accurate coding based on track and sequence indicators. When the expert coder disagreed with a code assigned by a keyer-coder, the code was changed in the data entry system. In addition, all catalog and transcript courses marked as uncodeable were reviewed. CSSC codes were applied where possible, including the use of recommended new codes. Unusual course abbreviations (a more common problem with transcripts than catalogs) were investigated, deciphered, and coded wherever possible. A small percentage of nondescript courses such as "Mini-course" or "Transfer Elective" were left as uncodeable (600000), despite all efforts to determine an appropriate code. Of the total transcript courses, 1 percent were uncodeable. Lastly, keyers and coders inspected all student-level records to ensure that there was no duplicated information in the data file resulting from multiple transcripts.

### 5.2.1.5 Machine Edit

Procedures for editing, coding, error resolution, and documentation were modeled after the National Education Longitudinal Study of 1988 second follow-up transcript component (Ingels et al. 1995). Data entry systems included valid ranges and codes, including legitimate missing codes, and CSSC code checks. Sequences of machine edits and visual data inspections were performed. Tasks included supplying missing data, detecting and correcting illegal codes, and investigating and resolving inconsistencies or anomalies in the data. Variable frequencies and cross-tabulations were reviewed to verify the correctness of machine editing.

After all improperly entered data were corrected, the transcript data passed through a second step in the editing program that supplied the appropriate reserve codes to fill blank fields. The reserve codes are as follows: -4: Nonrespondent, and -9: Missing.

Transcripts were received and systematically entered in the survey control system. They were then tracked as they continued through coding procedures. Once all transcript keying and coding was completed, the following cleaning and editing steps were implemented:

- cleaning anomalous data based on review of data with original transcripts (e.g., keying errors);
- removing duplicate course data erroneously provided by schools on the transcripts or duplicated across school transcripts;
- converting course credits to Carnegie units based on a school conversion factor;
- supplementing transcript information captured in the survey control system when information was missing on transcripts; and
- applying appropriate reserve codes where information was not available.

Next, the following records were examined individually because they indicate potentially anomalous and/or unlikely academic situations:

- all courses in schools where at least one student earned more than 35 Carnegie units;
- all courses in schools where at least one student earned less than 20 Carnegie units;
- courses associated with students who earned more than two Carnegie units for a single course;
- courses associated with students who earned more than typical Carnegie units in a course and/or subject area (e.g., more than four Carnegie units in math);
- courses associated with students where patterns of grade and academic year were inconsistent (e.g., grade-level changes within year or year changes within grade level; grade levels spanning 2 academic years);
- courses associated with students who had completed high school on time, had complete transcript information, and yet had a GPA of 0.00;
- courses that have passing grades (greater than F) and yet have zero credit; and
- courses taken during terms after the transcript indicates that the student had left high school.

All of these records were examined and corrected when errors were detected. Additionally, all course records with “Advanced Placement,” “AP,” “International Baccalaureate,” or “IB” in the title or courses with AP/IB CSSC codes were examined to ensure that they were adequately identified and coded.

Once these quality control measures were implemented, student-level variables (e.g., graduation status, credits earned in a subject area) were merged onto the existing student file. The student’s course information was used to create a new student course file. This file contains multiple records for each student and can be linked back to the student file.

The same cleaning and editing procedure applied to the course catalogs. A school course offerings file was produced for the base-year schools only and provides course information that can be linked to the student course file.

Transcript information was added to the first follow-up restricted-use electronic codebook (ECB) by

- merging student-level transcript information to the student file in a transcript composite section;
- appending new transfer schools to the school file to be linked with student-level and student-course-level transcript information; and
- creating new files for student-course-level data and course offerings data.

Item documentation was created for the transcript variables and files. The first follow-up ECB was extended and includes the following files:

- HSTRNSTU.PRI: Course-level file;
- BYF1TSTU.PRI: Student-level file;
- BYF1TSCH.PRI: School-level file; and
- HSTRNSCH.PRI: Course-offering file.

### **5.3 Second Follow-up Data Cleaning, Coding, and Editing**

A database was developed in which case/item-specific issues were reviewed and new values were recorded for subsequent data cleaning and editing. Records were selected for review based on one of the following criteria: suspicious values during frequency reviews, values out of expected ranges, interviewer remarks, and values not adhering to a particular skip pattern.

In the second follow-up, coding was not part of the post-data collection activities, but took place in the interview itself through self- or interviewer coding (from verbatims) of field of study and occupation, using an automated assisted coding approach. An assessment of coding quality has been provided in chapter 4. The coding scheme used in the second follow-up was taken from O\*NET. This scheme is documented in appendix F of this document, and includes a crosswalk to other occupational classification schemes used in ELS:2002.

Editing programs contained procedures that output inconsistent items across logical patterns within the interview. The interview was developed as a web-based instrument available to field interviewers, telephone interviewers, and as a web-based self administered questionnaire (SAQ) for the respondent. The instrument administers a questionnaire based on skip logic. Items

that are dependent on other items are only administered when the skip logic so indicates. The instrument allows the interviewer or SAQ respondent to back up in order to correct responses; however, the instrument leaves data for items that no longer apply. A SAS programmer uses the instrument specifications and programming code to step through the programs and determine where logical patterns and consistencies should be edited, and enters edit statements into a SAS program. Final edited data were passed through the original program to confirm that no item inconsistencies exist.

Items that were related based on data consistencies, but for which a consistency check was not built into the instrument programming, were checked with SAS programs in a post-processing step. Crosstabulations were developed to review logical consistencies across items. Values for items that are input to the crosstabulation were collapsed into similar values to make the crosstabulation more “readable.” The crosstabulations were reviewed as a quality control check to determine if there were programmatic errors in cleaning or editing steps. To confirm that data editing and cleaning programs were applying changes appropriately, the following steps were implemented:

- Ran comparisons between raw data and cleaned data and reviewed the results to ensure that they were as expected.
- Reviewed crosstabulations while following the instrument and source code from the final instruments.
- Reviewed frequencies to confirm that values followed an expected pattern.
- Ran frequencies by respondent type.
- Ran SAS editing programs with a temporary step that flags values to be blanked out and allows for review prior to editing. This step helped prevent programming error.
- Reviewed items with a high nonresponse rate to catch reserve codes that were inconsistently set.

## 5.4 Second Follow-up File Preparation and Item Documentation

Item documentation procedures were developed to capture variable and value labels for each item. Item wording for each question was also provided as part of the documentation. This information was loaded into a documentation database that could export final data file layouts and format statements used to produce formatted frequencies for review. The documentation database also had tools to produce final ECB/input files.

Maintaining data security is a requirement that pervades all tasks, including, of course, data processing. Data security procedures in the data processing and preparation phase of the second follow-up are discussed in conjunction with the related topic of confidentiality protections associated with treatment of the analytic data (see chapter 6, section 6.6).

# Chapter 6

## Weighting, Imputation, and Design Effects

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### 6.1 Overview of Weighting, Imputation, and Design Effects

Implicitly building on the sample design discussion in chapter 3, chapter 6 describes Education Longitudinal Study of 2002 (ELS:2002) weighting, imputation, and design effects for the base-year and first and second follow-up. A brief description of these three topics is provided for the base year and first follow-up; more detailed information is available from the base-year data file user's manual (NCES 2004-405) and base-year to first follow-up data file documentation (NCES 2006-344). A fuller discussion is provided for the second follow-up round (2006) of the study.

The general purpose of the ELS:2002 *weighting* scheme was to compensate for unequal probabilities of selection and to adjust for the fact that not all individuals selected into the sample actually participated. Chapter 6 sketches the school and individual sample member weights developed for the base year through second follow-up, and documents the statistical properties of the weights. *Imputation* attempts to address the issue of item nonresponse by providing a procedure that uses available information and some assumptions to derive substitute values for the missing values in a data file. The chapter provides further information on the key items that were subject to imputation, the imputation procedures, and the results of imputation. The *design effect* is a measure of sample efficiency. More specifically, the design effect is the ratio of the true variance of a statistic (taking the complex sample design into account) to the variance of the statistics for a simple random sample with the same number of cases. The chapter reports overall design effects. Since no single design effect is universally applicable to any given survey or analysis, it also reports design effects for different subgroups and statistics.

### 6.2 Base-Year and First Follow-up Weighting, Imputation, and Design Effects

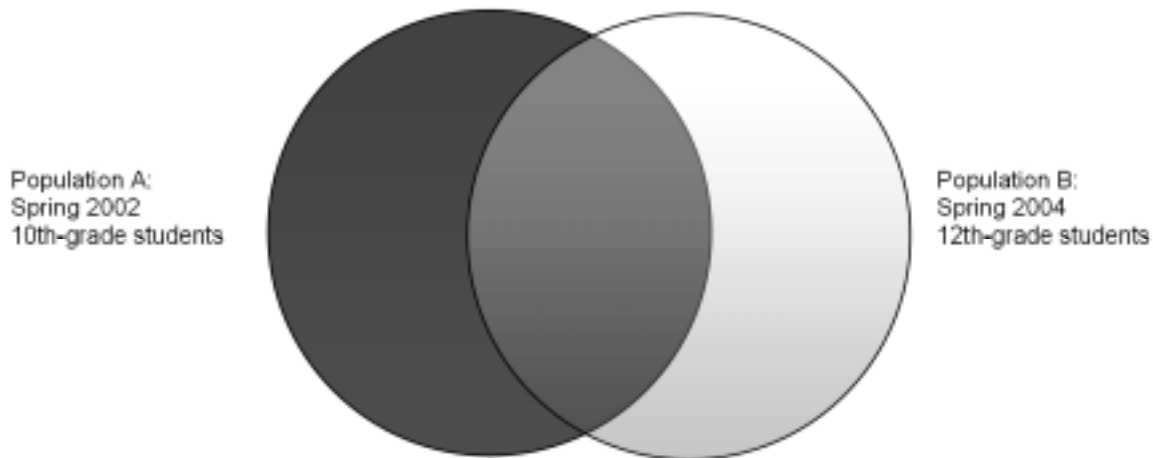
#### 6.2.1 Calculation of Base-Year and First Follow-up Weights; Results of Weighting

##### 6.2.1.1 Analysis Populations

The sample design for ELS:2002 supports a number of analyses, which in turn permit accurate inferences to be made to three major groups or target populations: (1) Population A: spring 2002 high school sophomores; (2) Population B: spring 2004 high school seniors; and (3) Population C: spring 2002 10th-grade schools.

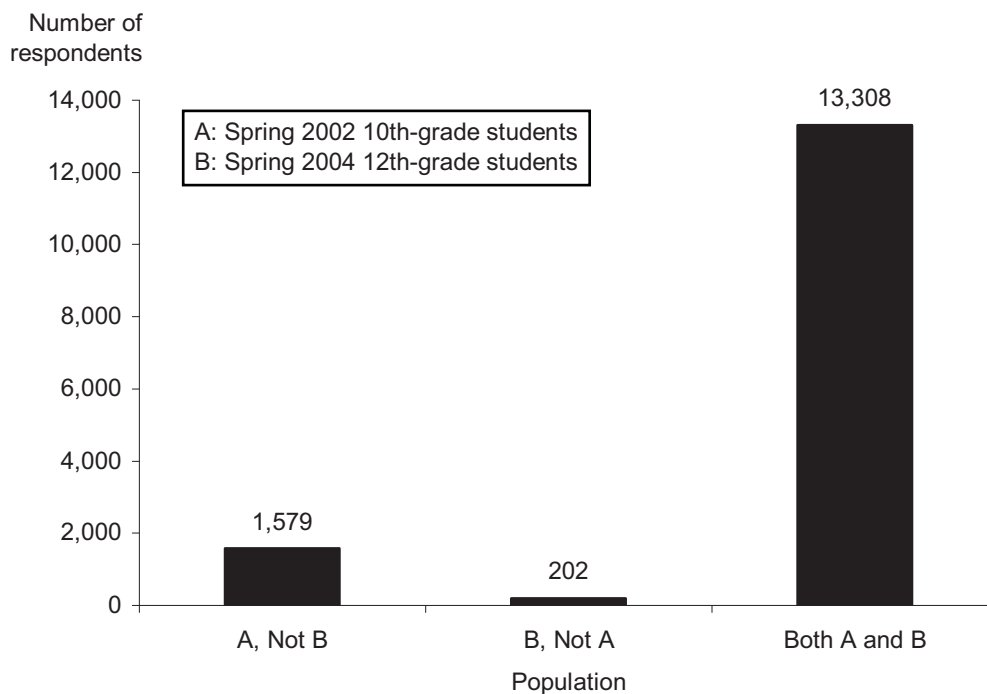
Figure 7 illustrates that whereas some students are in only population A or population B, many students are in both populations—that is, both a spring 2002 sophomore and a spring 2004 12th-grade student. Figure 8 further illustrates the overlap between the two populations.

**Figure 7. Student analysis populations, by year: 2004**



SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "First Follow-up, 2004."

**Figure 8. Student analysis population respondent counts, by year: 2004**



SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), and "First Follow-up, 2004."

## 6.2.2 Uses of Student-level Data; Student Weights

### 6.2.2.1 Population A: Spring 2002 Sophomores

This population can be employed in both cross-sectional and longitudinal analyses. Weights for cross-sectional analyses were created in the base year. BYSTUWT can be used for



cross-cohort comparisons of students capable of completing the questionnaire (on a cross-cohort time-lag basis employing the sophomore classes of 1980 and 1990). Students who were (by virtue of disability or language barrier) unable to complete a questionnaire were nevertheless retained in the ELS:2002 sample (and contextual data and transcripts were gathered). BYEXPWT generalizes to the entire population, including both students capable and incapable of completing the questionnaire.

The weight F1PNLWT was created for all persons who completed a questionnaire or a sufficient portion of a questionnaire, both in the base year and the first follow-up. Also, base-year data were imputed when not available from the new participant supplement (NPS) for first follow-up respondents, and these cases also have F1PNLWT. The panel weight can be used for both intracohort (across rounds of ELS:2002) and cross-cohort (longitudinal comparative analysis) purposes. An example of using a panel weight for intracohort analysis is to take a cohort of sophomores, look at their enrollment 2 years later, and determine what proportion have dropped out. An example of using a panel weight for cross-cohort analysis is to compute math gains between sophomore and senior years using the ELS:2002 panel weight and also for the National Education Longitudinal Study of 1988 (NELS:88) panel weight and then compare the gain between sophomore and senior year for the two cohorts. Missing test data were imputed, so a version of the panel weight adjusted for test nonresponse was unnecessary. The weight F1XPNLWT was created for the expanded sample of students capable and not capable of completing the questionnaire.

Base-year nonrespondents who responded in the first follow-up are considered to be part of this population, but there is no base-year weight (BYSTUWT or BYEXPWT) for them. The NPS ensured that the standard classification variables collected in the base year were also available for this group. Key variables were imputed for base-year nonrespondents who were first follow-up respondents, so that these students could be analyzed as part of the sophomore panel using F1PNLWT and/or F1XPNLWT. BYSTUWT and BYEXPWT were not recomputed.

Transcripts provide continuous data covering grades 9 through 12 for students who remained in school and were in the modal grade sequence (or a lesser range of data for students who dropped out or fell behind the modal progression). A cross-sectional 2004 transcript weight (F1TRSCWT) was produced, encompassing cases that met the following conditions for sample members for whom a transcript has been obtained: a member of the 10th- or 12th-grade cohort who was a student questionnaire completer in the base year, first follow-up, or both; or a member of the questionnaire-incapable<sup>62</sup> expanded sample. This weight generalizes to the analysis population of spring 2002 sophomores by subsetting the sample through the use of a flag (G10COHRT), or 2004 seniors by invoking the senior cohort flag (G12COHRT<sup>63</sup>).

### 6.2.2.2 Population B: Spring 2004 12th-Grade Students

This population can also be employed in both cross-sectional and longitudinal analyses. Weights for cross-sectional (including cross-cohort) analyses (F1QWT) were created for students capable of completing the questionnaire. This weight should be used in conjunction with a flag

<sup>62</sup> Questionnaire-incapable sample members were unable, owing to severe disability or language barrier, to validly be assessed or complete a student questionnaire. Nevertheless, they were not excluded from the sample. Transcripts and contextual data were collected for this group.

<sup>63</sup> The G12COHRT flag was updated as part of second follow-up data process activities to determine spring 2004 senior cohort membership for first follow-up nonparticipants based on responses in the 2006 data collection or transcript information.

(G12COHRT) that identifies the sample member as part of the senior cohort.<sup>64</sup> F1EXPWT generalizes to the entire population, including students capable and incapable of completing the questionnaire.

Note that generalizations about the mathematics achievement of the 2004 senior class involve imputation for the transfer students and other seniors who were not tested.

The cross-sectional transcript weight described also generalizes to the analysis population of spring 2004 12th-graders by subsetting the sample through the use of a flag (G12COHRT), or to the 2003–04 graduating class through the high school exit status variable, F1RTROUT.

### 6.2.3 Population C: Uses of School-level Data; School-level Weights

The ELS:2002 dataset supports school-level analysis using its sample of spring 2002 10th-grade schools. Weights for cross-sectional analyses were created in the base year. BYSCHWT can be used for spring 2002 10th-grade schools. In addition to the school-level data released in the base year, a restricted-use course offerings file was issued in 2006, based on course catalogues collected in the first follow-up high school transcript component.

Although it is not possible to produce a cross-sectional 2004 school weight because the first follow-up school sample is not nationally representative of American high schools in 2004, the base-year school weight can be used for longitudinal analyses treating the base-year schools as a 2002–04 panel. Although there are two data points for analysis, the weight is generalizable only to schools in 2002.

The first follow-up school data can also be analyzed using the student weight, when school data are employed as contextual information attached to the student record. That is, the school-level data (administrator questionnaire, library/media center questionnaire, facilities checklist, course offerings, school geocodes, and external data linkages) can be analyzed in relation to the sophomore or senior cohorts with the student as the primary unit of analysis. To facilitate such analyses, school-level data were replicated at the student level in the data files.

### 6.2.4 Base-Year and First Follow-up Weights and Their Properties

Three sets of weights were computed in the base year:

1. A school weight.
2. A weight for student questionnaire completion.
3. A contextual data weight for the “expanded” sample of both questionnaire-incapable and questionnaire-capable students (reflecting the fact that some sample members were deemed incapable of completing survey instruments owing to disability or language barriers).

Five sets of weights were computed in the first follow-up:

1. A cross-sectional weight for the expanded sample that includes sample members who completed all or a sufficient portion of the questionnaire in the first follow-up, base-year students who were still incapable of completing the questionnaire 2 years later,

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<sup>64</sup> Note that there is a special case of the senior cohort as well: the subset of senior cohort members who in fact graduated in 2004, as contrasted to the small number of their peers who failed to graduate in their 2004 senior year.

- base-year students who were newly incapable of completing the questionnaire, and freshened students who were incapable of completing the questionnaire (F1EXPWT).
2. A cross-sectional first follow-up weight for sample members who completed all or a sufficient portion of the questionnaire in the first follow-up (F1QWT).
  3. A first follow-up panel weight (longitudinal weight) for the expanded sample that includes students who fully or partially completed a questionnaire in both the base year and first follow-up, students who fully or partially completed a questionnaire in the first follow-up and had base-year data imputed if not on the NPS, and students who were questionnaire incapable in the base year and/or the first follow-up (F1XPNLWT).
  4. A first follow-up panel weight for sample members who fully or partially completed a questionnaire in both the base year and first follow-up or who fully or partially completed a questionnaire in the first follow-up and had base-year data imputed if not on the NPS (F1PNLWT).
  5. A first follow-up weight for sample members who fully or partially participated in the transcript component was also generated (F1TRSCWT).

Additionally, there are two flags that can be used in analyses to identify members of the sophomore and senior cohorts:

1. a flag indicating a member of the sophomore cohort, that is, spring 2002 10th-grader (G10COHRT); and
2. a flag indicating a member of the senior cohort, that is, spring 2004 12th-grader (G12COHRT).

Finally, for the transcript component, a variable indicates final student status (i.e., mode of high school exit):

- A status variable that indicates whether a student is a fall 2003–summer 2004 graduate, dropout, etc. (F1RTROUT).

Table 52 through 56 show the statistical properties of the base-year and first follow-up weights.

**Table 52. Statistical properties of school weight: 2002**

Weight	BYSCHWT
Mean	32.97
Variance	1,185.67
Standard deviation	34.43
Coefficient of variation (x 100)	146.37
Minimum	1.00
Maximum	395.76
Skewness	3.61
Kurtosis	15.64
Sum	24,794.50
Number of cases	752

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

**Table 53. Statistical properties of student cross-sectional weights: 2002**

Weight	BYSTUWT	BYEXPWT
Mean	223.90	223.77
Variance	18,597.52	22,448.02
Standard deviation	136.37	149.83
Coefficient of variation (x 100)	67.02	66.96
Minimum	5.09	5.09
Maximum	978.38	978.38
Skewness	0.99	0.99
Kurtosis	0.99	1.02
Sum	3,439,489.61	3,474,052.78
Number of cases	15,362	15,525

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

**Table 54. Statistical properties of cross-sectional weights: 2004**

Weight	F1QWT	F1EXPWT
Mean	232.29	232.36
Variance	26,283.59	26,249.80
Standard deviation	162.12	162.02
Coefficient of variation (x 100)	69.79	69.73
Minimum	1.77	1.77
Maximum	1,427.47	1,427.47
Skewness	1.21	1.21
Kurtosis	2.41	2.41
Sum	3,481,853.86	3,506,024.17
Number of cases	14,989	15,089

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "First Follow-up, 2004."

**Table 55. Statistical properties of panel weights: 2004**

Weight	F1PNLWT	F1XPNLWT
Mean	231.31	231.20
Variance	25,985.12	25,883.66
Standard deviation	161.20	160.88
Coefficient of variation (x 100)	69.69	69.59
Minimum	1.75	1.75
Maximum	1,445.49	1,445.49
Skewness	1.21	1.21
Kurtosis	2.48	2.49
Sum	3,403,321.11	3,441,475.79
Number of cases	14,713	14,885

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "First Follow-up, 2004."

**Table 56. Statistical properties of the student transcript weight: 2004–05**

Weight	F1TRSCWT
Mean	236.15
Variance	26,035.60
Standard deviation	161.36
Coefficient of variation (x 100)	68.33
Minimum	5.20
Maximum	1,125.73
Skewness	0.98
Kurtosis	0.82
Sum	3,523,285.00
Number of cases	14,920

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "High School Transcript Study, 2004–05."

Table 57 shows the interrelationships of some of the weights and flags relative to various analytic purposes.

**Table 57. Relationship among weights, universe flags, populations, and respondents: 2004**

Weight <sup>1</sup>	Universe flag	Population	Respondent
BYSTUWT	G10COHRT	Spring 2002 sophomores	Fully or partially completed questionnaire in 2002.
BYEXPWT	G10COHRT	Spring 2002 sophomores	Fully or partially completed questionnaire in 2002 or incapable of completing a questionnaire.
F1PNLWT	G10COHRT	Spring 2002 sophomores	Fully or partially completed questionnaire in 2002 and 2004 (base-year data may be imputed).
F1XPNLWT	G10COHRT	Spring 2002 sophomores	Fully or partially completed questionnaire in 2002 and 2004 (base-year data may be imputed) or incapable of completing a questionnaire in 2002 or 2004.
F1QWT	G10COHRT	Spring 2002 sophomores	Fully or partially completed questionnaire in 2004.
	G12COHRT	Spring 2004 seniors	
F1EXPWT	G10COHRT	Spring 2002 sophomores	Fully or partially completed questionnaire in 2004 or incapable of completing a questionnaire in 2004.
	G12COHRT	Spring 2004 seniors	
F1TRSCWT	G10COHRT	Spring 2002 sophomores	Fully or partially completed student transcript data.
	G12COHRT	Spring 2004 seniors	
	F1RTROUT	High school graduating class of 2004	

<sup>1</sup> The expanded sample weights and the full expanded sample are available on the restricted-use file but not on the public-use file. SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "First Follow-up, 2004."

### 6.2.5 Base-Year and First Follow-up Item Imputation

The imputation procedures used for the base-year and first follow-up study include logical imputation, a weighted sequential hot deck procedure, and a multiple imputation procedure. Eighteen variables were selected for imputation. Four were unique to the first follow-up, and 14 were key demographic and family background variables that were chosen for imputation in the base year and first follow-up. These key variables were imputed when not provided by respondents in the base-year questionnaire or the first follow-up new participant supplement for first follow-up respondents. In the first follow-up, missing key variables were imputed for sample members who were one of the following: base-year nonrespondents, 12th-grade spring-term freshened sample members, or base-year questionnaire-incapable students (who were part of the base-year expanded sample only). Additionally, the 10th-grade student ability estimates for mathematics and reading were imputed for the base-year nonrespondents who became first follow-up respondents since they were included in the spring 2002 sophomore cohort. These ability estimates had been imputed, if missing, in the base year for base-year respondents.

Two first follow-up variables were imputed, as applicable, when the data were missing. Student enrollment status as of spring 2004 was imputed for the first follow-up respondents if enrollment status was not provided by the sample school. The first follow-up mathematics ability estimate was imputed, if missing, for first follow-up respondents who were considered in-school students: students at the base-year school or at another (transfer) school as of spring 2004. (Sample members who dropped out, finished high school early, or were being homeschooled as of spring 2004 were not defined as in-school students, so no ability estimates were determined

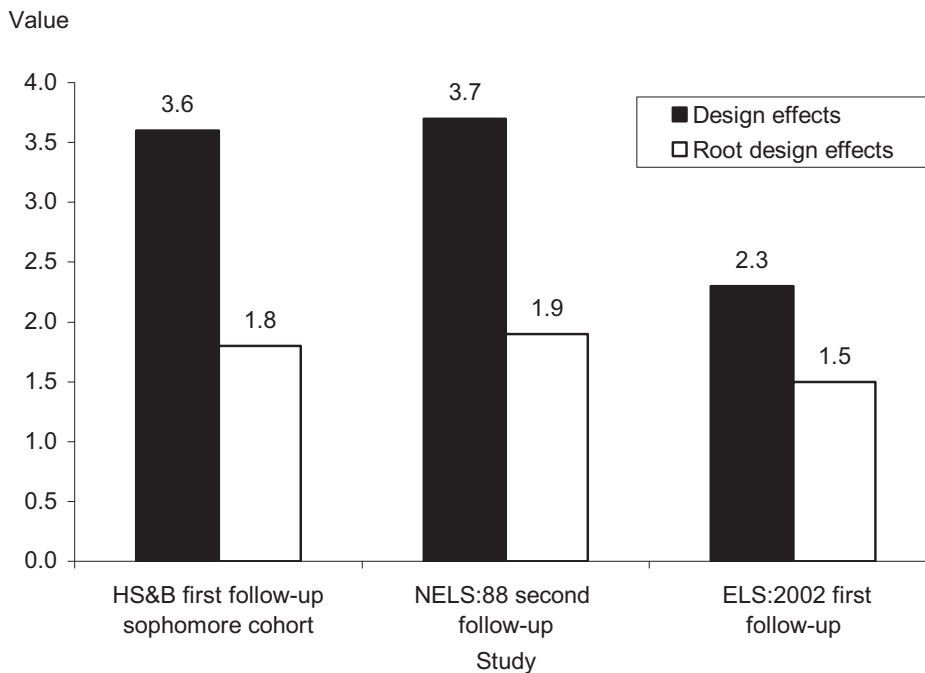
for them.) Only students still at the base-year schools were tested—ability estimates were imputed for all transfer student respondents.

### 6.2.6 Base-Year and First Follow-up Standard Errors and Design Effects

The variance estimation procedure had to take into account the ELS:2002 complex sample design, including stratification and clustering. One common procedure for estimating variances of survey statistics is the Taylor series linearization procedure. This procedure takes the first-order Taylor series approximation of the nonlinear statistic and then substitutes the linear representation into the appropriate variance formula based on the sample design. For stratified multistage surveys, the Taylor series procedure requires analysis strata and analysis primary sampling units (PSUs) (in ELS:2002, schools are the PSUs). Therefore, analysis strata and analysis PSUs were created in the base year and used again in the first follow-up. The impact of the departures of the ELS:2002 complex sample design from a simple random sample design on the precision of sample estimates can be measured by the design effect, as reported in this document and the prior manuals. Taylor series estimation was used for the base year and first follow-up. ELS:2002 base-year and first follow-up data are available as public- or restricted-use electronic codebook (ECB) systems. The data are also available in a Data Analysis System (DAS). For the DAS, balanced repeated replication (BRR) replicate weights are used.

Figure 9 shows ELS:2002 design effects in historical perspective, that is, displayed in comparison to design effects in NELS:88 and High School and Beyond (HS&B). These have been calculated on the full sample (i.e., for NELS:88 and ELS:2002, all cohorts combined).

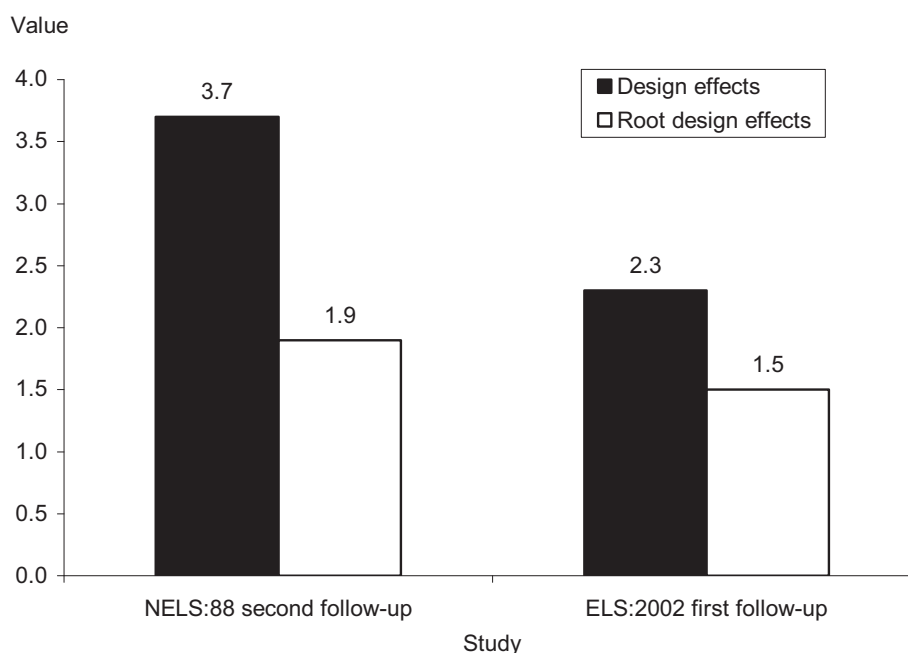
**Figure 9. Full sample mean design effects and root design effects, by longitudinal study: Selected years, 1982–2004**



SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), “First Follow-up, 1980”; National Education Longitudinal Study of 1988 (NELS:88), “Second Follow-up, 1992”; and Education Longitudinal Study of 2002 (ELS:2002), “First Follow-up, 2004.”

The design effects indicate that the ELS:2002 panel sample (sophomore cohort) was more efficient than the NELS:88 first and second follow-up (F1F2) panel sample (sophomore cohort). For means and proportions based on first follow-up questionnaire data for all respondents, the average design effect in ELS:2002 was 2.23; the comparable figure was 3.73 for the NELS:88 sophomore cohort. Figure 10 shows the mean design effects and root design effects for the NELS:88 second follow-up and the ELS:2002 first follow-up sophomore cohort. The difference in design effects is also apparent for some subgroup estimates. Ingels et al. (1994a) present design effects for 16 subgroups defined similarly to those used in the ELS:2002 analysis (Ingels et al. 2005b, table 25). For all 16 subgroups, the ELS:2002 design effects are smaller on average than those for the NELS:88 sophomore cohort.

**Figure 10. Mean design effects and root design effects, by NELS:88 and ELS:2002 panel sample (sophomore cohort): 1992 and 2004**



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

The design effects indicate that the ELS:2002 full and panel samples were also more efficient than the NELS:88 sample for dropouts. For means and proportions based on first follow-up questionnaire data for dropouts, the average design effect in ELS:2002 was 1.31 for both the full and panel samples; the comparable figures were 2.9 and 2.8 for the NELS:88 second follow-up full and F1F2 panel samples, respectively.

The smaller design effects in ELS:2002 compared with those for NELS:88 and HS&B are probably due to the higher rates of subsampling in the latter two studies. Additionally, disproportional strata representation was introduced in the NELS:88 first follow-up, when students dispersing between 8th and 10th grade were severely subsampled. See Ingels et al. (1994b) for more details. In HS&B, the sophomore cohort members who were no longer in the base-year school were subsampled. See Spencer, Sebring, and Campbell (1987) for more details. The general tendency in longitudinal studies is for design effects to lessen over time, as



dispersion reduces the original clustering. Subsampling increases design effects because it introduces additional variability into the weights with an attendant loss in sample efficiency.

The smaller design effects in ELS:2002 compared with those for the HS&B sophomore cohort also may reflect the somewhat smaller student cluster size used in the later survey in the base year. Although the clusters were reduced somewhat in the first follow-up for both studies, a number of students remained in the base-year school. The HS&B base-year sample design called for 36 sophomores selected from each school. The ELS:2002 sample design called for about 26 sophomores selected from each school.

### 6.2.7 First Follow-up Transcript Component Design Effects

Within the transcript component, standard errors and design effects were computed for the entire sample and for the following subgroups:

- sex (male and female);
- race/ethnicity (American Indian or Alaska Native, Asian or Pacific Islander, Black or African American, Hispanic or Latino, More than one race, and White and all other races);<sup>65</sup>
- school sector (public, Catholic, and other private);
- socioeconomic status (SES) (lowest quarter, middle two quarters, and highest quarter); and
- school urbanicity (urban, suburban, and rural).

Additionally, standard errors and design effects were computed for spring 2004 graduates with complete transcript information and for the above subgroups. Table 58 summarizes the average transcript mean design effects (DEFFs) and root design effects (DEFTs) for the full sample for all respondents and each subgroup. Table 59 summarizes the average transcript DEFFs and DEFTs for the spring 2004 graduates with complete transcript information for all respondents and each subgroup. Appendix G contains tables of transcript design effects for specific variables for different subpopulations.<sup>66</sup> The standard errors and design effects were calculated using the transcript weight (F1TRSCWT). Each table includes the survey item (or composite variable), variable name and value for categorical variables, percent estimate, design standard error, simple random sample standard error, sample size (N), DEFF, and DEFT. Note that the mean DEFTs reported in this table were not calculated directly from the mean DEFF but, rather, were the average of the DEFTs over the items shown in each table in appendix G. Therefore, readers cannot derive the DEFT using the DEFF reported in table 58 and table 59. See section 3.5.2 of Ingels et al. (2005b) for more details about design effects.

<sup>65</sup> “White and all other races” is predominantly White, with a very small number of individuals from other race categories. All race categories exclude individuals of Hispanic or Latino origin.

<sup>66</sup> It is important to compare design effects across cohorts (e.g., ELS:2002 versus NELS:88), so table 3.3-1 from the *NELS:88 Second Follow-Up: Transcript Component Data File User’s Manual* (Ingels et al. 1995) was initially used to help guide the selection of variables. However, the ELS:2002 variables chosen differ somewhat from those used in constructing design effects for NELS:88 because there were considerable differences in the types and composition of variables produced in each study. Nonetheless, the variables presented are a good representation of the breadth of information obtained from the transcripts. These items should provide a range of design effects that will give a reasonable average for both the entire sample and for analytically important subgroups.

The BY-F1 DFD (Ingels et al. 2005b) shows in its table 25 the design effects for the first follow-up full sample. With the exception of respondents who reported more than one race, the design effects are higher in the transcript study than in the first follow-up. For example, of the 30 variables used to compute design effects, the mean is 4.56 for all transcript respondents and 2.26 for all first follow-up respondents.

**Table 58. Mean design effect and root design effect for the ELS:2002 high school transcript study, by selected student characteristics: 2004–05**

Characteristic	Mean design effect	Mean root design effect
All respondents	4.57	2.12
Sex		
Male	2.95	1.71
Female	3.32	1.81
Race/ethnicity <sup>1</sup>		
American Indian or Alaska Native	1.69	1.28
Asian or Pacific Islander	2.68	1.63
Black or African American	2.24	1.48
Hispanic or Latino	3.04	1.73
More than one race	1.70	1.30
White and all other races	3.51	1.85
School sector		
Public	4.00	1.98
Catholic	7.00	2.54
Other private	7.92	2.76
Socioeconomic status (SES)		
Lowest quarter	2.34	1.52
Middle two quarters	2.93	1.70
Highest quarter	2.85	1.67
Urbanicity		
Urban	5.90	2.41
Suburban	3.93	1.96
Rural	4.17	2.00

<sup>1</sup> "White and all other races" is predominantly White, with a very small number of individuals from other race categories. All race categories exclude individuals of Hispanic or Latino origin.

NOTE: The mean root design effect was not calculated directly from the mean design effect but, rather, is the average root design effect over selected items.

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

**Table 59. Mean design effect and root design effect for 2004 high school graduates from the ELS:2002 transcript data, by selected student characteristics: 2004–05**

Characteristics	Mean design effect	Mean root design effect
2004 high school graduates	4.29	2.04
Sex		
Male	2.84	1.67
Female	3.25	1.79
Race/ethnicity <sup>1</sup>		
American Indian or Alaska Native	1.88	1.34
Asian or Pacific Islander	2.61	1.61
Black or African American	2.26	1.49
Hispanic or Latino	2.59	1.59
More than one race	1.86	1.36
White and all other races	3.44	1.81
School sector		
Public	3.69	1.89
Catholic	7.41	2.63
Other private	7.43	2.66
Socioeconomic status (SES)		
Lowest quarter	2.07	1.43
Middle two quarters	2.85	1.67
Highest quarter	2.79	1.65
Urbanicity		
Urban	5.37	2.30
Suburban	3.83	1.93
Rural	4.09	1.95

<sup>1</sup> "White and all other races" is predominantly White, with a very small number of individuals from other race categories. All race categories exclude individuals of Hispanic or Latino origin.

NOTE: The mean root design effect was not calculated directly from the mean design effect but, rather, is the average root design effect over selected items.

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

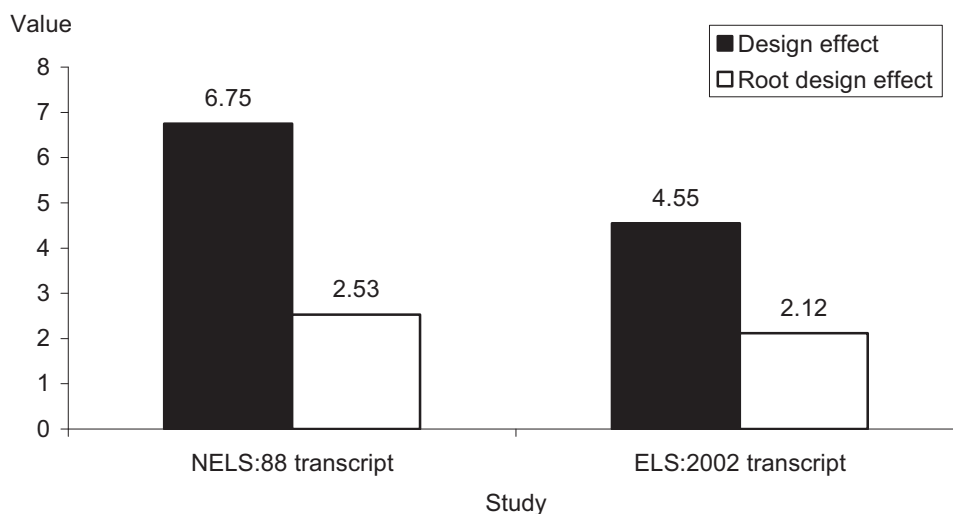
The magnitude of design effects is affected mainly by the degree of clustering in the sample and the variability of the analysis weights. The degree of clustering is determined by the cluster size and the intraclass correlation. The cluster size is the number of respondents from each school. The intraclass correlation is the correlation between the data points for any two students selected from a given school. The variability of the transcript weights can be measured by computing the unequal weighting effect (UWE). The overall UWE is slightly smaller for the transcript study than for the first follow-up (1.47 compared with 1.49), so the variability of the weights is probably not much of a cause for the difference in the design effects between the transcript study and the first follow-up.

Many of the large transcript design effects are for the variables indicating Carnegie units (CUs) earned in certain subject areas. For example, the variable "Total CUs in social studies" frequently has one of the highest design effects, because these units are nearly identical for all

students in many schools. The largest design effect is “Total CUs in general labor market preparation” for Catholic school students, because such students typically have zero CUs in this subject area.

Figure 11 shows the DEFFs and DEFTs for both the ELS:2002 and NELS:88 high school transcript studies. The design effects indicate that the ELS:2002 high school transcript sample was more efficient than the NELS:88 high school transcript sample. The average design effect in ELS:2002 was 4.57; the comparable figure was 6.75 for NELS:88.<sup>67</sup>

**Figure 11. Mean design effect and root design effect for the ELS:2002 and NELS:88 high school transcript studies: 1992–93 and 2004–05**



SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), “High School Transcript Study”; and Education Longitudinal Study of 2002 (ELS:2002), “High School Transcript Study.”

### 6.2.8 Base-Year and First Follow-up Disclosure Risk Analysis and Protection

Because of the paramount importance of protecting the confidentiality of National Center for Education Statistics (NCES) data containing information about specific individuals, ELS:2002 data were subject to various procedures to minimize disclosure. As a first step, all ELS:2002 data files (school and student) were reviewed to identify high-risk variables. As a second step, a technique called data swapping was carried out, both for school- and student-level data. The first follow-up swapping was conducted independently from the base-year swapping. As a final step, the ELS:2002 data underwent a disclosure risk analysis. In this analysis, school characteristics information available on the data files was compared with information on publicly available universe files of schools.

<sup>67</sup> The difference in design effects is also apparent for some subgroup estimates. In NELS:88, design effects were produced for 18 subgroups, 16 of which are defined similarly to those in ELS:2002. For 15 of the 16 subgroups, the ELS:2002 design effects are smaller on average than those for NELS:88. These smaller design effects in ELS:2002 compared with those for NELS:88 are probably due to the magnitude of subsampling in the first follow-up (1990) of NELS:88. High school transcript component design effects from NELS:88 can be found in Ingels et al. (1995).

### 6.2.9 Base-Year and First Follow-up Nonresponse Bias Analyses

The overall weighted school response rate was 68 percent in the base year. A follow-up survey of nonresponding schools was used to collect basic school characteristics needed to support comparisons with the participating schools. Some 93 percent of the nonparticipating schools responded to the nonresponse follow-up survey. Some sample frame data were also available for both responding and nonresponding schools. Results of the analysis showed only a small potential for bias. The identified variables were used to inform nonresponse adjustments for the base-year schools and students. Bias due to nonresponse was estimated both prior to computing weights and after computing weights. For details see Ingels et al. (2004).

The overall weighted student response rate was 87 percent in the base year (2002). Overall response was 89 percent (including all groups, e.g., students, transfer students, dropouts) in the first follow-up (2004). Student unit nonresponse bias analyses were performed in both the base year and first follow-up. An item nonresponse bias analysis was also performed for all questionnaire variables in which response fell below 85 percent. Details of the bias analyses are given in Ingels et al. (2004, 2005b). See also appendix H of this document.

## 6.3 Calculation of Second Follow-up Weights and Results of Weighting

A variety of topics are discussed in the following subsections. Sections 6.3.1 and 6.3.2 provide a high-level overview of the ELS:2002 target populations and potential domains of analysis for those populations and describe the analysis weights created for the second follow-up. Section 6.3.2 also lists the names of the analysis weights created for the second follow-up and lists the names of the flags used to restrict analyses to the target populations of the ELS:2002 study.

The model-based approach for weight adjustment is discussed in section 6.3.3.<sup>68</sup> The list of variables used in the nonresponse models is also provided in section 6.3.3. The Chi-squared automatic interaction detection analysis (CHAID) used to identify interaction terms included in the nonresponse models is described in section 6.3.3.

Details of the weight adjustment factors used to create the second follow-up analysis weights are given in sections 6.3.4, 6.3.5, and 6.3.6. A discussion of the BRR weights produced for the second follow-up DAS occurs in section 6.3.7 and a brief discussion of quality control methods used to produce the second follow-up weights may be found in section 6.3.8. BRR weights are also included with the ECB.

### 6.3.1 Target Populations and Analysis Domains

The sample design for ELS:2002 was developed so that relevant samples, suitably weighted, would be representative of three target populations: spring-term 2002 10th-grade students, spring-term 2004 12th-grade students, and spring-term 2002 10th-grade schools.

<sup>68</sup> *Propensity modeling* approaches were used in nonresponse adjustment for the NELS:88 school, and ELS:2002 school and student weights. For the NELS:88 student weights, and school and student weights in HS&B and NLS:72, a *weighting cell* approach was used. A comparison of the two approaches is included in appendix H of this volume. The comparison shows that the two methods generate very similar results, and so are unlikely to be a source of noncomparability between ELS:2002 and the prior studies.

Within these three target populations are a variety of important analysis domains. These analysis domains are subsets of the three target populations and, while these subsets are themselves populations, the ELS:2002 sample design does not guarantee that the ELS:2002 sample will be representative of all subsets of the three primary target populations. The following lists give examples of analytic domains as subsets of the three target populations.

Population A: Spring-term 2002 10th-grade students:

- Domains<sup>69</sup>
  - Spring 2002 10th-grade students capable of completing the student questionnaire;
  - Spring 2002 10th-grade students in base-year school in spring 2004;
  - Spring 2002 10th-grade students in a different school in spring 2004 (transfers);
  - Spring 2002 10th-grade students who were dropouts in spring 2004;
  - Spring 2002 10th-grade students who graduated or achieved equivalency early (i.e., on or before March 15, 2004);
  - Spring 2002 10th-grade students who graduated by August 31, 2004;
  - Spring 2002 10th-grade students who were homeschooled in spring 2004;<sup>70</sup>
  - Spring 2002 White 10th-grade students;
  - Spring 2002 Black 10th-grade students;
  - Spring 2002 Hispanic 10th-grade students;
  - Spring 2002 Asian 10th-grade students;
  - Spring 2002 public school 10th-grade students; and
  - Spring 2002 private school 10th-grade students.

Population B: Spring-term 2004 12th-grade students:

- Domains
  - Spring 2004 12th-grade students capable of completing the student questionnaire;
  - Spring 2004 12th-grade students regardless of final spring 2004 graduation status;
  - Spring 2004 12th-grade students who graduated by August 31, 2004;
  - Spring 2004 White 12th-grade students;
  - Spring 2004 Black 12th-grade students;

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<sup>69</sup> The domains listed are important domains but are not the only possible domains.

<sup>70</sup> Although conceptually spring 2002 sophomores who were homeschooled in 2004 may be thought of as an analysis population, they were not designed to be so and were therefore not subject to minimum sample size requirements. The group is of limited analytic utility owing both to the low sample size and to the narrowness of the population definition. The compelling practical reason for distinguishing this group was so that they could be administered only those items consonant with their unique situation as out-of-school students.

- Spring 2004 Hispanic 12th-grade students;
- Spring 2004 Asian 12th-grade students;
- Spring 2004 public school 12th-grade students; and
- Spring 2004 private school 12th-grade students.

Population C: Spring 2002 10th-grade schools:

- Domains
  - School type: public, Catholic, and other private;
  - Urbanicity: urban, suburban, and rural;<sup>71</sup> and
  - Region: Northeast, Midwest, South, West.

ELS:2002 student sample members were interviewed as part of second follow-up activities. Sample members who completed a certain prespecified proportion of the second follow-up questionnaire were considered to be second follow-up respondents. ELS:2002 second follow-up respondents may be in either population A (10th-grade cohort), or population B (12th-grade cohort), or in both. In order to identify those respondents belonging to a particular target population, two flag variables are provided. The flag G10COHRT denotes membership in the spring 2002 10th-grade population and the flag G12COHRT<sup>72</sup> denotes membership in the spring 2004 12th-grade population. Figure 12 shows the distribution of ELS:2002 second follow-up respondents with respect to the two student target populations.

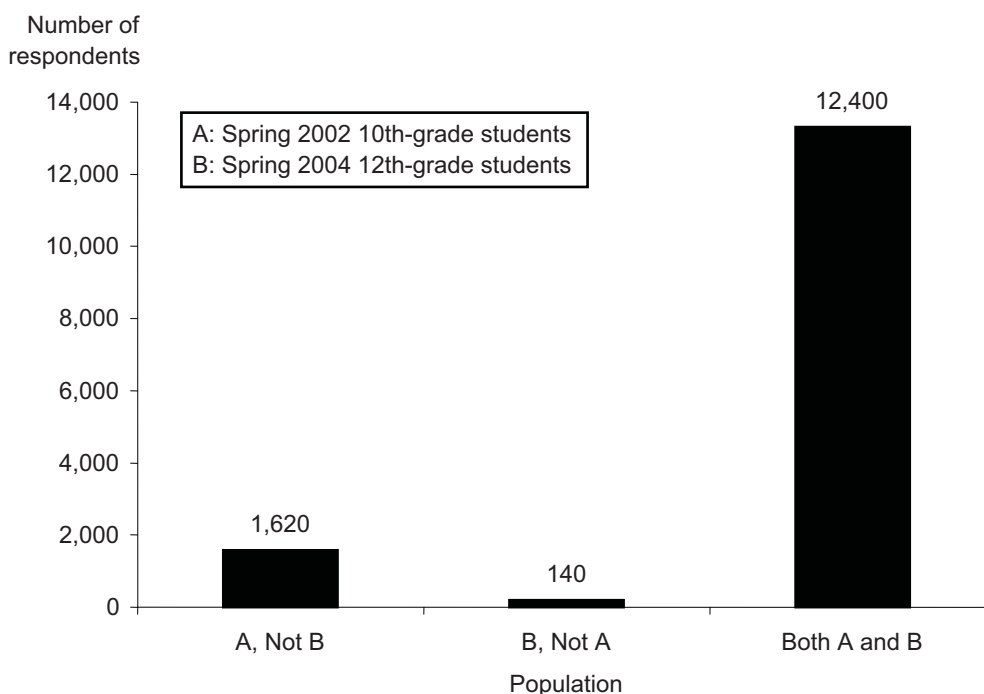
Analytic uses of these three populations, and the weighting required to support the analyses, are discussed in section 6.3.2.

### 6.3.2 Overview of Second Follow-up Analysis Weights

The analysis weights for the ELS:2002 second follow-up were created in order to allow for analysis of the spring 2002 10th-grade population and the spring 2004 12th-grade population. Since the ELS:2002 study is longitudinal, analyses of these two populations may focus on characteristics of these populations at one point in time or may focus on how characteristics of these populations vary over time. Second follow-up cross-sectional weights were created to allow for analysis of these two populations in 2006 and panel weights were created to allow for analysis of these two populations over multiple rounds of the ELS:2002 study.

<sup>71</sup> NCES has recently changed its locale code system. The new codes draw on a four-part classification: city, suburban, town, and rural. Cities and suburbs are further divided into small, mid-size, and large, and towns and rural areas can be related (via measures of proximity) to urbanized areas (urban fringe, distant, remote). While the tripartite classification was used in ELS:2002 sampling, any analyst who wants to employ the new locale codes with the ELS:2002 base-year and transfer schools can use the ELS:2002 links to the Common Core of Data (CCD) and Private School Survey (PSS) databases to do so.

<sup>72</sup> G12COHRT includes members of the senior cohort determined in the first follow-up (G12COHRT = 1) as well as those whose membership status was determined in the second follow-up (G12COHRT = 2).

**Figure 12. Student analysis population respondent counts, by cohort: 2006**

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

Four sets of weights were computed for the second follow-up:

- A cross-sectional weight for sample members who responded<sup>73</sup> in the second follow-up (F2QWT).
- A cross-sectional transcript weight for sample members who responded in the second follow-up and for whom a transcript was collected in the first follow-up transcript component (F2QTSCWT).
- A second follow-up panel weight (longitudinal weight) for all sample members who responded in the second follow-up and responded in the first follow-up (F2F1WT).
- A second follow-up panel weight for all sample members who responded in the second follow-up and responded in the base year (F2BYWT), or who were base-year nonrespondents but for whom the base-year classification variables were collected in the first follow-up and their base-year test scores imputed.

These weights and the types of analyses that may be conducted using these weights are described below. While second follow-up student weights were created, no second follow-up school weights were created. Discussion of school weights in the context of the ELS:2002 second follow-up may be found in section 6.3.2.3.

<sup>73</sup> In the base year and first follow-up of ELS:2002, sample members are considered part of the expanded analysis sample if they complete at least a certain proportion of the round-appropriate questionnaire or if they are "questionnaire-incapable" for that round (though eligible for contextual data and transcripts). (Again, questionnaire-incapable students were those who could not be validly assessed or surveyed owing to severe disability or language barrier.) Sample members are considered respondents in the second follow-up if they complete at least a certain proportion of the second follow-up questionnaire.



### **6.3.2.1 Cross-sectional Weights**

Two cross-sectional weights were constructed for the ELS:2002 second follow-up study. The first cross-sectional weight, F2QWT, was constructed so that the population of spring 2002 10th-grade students and the population of spring 2004 12th-grade students could be analyzed using respondent data collected in the ELS:2002 second follow-up. The second cross-sectional weight, F2QTSCWT, encompasses cases that meet the following conditions: (a) member of the 10th- or 12th-grade cohort who had a first follow-up transcript, and (b) a second follow-up respondent. This transcript weight allows for analysis of both target student populations using those second follow-up respondents who had transcript data collected in the first follow-up.

As noted in section 6.3.1, second follow-up respondents may be in the population of spring 2002 10th-graders, may be in the population of spring 2004 12th-graders, or may be in both populations. Analyses designed to assess characteristics of one of the populations must take care to restrict analyses to those second follow-up respondents in the population of interest. In order to identify those second follow-up respondents who are members of the two student populations, two flag variables, G10COHRT and G12COHRT, are provided in the restricted-use file. Those second follow-up respondents with a value of 1 for G10COHRT are members of the population of spring 2002 10th-graders. Those second follow-up respondents with a value of 1 (determined in the first follow-up or a value of 2 determined in the second follow-up) for G12COHRT are members of the population of spring-term 2004 12th-graders.

The two cross-sectional weights may be used to analyze both student populations as long as the two cohort flag variables, G10COHRT and G12COHRT, are used to select those second follow-up respondents who belong to the student population of interest. Note that if these flag variables are not used in analysis, then the set of all second follow-up respondents represents the union of the population of spring 2002 10th-graders with the population of spring 2004 12th-graders. The union of these two populations includes individuals who were in the 10th grade in spring term 2002, who were in the 12th grade in spring term 2004, or who were both in the 10th grade in spring term 2002 and in the 12th grade in spring term 2004. Such individuals may be in one or both of the target student populations.

### **6.3.2.2 Panel Weights**

Two panel weights were constructed for the ELS:2002 second follow-up study. The purpose of creating these panel weights was to facilitate analyses designed to examine how the two student populations change over time. The panel weights can be used for both intracohort (across rounds of ELS:2002) and cross-cohort (longitudinal comparative analysis) purposes. An example of using a panel weight for intracohort analysis is to take a cohort of sophomores in 2002 and determine what proportion had enrolled in a postsecondary institution by 2006. An example of using a panel weight for cross-cohort comparison would be to model the transition from high school to postsecondary outcomes, comparing the four senior cohorts—NLS:72 (1972), HS&B (1980), NELLS:88 (1992), and ELS:2002 (2004)—2 years after high school graduation.

The panel weight, F2BYWT, was produced for all ELS:2002 sample members who responded<sup>74</sup> in the base year and in the second follow-up, or who responded in the second follow-up and had key base-year data that were collected in the first follow-up. The set of sample members who responded in the base year and second follow-up is only representative of the population of spring 2002 10th-grade students; only sample members who are members of the 10th-grade cohort will have a nonmissing value for this panel weight. It is not necessary<sup>75</sup> to use the flag variable G10COHRT in conjunction with this panel weight since, by construction, only second follow-up respondents who are members of the spring 2002 10th-grade population will have a nonzero value for the panel weight.

The panel weight, F2F1WT, was produced for all sample members who responded in the first and second follow-ups. This panel weight will generalize to the population of spring 2002 10th-grade students and will generalize to the population of spring 2004 12th-grade students when used in conjunction with the two flag variables G10COHRT and G12COHRT, respectively.

As noted in the ELS:2002 base-year to first follow-up data file documentation, base-year nonrespondents who responded in the first follow-up are considered to be members of the spring 2002 10th-grade population, but there is no base-year weight (BYSTUWT or BYEXPWT) for them. The new participant supplement employed in the first follow-up ensured that the standard classification variables collected in the base year were also available for this group. However, key variables were imputed for base-year nonrespondents who were first follow-up respondents,<sup>76</sup> so that these students could be analyzed as part of the sophomore panel using F1PNLWT and/or F1XPNLWT. These students who are second follow-up respondents may also be analyzed as part of the sophomore panel using F2F1WT and F2BYWT.

### 6.3.2.3 School Weights and the Second Follow-up

The second follow-up to the ELS:2002 study surveyed base-year and first follow-up sample members but did not attempt to survey the ELS:2002 base-year schools. Since most of the ELS:2002 sample members were out of high school in 2006, the utility of information collected from base-year sampled schools as part of the second follow-up would have been extremely limited.

Although it is not possible to produce a cross-sectional 2006 school weight because the second follow-up school sample is not nationally representative of American high schools in 2006, the base-year school weight can be used for longitudinal analyses treating the base-year schools as a panel. Although there are multiple data points for analysis, the weight maintains the generalizability only to schools in 2002.

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<sup>74</sup> Sample members who did not respond in the base year but did respond in the first follow-up were given a new participant supplement questionnaire in order to gather some of the same information that was collected on base-year respondents. Consequently, these base-year nonrespondents who responded in the first follow-up were treated as base-year respondents in the construction of first follow-up panel weights. These sample members were treated as base-year respondents in the construction of second follow-up panel weights.

<sup>75</sup> It is possible that statistical software not designed for the analysis of sample survey data may fail to exclude records that have analysis weights of zero. The G10COHRT flag may be used to specifically restrict analyses to members of the 10th-grade cohort in order to avoid such a situation from arising.

<sup>76</sup> However, sample members who met the dual conditions of being (1) base-year nonrespondents and (2) questionnaire-incapable in the first follow-up were given a cross-sectional weight in the first follow-up but were not given a panel weight, nor, owing to lack of information, were base-year data imputed for them.

#### 6.3.2.4 Second Follow-up Weights and Prior-Round Weights

In both the base year and first follow-up of the ELS:2002 study, some sample members were not able to complete the sample member questionnaires because of limited English proficiency or because of physical or mental limitations. However, information could be collected from individuals, such as school administrators, parents, and teachers associated with these sample members. In a given prior round, the set of respondents in that round combined with the set of sample members who were questionnaire-incapable was referred to as the expanded sample for that round. Expanded sample weights that encompass both the questionnaire-capable and questionnaire-incapable sample were included only in restricted-use files.

Unlike the prior rounds, any prior-round questionnaire-incapable sample member who was unable to complete the second follow-up questionnaire was considered out of scope for the second follow-up. Since all second follow-up questionnaire-incapable sample members were considered to be out of scope, no second follow-up expanded sample weights were constructed.

There are several flags that can be used in analyses to identify members of the sophomore and senior cohorts:

- a flag indicating a member of the sophomore cohort, that is, spring 2002 sophomore (G10COHRT); and
- a flag indicating a member of the senior cohort, that is, spring 2004 senior (G12COHRT).

Table 60 summarizes the ELS:2002 analysis weights and the associated universe flags, populations (described in section 6.3.1), and respondents.

**Table 60. Relationship among weights, universe flags, populations, and respondents: 2002–06**

Weight	Universe flag	Population	Respondent
BYSTUWT	G10COHRT	A—Spring 2002 10th-grader	Fully or partially completed questionnaire in 2002
BYEXPWT	G10COHRT	A—Spring 2002 10th-grader	Fully or partially completed questionnaire in 2002 or incapable of completing a questionnaire
F1PNLWT	G10COHRT	A—Spring 2002 10th-grader	Fully or partially completed questionnaire in 2002 and 2004 (base-year data may be from the new participant supplement or imputed)
F1XPNLWT	G10COHRT	A—Spring 2002 10th-grader	Fully or partially completed questionnaire in 2002 and 2004 (base-year data may be from the new participant supplement or imputed) or incapable of completing a questionnaire in 2002 or 2004
F1QWT	G10COHRT G12COHRT	A—Spring 2002 10th-grader B—Spring 2004 12th-grader	Fully or partially completed questionnaire in 2004
F1EXPWT	G10COHRT G12COHRT	A—Spring 2002 10th-grader B—Spring 2004 12th-grader	Fully or partially completed questionnaire in 2004 or incapable of completing a questionnaire in 2004
F1TRSCWT	G10COHRT G12COHRT	A—Spring 2002 10th-grader B—Spring 2004 12th-grader	Fully or partially completed transcript data and fully or partially completed first follow-up or base-year questionnaire or members of the expanded sample
F2QWT	G10COHRT G12COHRT	A—Spring 2002 10th-grader B—Spring 2004 12th-grader	Fully or partially completed questionnaire in 2006
F2QTSCWT	G10COHRT G12COHRT	A—Spring 2002 10th-grader B—Spring 2004 12th-grader	Fully or partially completed questionnaire in 2006 and full or partial transcript data
F2F1WT	G10COHRT G12COHRT	A—Spring 2002 10th-grader B—Spring 2004 12th-grader	Fully or partially completed questionnaire in 2004 and 2006 or incapable of completing a questionnaire in 2004 and fully or partially completed questionnaire in 2006
F2BYWT	G10COHRT	A—Spring 2002 10th-grader	Fully or partially completed questionnaire in 2002 and 2006 or incapable of completing a questionnaire in 2002 and fully or partially completed questionnaire in 2006

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002," "First Follow-up, 2004," and "Second Follow-up, 2006."

### 6.3.3 Overview of Nonresponse and Calibration Methodology

All second follow-up analysis weights were created by applying a variety of weight adjustments to the second follow-up base weight (discussed in section 6.3.4). These weight adjustments were designed to account for three issues:

- Some ELS:2002 sample members were not fielded for the second follow-up.

- Some of the ELS:2002 sample members fielded for the second follow-up did not respond.
- Application of weight adjustments to account for the first two issues resulted in weight sums for key analysis domains that differed from prior-round weight sums.

Two simple ratio adjustments were applied to the second follow-up base weight in order to account for the first issue and details of this adjustment are given in section 6.3.4.

The most significant and complex weight adjustments are related to the second and third issues. The weight adjustments associated with the second issue are known as nonresponse adjustments. Two types of nonresponse occurring during second follow-up data collection were considered: nonresponse arising from the inability to locate or contact a sample member and nonresponse arising from sample member refusal to participate once contacted. After examining the nonresponse cases occurring because of refusal and the nonrespondent cases occurring because of inability to locate or contact, a determination was made to treat all nonrespondents as one group.

The weight adjustments associated with the third issue are known as poststratification or calibration<sup>77</sup> adjustments. As the ELS:2002 second follow-up sample weights are not adjusted to sum to population totals, the adjustments associated with the third issue are referred to as calibration adjustments.

In addition to the nonresponse and calibration adjustments described above, the second follow-up transcript weight included two nonresponse adjustments followed by a subsequent calibration adjustment; the first adjustment accounted for nonresponse arising from the student's school refusing to provide a transcript, the second adjustment accounted for nonresponse resulting from student refusal to allow the transcript information to be included with the ELS:2002 data, and the third adjustment calibrated weight sums to prior-round totals.

While there are several methods<sup>78</sup> that may be used to adjust sampling weights to account for nonresponse and to calibrate weight sums, the method used to create the ELS:2002 second follow-up analysis weights followed a model-based approach, which is given below. Specific details of the nonresponse and calibration adjustments applied to produce the second follow-up analysis weights may be found in sections 6.3.5 and 6.3.6.

### 6.3.3.1 Generalized Exponential Model

All nonresponse and calibration adjustments were calculated using RTI's generalized exponential modeling procedure (GEM) (Folsom and Singh 2000), which is similar to logistic modeling with bounds for adjustment factors.

The GEM approach is a general version of weighting adjustments and was based on a generalization of Deville and Särndal's logit model (Deville and Särndal 1992). GEM is not a competing method to weighting classes or logistic regression; rather, it is a method of creating

<sup>77</sup> Poststratification typically refers to the process of adjusting sample weights so that the weights sum to population totals derived from sources external to the sample of interest. Calibration is used to denote adjusting weight sums to sum to prior-round totals.

<sup>78</sup> For example, at the school and student level in HS&B, and at the student level only in NELS:88, a weighting cell approach to nonresponse adjustment was used. For a comparison of propensity model versus weighting cell approaches, see the paper by Siegel, Copello, and Chromy that appears as appendix H of this report.

weight adjustments that provides a wide variety of features and options that may be employed. It is a formalization of weighting procedures such as nonresponse adjustment, poststratification, and weight trimming.

For nonresponse adjustments, GEM controls at the margins as opposed to controlling at the cell level, as weighting class adjustments. This approach allows more variables to be considered. GEM is designed so that the sum of the unadjusted weights for all eligible units equals the sum of the adjusted weights for respondents.

Extreme weights occur in the ELS:2002 data due to small probabilities of sample selection or due to weight adjustments. These extreme weights (either very small or very large) can significantly increase the variance of estimates. One way to account for this and decrease the variance is to trim and smooth extreme weights within prespecified domains. Note that trimming weights has the potential to increase bias. However, the increase in bias is often offset by the decrease in variance due to weight trimming. As a result, this reduces the mean square error of an estimate, defined as variance plus bias squared.

The innovation introduced in GEM is the ability to incorporate specific lower and upper bounds. An important application of this feature is to identify at each adjustment step an initial set of cases with extreme weights and to use specific bounds to exercise control over the final adjusted weights. Thus, there is built-in control for extreme weights in GEM.

GEM uses the median  $\pm X * IQR$  to identify extreme weights, where  $X$  is any number, typically between 2 and 3, and  $IQR$  is the interquartile range. There are also different points in the weight adjustment process during which weight trimming can occur. GEM has options to make adjustments for extreme weights as part of the nonresponse and as part of the poststratification. GEM adjusted for ELS:2002 second follow-up extreme weights during both nonresponse adjustment and during calibration. For GEM, a variable or set of variables is identified to be used to identify extreme weights within each level of the variable(s), and the variables race and school type were chosen. Prior to running GEM, the unweighted and weighted percentage of extreme weights was examined for four levels of race crossed with three levels of school type using various values to multiply by the  $IQR$  (2.0, 2.1, 2.2, ... 4.0), and multiples of the  $IQR$  were selected for each trimming process.

### **6.3.3.2 Predictor Variables for Nonresponse Models**

In order to create weight adjustments that account for nonresponse, predictor variables must be incorporated into the modeling process. As the modeling process uses both respondents and nonrespondents, the information included in the nonresponse models must be known for both respondents and nonrespondents.

The second follow-up respondents include individuals who were base-year nonrespondents and include individuals who were first follow-up nonrespondents. Consequently, most information collected as part of the base-year and first follow-up surveys could not be used in the nonresponse adjustments. The variables used in the nonresponse models primarily consisted of sampling frame information, base-year sample school information, and some demographic characteristics. Table 61 lists all information that was used in at least one of the nonresponse models created for the second follow-up.

All school-level information was included in every nonresponse model and was only removed, where necessary, from those models in order to ensure model convergence. Because

the student-level information was not available for all second follow-up sample members, some information was used in some models but not in others. Details of the student-level information used in the various nonresponse models may be found in sections 6.3.5 and 6.3.6.

### 6.3.3.3 CHAID for Nonresponse Models

For those nonresponse adjustments that included interactions of the items listed in table 61, CHAID was performed on the predictor variables in order to detect important interactions for the logistic models used to produce nonresponse weight adjustment factors. The CHAID analysis divided the data into segments that differed with respect to the response variable (fielded, did not refuse, or respondent, depending on the model). The segmentation process first divided the sample into groups based on categories of the most significant predictor of response. It then split each of these groups into smaller subgroups based on other predictor variables. It also merged categories of a variable that were found to be insignificant. The splitting and merging process continued until no more statistically significant predictors were found or until some other stopping rule was met. The interactions from the final CHAID segments were then defined.

The interaction segments and all main effects were subjected to variable screening in the GEM logistic procedure. The initial model for a given adjustment step included all of the variables listed in table 61 that were available for respondents and nonrespondents and, where interaction terms were used, included the segments identified via CHAID. The most insignificant variables were deleted sequentially until the deletion of additional variables did not appreciably improve the UWE. Different bounds on the weight adjustments, depending on whether the weights were classified as extreme, were used to accomplish nonresponse adjustment, truncation, and smoothing in one step.

**Table 61. Information used in nonresponse models: 2006**

School-level information	Student-level information
School type	Student race/ethnicity
Metropolitan status	Student sex
Region	Student's native language
10th-grade enrollment	Family composition
Total enrollment	Parents' highest level of education
Number of minutes per class	Mother/female guardian's occupation
Number of class periods	Father/male guardian's occupation
Number of school days	Total family income from all sources
Percentage of students receiving free or reduced-price lunch	Socioeconomic status (SES)
Number of full-time teachers	G10COHRT—member of the sophomore cohort
Percentage of full-time teachers certified	G12COHRT—member of the senior cohort
Number of part-time teachers	Enrollment status
Number of different grades taught at the school	
School level	
Coeducational status	
Percentage of students with an Individualized Education Program	
Percentage of students with limited English proficiency	
Percentage of Hispanic 10th-grade students	
Percentage of Asian 10th-grade students	
Percentage of Black 10th-grade students	

NOTE: School-level information is from the base year (2002).

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002" and "Second Follow-up, 2006."

### 6.3.4 Base Weight and Screening Adjustments

The base weight used to produce each of the second follow-up analysis weights was the first follow-up design weight, F1DWT. As described in the ELS:2002 base-year to first follow-up data file documentation, a school nonresponse adjustment (denoted WTADJ1) was applied to F1DWT for those first follow-up sample members who were part of the spring-term 12th-grade freshened sample in order to account for those schools that did not respond to the freshening process used in the first follow-up. The value of WTADJ1 was equal to 1 for those ELS:2002 sample members who were not part of the freshened sample of students added in the first follow-up. This same adjustment was applied to F1DWT and the resulting adjusted weight, denoted F2DWT, was taken as the second follow-up design weight. All second follow-up analysis weights were produced by applying a series of nonresponse and calibration adjustments to F2DWT.

As noted in section 6.3.3, some ELS:2002 sample members were not fielded as part of second follow-up data collection. These sample members included some first follow-up nonrespondents. Instead of assuming that these sample members would have retained their first follow-up status if they had been interviewed in the second follow-up, two ratio adjustments were created and applied to F2DWT in order to account for the likelihood that some of the first follow-up nonrespondents would have become out of scope for the second follow-up and to account for the likelihood that some out-of-scope cases would have become in scope for the second follow-up.

Since the number of ELS:2002 sample members not fielded for the second follow-up is small (less than 400) the resulting scope adjustments were very close to 1. The average ratio adjustment (denoted WTADJ2) for the first follow-up nonrespondents not fielded for the second follow-up was 1.0004. The average ratio adjustment (denoted WTADJ3) for the first follow-up out-of-scope cases not fielded for the second follow-up was 1.0006. The second follow-up adjusted, interim weight, F2IWT, calculated as:

$$F2IWT = F1DWT * WTADJ1 * WTADJ2 * WTADJ3$$

was used to produce each of the four second follow-up analysis weights. Subsequent adjustments to F2IWT varied by second follow-up analysis weight. The nonresponse and calibration adjustments applied to F2IWT to produce the second follow-up cross-sectional weights are described in section 6.3.5. The nonresponse and calibration adjustments applied to F2IWT to produce the second follow-up panel weights are described in section 6.3.6. Figure 13 summarizes the weight adjustments applied to the first follow-up design weight in order to produce the four second follow-up analysis weights.

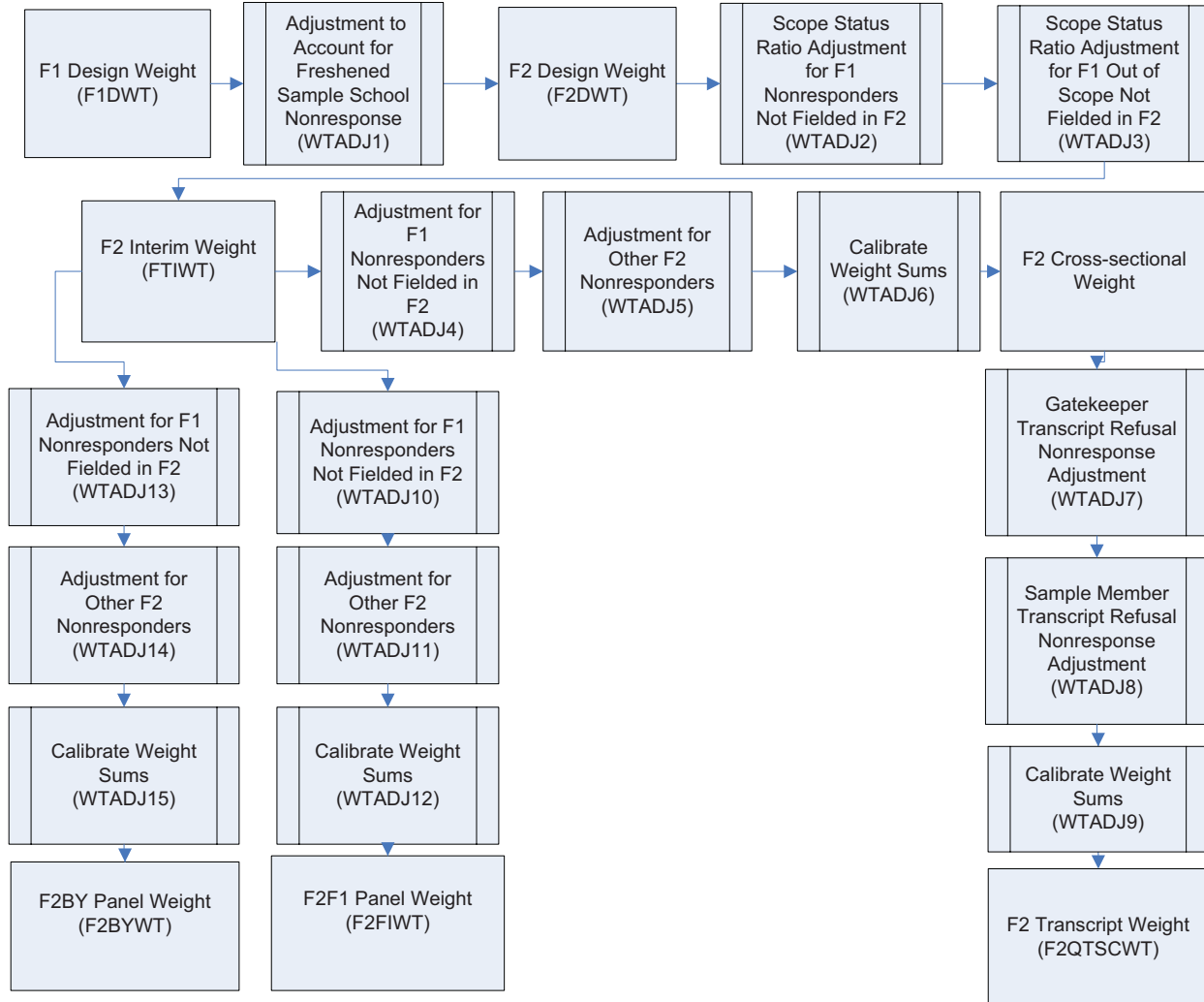
### 6.3.5 Details of Weight Adjustments for Cross-sectional Weights

Two cross-sectional analysis weights were produced for the ELS:2002 second follow-up. The first cross-sectional weight was calculated for all sample members who fully or partially completed a second follow-up questionnaire. The second cross-sectional weight was calculated for all sample members who fully or partially completed a second follow-up questionnaire and for whom a transcript was collected as part of the first follow-up transcript study. The



nonresponse and calibration adjustments used to produce these two weights are described in sections 6.3.5.1 and 6.3.5.2.

**Figure 13. Second follow-up weight adjustments: 2006**



SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

**6.3.5.1 Cross-sectional Weight: F2QWT**

This second follow-up cross-sectional weight, F2QWT, was computed for those sample members who fully or partially completed the second follow-up questionnaire. Unlike prior rounds, prior-round questionnaire-incapable sample members who did not respond in the second follow-up were considered to be out of scope.

With a few exceptions, first follow-up eligible sample students remained eligible for the second follow-up sample. Students who died were out of scope for the second follow-up. Students who left the country, were unavailable for the duration of the study (e.g., in military boot camp), or were institutionalized were temporarily out of scope for the second follow-up, although they may be eligible in future rounds.

As noted in section 6.3.3, two nonresponse adjustments were created in order to account for nonresponse arising via two mechanisms:

- nonresponse arising from not fielding some first follow-up nonrespondents; and
- nonresponse resulting from fielded sample members not responding (either because they could not be contacted, could not be located, or refused to participate).

Also as noted in section 6.3.3, nonresponse resulting from the inability to locate/contact fielded sample members and nonresponse resulting from direct sample member refusal were treated as one nonresponse mechanism. The rationale for treating the reasons for nonresponse as one mechanism was based on the distribution of nonresponse cases. A review of the nonresponse cases indicated that the main reason for nonresponse was direct sample member refusal. A determination was made that the number of nonresponse cases associated with inability to locate or contact was not sufficient to warrant a separate nonresponse adjustment.

*Weight adjustment for not-fielded cases.* Some of the base-year nonrespondents were subsampled for inclusion in the first follow-up study; some of those base-year nonrespondents were nonrespondents or out of scope in the first follow-up. These sample members were not fielded in the second follow-up. Since the information available for the first follow-up nonrespondents not fielded for the second follow-up was limited, only a subset of the student-level information listed in table 61 was able to be used to create this nonresponse adjustment. In addition to all school-level variables listed in table 61, only student race/ethnicity and student sex were known for the first follow-up nonrespondents not fielded for the second follow-up.

A total of 23 variables were used as main effects in the GEM process. Additionally, as the number of first follow-up nonrespondents not fielded for the second follow-up was small, interactions of the main effects were not included in this first modeling process. The nonresponse adjustment factor resulting from this process is denoted WTADJ4.

The GEM process used to calculate nonresponse adjustments included a trimming process and the final weight adjustment factor is calculated in such a fashion as to produce trimmed and smoothed weights. The values of the weight F2IWT were examined and extreme weights (3.8 percent unweighted and 13.6 percent weighted) were identified. The extreme weights were flagged and used to help produce the final nonresponse adjustment factor, WTADJ4.

Table I-1 (appendix I) lists the final predictor variables used in the student nonresponse adjustment model that accounts for those first follow-up nonresponding sample members not fielded for the second follow-up. This table also lists the number of respondents, the weighted response rate, and the average weight adjustment by each level of each predictor variable included in the final nonresponse model. While the average adjustment factor, by variable level, was generally near 1, the individual student-level adjustment factors varied from 0.1 to 2.0 with a median of 1.1.

The temporary weight  $F2IWT * WTADJ4$  was the input to the process used to calculate the nonresponse adjustment due to sample member refusal.

*Weight adjustment for sample member nonresponse.* Since the ELS:2002 sample members fielded for the second follow-up were base-year respondents, first follow-up respondents, or both, more student-level information could be used in the calculation of this

nonresponse adjustment than for the nonresponse adjustment WTADJ4. In addition to all school-level variables listed in table 61, all student-level variables except Enrollment Status were known for second follow-up respondents and second follow-up nonrespondents.

A total of 32 variables were used as main effects in the GEM process. These variables were also used in a CHAID analysis to determine important interactions for the nonresponse adjustment model. The nonresponse adjustment factor resulting from this process is denoted WTADJ5.

The GEM process used to calculate nonresponse adjustments included a trimming process and the final weight adjustment factor is calculated in such a fashion as to produce trimmed and smoothed weights. The values of the weight  $F2IWT*WTADJ4$  were examined and extreme weights (4.3 percent unweighted and 11.4 percent weighted) were identified. The extreme weights were flagged and used to help produce the final nonresponse adjustment factor WTADJ5.

Table I-2 (appendix I) lists the final predictor variables (main effects and interactions) used in the student nonresponse adjustment model that accounts for those second follow-up fielded sample members who did not respond. This table also lists the number of respondents, the weighted response rate, and the average weight adjustment by each level of each predictor variable included in the final nonresponse model. While the average adjustment factor, by variable level, was generally near 1, the individual student-level adjustment factors varied from 0.7 to 2.7 with a median of 1.1.

The temporary weight  $F2IWT*WTADJ4*WTADJ5$  was the input to the process used to calculate the calibration adjustment necessary to ensure that the second follow-up cross-sectional weight would preserve prior-round weight sums.

*Weight adjustment used to calibrate weight sums.* A weight adjustment factor was calculated using GEM to ensure that the second follow-up cross-sectional analysis weight preserved overall and marginal totals from prior rounds. The ELS:2002 sample members included in the weight calibration include second follow-up respondents and second follow-up out-of-scope sample members. In prior rounds, questionnaire-incapable members were considered respondents in the weight calibration, but in the second follow-up, questionnaire-incapable sample members were considered to be out of scope. Since these questionnaire-incapable members were included in the second follow-up calibration, the control totals used in the calibration process were derived from prior-round weight totals that include the questionnaire-incapable sample members. For the second follow-up cross-sectional weight  $F2QWT$ , control totals were calculated using the first follow-up expanded sample cross-sectional weight  $F1EXPWT$ .

Six key variables were used in the modeling process: Census region, School type, Sex, Race/ethnicity, 10th-grade cohort, and 12th-grade cohort. Interactions of 10th- and 12th-grade cohort with the other variables (Census region, School Type, Sex, and Race/ethnicity) were also included in the calibration model. The resulting calibration adjustment factor is denoted WTADJ6.

The GEM process used to calculate calibration adjustments includes a trimming process and the final weight adjustment factor is calculated in such a fashion as to produce trimmed weights. The values of the weight  $F2IWT*WTADJ4*WTADJ5$  were examined and extreme

weights (3.2 percent unweighted and 9.4 percent weighted) were identified. The extreme weights were flagged and used to help produce the final calibration adjustment factor WTADJ6.

Table I-3 (appendix I) lists the final model variables (main effects and interactions) for which weight sums were preserved. This table also lists the control total and average weight adjustment by each level of each variable used in the calibration model. While the average adjustment factor, by variable level, was generally near 1, the individual student-level adjustment factors varied from 0.1 to 1.5 with a median of 1.0.

The final second follow-up cross-sectional weight (F2QWT) is calculated as:

$$F2QWT = F1DWT * WTADJ1 * WTADJ2 * WTADJ3 * WTADJ4 * WTADJ5 * WTADJ6.$$

Table 62 shows various statistical properties of the final second follow-up cross-sectional weight F2QWT.

**Table 62. Statistical properties of cross-sectional weight F2QWT: 2006**

Weight	F2QWT
Mean	240.7
Variance	26,560.5
Standard deviation	163
Coefficient of variation (x 100)	67.7
Minimum	5.4
Maximum	1,001.1
Skewness	1.0
Kurtosis	0.6
Sum	3,408,100
Number of cases	14,200

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

### 6.3.5.2 Cross-sectional Transcript Weight: F2QTSCWT

The second follow-up cross-sectional transcript weight (F2QTSCWT) was computed for those sample members who fully or partially completed a second follow-up questionnaire and for whom a first follow-up transcript was collected.

The second follow-up cross-sectional transcript weight was created by adjusting the second follow-up cross-sectional weight, F2QWT, described in section 6.3.5.1. Following the process developed in the first follow-up transcript study, three adjustments were applied to F2QWT. The first adjustment was a nonresponse adjustment used to account for those ELS:2002 sample members who did not have a transcript because a school or parent refused to provide the transcript. The second was a nonresponse adjustment used to account for those sample members who refused to allow their transcript to be collected. The third adjustment was used to calibrate weight sums of the cross-sectional transcript weight in order to preserve prior-round weight totals.

*Weight adjustment for nonresponse due to gatekeepers.* Since the cross-sectional transcript weight was created by applying adjustments to the second follow-up cross-sectional weight, all school- and student-level information listed in table 61 could be used in this nonresponse adjustment. The student-level Enrollment Status variable was incorporated into this

nonresponse adjustment as it was considered to be related to whether or not a transcript was available.

A total of 33 variables were used as main effects in the GEM process. These variables were also used in a CHAID analysis to determine important interactions for the nonresponse adjustment model. The nonresponse adjustment factor resulting from this process is denoted WTADJ7.

The GEM process used to calculate nonresponse adjustments includes a trimming process and the final weight adjustment factor is calculated in such a fashion as to produce trimmed weights. The values of the weight F2QWT were examined and extreme weights (1.7 percent unweighted and 4.3 percent weighted) were identified. The extreme weights were flagged and used to help produce the final nonresponse adjustment factor WTADJ7.

Table I-4 (appendix I) lists the final predictor variables used in the student nonresponse adjustment model that accounts for the transcript nonresponse arising from gatekeeper refusal. This table also lists the number of respondents, the weighted response rate, and the average weight adjustment by each level of each predictor variable included in the final nonresponse model. While the average adjustment factor, by variable level, was generally near 1, the individual student-level adjustment factors varied from 0.7 to 2.9 with a median of 1.0.

The temporary weight  $F2QWT * WTADJ7$  was the input to the process used to calculate the nonresponse adjustment necessary to account for transcript nonresponse arising from sample member refusal.

*Weight adjustment due to sample member refusal.* The variables used to calculate the nonresponse adjustment to account for gatekeeper refusal were also used in the process to calculate a nonresponse adjustment to account for those sample members who refused permission to include transcript data with the first follow-up data. All variables listed in table 61 were used to calculate the nonresponse adjustment factor for sample member refusal.

A total of 33 variables were used as main effects in the GEM process. These variables were also used in a CHAID analysis to determine important interactions for the nonresponse adjustment model. The nonresponse adjustment factor resulting from this process is denoted WTADJ8.

The GEM process used to calculate nonresponse adjustments includes a trimming process and the final weight adjustment factor is calculated in such a fashion as to produce trimmed weights. The values of the temporary weight  $F2QWT * WTADJ7$  were examined and extreme weights (1.0 percent unweighted and 2.9 percent weighted) were identified. The extreme weights were flagged and used to help produce the final nonresponse adjustment factor WTADJ8.

Table I-5 (appendix I) lists the final predictor variables used in the student nonresponse adjustment model that accounts for the transcript nonresponse arising from sample member refusal. This table also lists the number of respondents, the weighted response rate, and the average weight adjustment by each level of each predictor variable included in the final nonresponse model. While the average adjustment factor, by variable level, was generally near 1, the individual student-level adjustment factors varied from 0.4 to 2.9 with a median of 1.0.

The temporary weight  $F2QWT * WTADJ7 * WTADJ8$  was the input to the process used to calculate the calibration adjustment necessary to ensure that the second follow-up cross-sectional transcript weight would preserve prior-round weight sums.

*Weight adjustment used to calibrate weight sums.* A weight adjustment factor was calculated using GEM to ensure that the second follow-up cross-sectional transcript weight preserved overall and marginal totals from prior rounds. The ELS:2002 sample members included in the weight calibration include second follow-up respondents and out-of-scope sample members. In prior rounds, questionnaire-incapable members were considered respondents in the weight calibration but, in the second follow-up, questionnaire-incapable sample members were considered to be out of scope. Since these questionnaire-incapable members were included in the second follow-up calibration, the control totals used in the calibration process were derived from prior-round weight totals that include the questionnaire-incapable sample members. For the second follow-up cross-sectional transcript weight F2QTSCWT, control totals were calculated using the first follow-up expanded sample cross-sectional weight F1EXPWT.

Six key variables were used in the modeling process: Census region, School type, Sex, Race/ethnicity, 10th-grade cohort, and 12th-grade cohort. Interactions of 10th- and 12th-grade cohort with the other variables (Census region, School Type, Sex, and Race/ethnicity) were also included in the calibration model. The resulting calibration adjustment factor is denoted WTADJ9.

The GEM process used to calculate calibration adjustments includes a trimming process and the final weight adjustment factor is calculated in such a fashion as to produce trimmed weights. The values of the weight  $F2QWT*WTADJ7*WTADJ8$  were examined and extreme weights (1.2 percent unweighted and 3.7 percent weighted) were identified. The extreme weights were flagged and used to help produce the final calibration adjustment factor WTADJ9.

Table I-6 (appendix I) lists the final model variables, main effects, and interactions for which weight sums were preserved. This table also lists the control total and average weight adjustment by each level of each variable used in the calibration model. While the average adjustment factor, by variable level, was generally near 1, the individual student-level adjustment factors varied from 0.4 to 1.4 with a median of 1.0.

The final second follow-up cross-sectional transcript weight (F2QTSCWT) is calculated as:

$$F2QTSCWT = F2QWT*WTADJ7*WTADJ8*WTADJ9.$$

Table 63 shows various statistical properties of the final second follow-up cross-sectional transcript weight F2QTSCWT.

**Table 63. Statistical properties of the cross-sectional transcript weight F2QTSCWT: 2006**

Weight	F2QTSCWT
Mean	262.0
Variance	33,044.6
Standard deviation	181.8
Coefficient of variation (x 100)	69.4
Minimum	5.4
Maximum	1,031.1
Skewness	1.0
Kurtosis	0.7
Sum	3,408,100
Number of cases	13,000

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

### 6.3.6 Details of Weight Adjustments for Panel Weights

Two panel analysis weights were produced for the ELS:2002 second follow-up. The first panel weight, covering the first and second follow-up rounds, was calculated for all sample members who:

- fully or partially completed a second follow-up questionnaire and fully or partially completed a first follow-up questionnaire; or
- fully or partially completed a second follow-up questionnaire and were questionnaire-incapable in the first follow-up.

The second panel weight, covering the base-year and second follow-up rounds, was calculated for all sample members who:

- fully or partially completed a second follow-up questionnaire and fully or partially completed a base-year questionnaire; or
- fully or partially completed a second follow-up questionnaire and were questionnaire-incapable in the base year; or
- were base-year nonrespondents who responded in the first and second follow-ups and for whom base-year classification information was collected in the first follow-up, when their test scores were also imputed.

The nonresponse and calibration adjustments used to produce these two weights are described in sections 6.3.6.1 and 6.3.6.2, respectively.

#### 6.3.6.1 First Follow-up to Second Follow-up Panel Weight: F2F1WT

This second follow-up panel weight was computed for those sample members who fully or partially completed the second follow-up questionnaire and responded<sup>79</sup> in the first follow-up. Unlike prior rounds, questionnaire-incapable sample members who did not respond in the second follow-up were considered to be out of scope.

<sup>79</sup> Such sample members included first follow-up respondents and first follow-up questionnaire-incapable sample members.

The sample members who were assigned a first follow-up to second follow-up analysis weight were a subset of those sample members who had a second follow-up cross-sectional weight. Second follow-up respondents who were nonrespondents in the first follow-up or were out of scope in the first follow-up were not considered panel respondents.

The nonresponse adjustments used to create F2F1WT accounted for the same two nonresponse mechanisms used in the adjustment process to create F2QWT and are described in section 6.3.5.1. In particular, two nonresponse adjustments were created in order to account for nonresponse arising via two mechanisms:

- nonresponse arising from not fielding some first follow-up nonrespondents; and
- nonresponse resulting from fielded sample members not responding (because they could not be contacted, could not be located, or refused to participate).

Also as noted in section 6.3.3, nonresponse resulting from the inability to locate/contact fielded sample members and nonresponse resulting from direct sample member refusal were treated as one nonresponse mechanism. The rationale for treating these reasons for nonresponse as one mechanism was based on the distribution of nonresponse cases. A review of the nonresponse cases indicated that the main reason for nonresponse was direct sample member refusal. A determination was made that the number of nonresponse cases associated with inability to locate was not sufficient to warrant a separate nonresponse adjustment.

*Weight adjustment for not fielding cases.* Some of the base-year nonrespondents were subsampled for inclusion in the first follow-up study and some were nonrespondents or out of scope in the first follow-up. These sample members were not fielded in the second follow-up. Since the information available for the first follow-up nonrespondents not fielded for the second follow-up was limited, only a subset of the student-level information listed in table 61 could be used to create this nonresponse adjustment. In addition to all school-level variables listed in table 61, only student race/ethnicity and student sex were known for the first follow-up nonrespondents not fielded for the second follow-up.

A total of 23 variables were used as main effects in the GEM process. Additionally, as the number of first follow-up nonrespondents not fielded for the second follow-up was small, interactions of the main effects were not included in this first modeling process. The nonresponse adjustment factor resulting from this process is denoted WTADJ10.

The GEM process used to calculate nonresponse adjustments includes a trimming process and the final weight adjustment factor is calculated in such a fashion as to produce trimmed weights. The values of the weight F2IWT were examined and extreme weights (3.8 percent unweighted and 13.6 percent weighted) were identified. The extreme weights were flagged and used to help produce the final nonresponse adjustment factor WTADJ10.

Table I-7 (appendix I) lists the final predictor variables used in the student nonresponse adjustment model that accounts for those first follow-up nonresponding sample members not fielded for the second follow-up. This table also lists the number of respondents, the weighted response rate, and the average weight adjustment by each level of each predictor variable included in the final nonresponse model. While the average adjustment factor, by variable level, was generally near 1, the individual student-level adjustment factors varied from 0.1 to 2.0 with a median of 1.1.



The temporary weight  $F2IWT*WTADJ10$  was the input to the process used to calculate the nonresponse adjustment accounting for sample member refusal.

*Weight adjustment for sample member nonresponse.* Since the ELS:2002 sample members fielded for the second follow-up were base-year respondents, first follow-up respondents, or both, more student-level information could be used in the calculation of this nonresponse adjustment than for the nonresponse adjustment  $WTADJ10$ . In addition to all school-level variables listed in table 61, all student-level variables except Enrollment Status were known for second follow-up respondents and second follow-up nonrespondents.

A total of 32 variables were used as main effects in the GEM process. These variables were also used in a CHAID analysis to determine important interactions for the nonresponse adjustment model. The nonresponse adjustment factor resulting from this process is denoted  $WTADJ11$ .

The GEM process used to calculate nonresponse adjustments includes a trimming process and the final weight adjustment factor is calculated in such a fashion as to produce trimmed weights. The values of the weight  $F2IWT*WTADJ10$  were examined and extreme weights (4.3 percent unweighted and 11.6 percent weighted) were identified. The extreme weights were flagged and used to help produce the final nonresponse adjustment factor  $WTADJ11$ .

Table I-8 (appendix I) lists the final predictor variables, main effects, and interactions used in the student nonresponse adjustment model that accounts for those second follow-up fielded sample members who did not respond. This table also lists the number of respondents, the weighted response rate, and the average weight adjustment by each level of each predictor variable included in the final nonresponse model. While the average adjustment factor, by variable level, was generally near 1, the individual student-level adjustment factors varied from 0.7 to 2.4 with a median of 1.2.

The temporary weight  $F2IWT*WTADJ10*WTADJ11$  was the input to the process used to calculate the calibration adjustment necessary to ensure that prior-round weight sums were preserved.

*Weight adjustment used to calibrate weight sums.* A weight adjustment factor was calculated using GEM to ensure that the second follow-up panel weight  $F2F1WT$  preserved overall and marginal totals from prior rounds. The ELS:2002 sample members included in the weight calibration include second follow-up respondents and second follow-up out-of-scope sample members. In prior rounds, questionnaire-incapable members were considered respondents in the weight calibration but, in the second follow-up, questionnaire-incapable sample members were considered to be out of scope. Since these questionnaire-incapable members were included in the second follow-up calibration, the control totals used in the calibration process were derived from prior-round weight totals that include the questionnaire-incapable sample members. For the second follow-up panel weight  $F2F1WT$ , control totals were calculated using the first follow-up expanded sample cross-sectional weight  $F1EXPWT$ .

Six key variables were used in the modeling process: Census region, School type, Sex, Race/ethnicity, 10th-grade cohort, and 12th-grade cohort. Interactions of 10th- and 12th-grade cohort with the other variables (Census region, School type, Sex, and Race/ethnicity) were also included in the calibration model. The resulting calibration adjustment factor is denoted  $WTADJ12$ .

The GEM process used to calculate calibration adjustments includes a trimming process and the final weight adjustment factor is calculated in such a fashion as to produce trimmed weights. The values of the weight  $F2IWT*WTADJ10*WTADJ11$  were examined and extreme weights (2.9 percent unweighted and 8.5 percent weighted) were identified. The extreme weights were flagged and used to help produce the final calibration adjustment factor  $WTADJ12$ .

Table I-9 (appendix I) lists the final model variables, main effects, and interactions for which weight sums were preserved. This table also lists the control total and average weight adjustment by each level of each variable used in the calibration model. While the average adjustment factor, by variable level, was generally near 1, the individual student-level adjustment factors varied from 0.1 to 1.5 with a median of 1.00.

The final panel weight  $F2F1WT$  is calculated as:

$$F2F1WT = F1DWT * WTADJ1 * WTADJ2 * WTADJ3 * WTADJ10 * WTADJ11 * WTADJ12.$$

Table 64 shows various statistical properties of the final second follow-up panel weight  $F2F1WT$ .

**Table 64. Statistical properties of panel weight  $F2F1WT$ : 2006**

Weight	$F2F1WT$
Mean	254.0
Variance	30,503.1
Standard deviation	174.7
Coefficient of variation (x 100)	68.8
Minimum	5.6
Maximum	1,041.3
Skewness	1.0
Kurtosis	0.6
Sum	3,394,800
Number of cases	13,400

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

### 6.3.6.2 Base-Year to Second Follow-up Panel Weight: $F2BYWT$

The second follow-up panel weight ( $F2BYWT$ ) was computed for those sample members who fully or partially completed the second follow-up questionnaire and responded<sup>80</sup> in the base-year round. Unlike prior rounds, questionnaire-incapable sample members who did not respond in the second follow-up were considered to be out of scope.

The sample members who were assigned a base-year to second follow-up analysis weight were a subset of those sample members who had a second follow-up cross-sectional weight. The nonresponse adjustments used to create  $F2BYWT$  accounted for the same two nonresponse mechanisms used in the adjustment process used to create  $F2QWT$  and  $F2F1WT$  and are described in sections 6.3.5.1 and 6.3.6.1. In particular, two nonresponse adjustments were created in order to account for nonresponse arising via two mechanisms:

- nonresponse arising from not fielding some first follow-up nonrespondents; and

<sup>80</sup> Such sample members included base-year respondents and base-year questionnaire-incapable sample members.

- nonresponse resulting from fielded sample members not responding (either because they could not be contacted, could not be located, or refused to participate).

Also as noted in section 6.3.3, nonresponse resulting from the inability to locate/contact fielded sample members and nonresponse resulting from direct sample member refusal were treated as one nonresponse mechanism. The rationale for treating these reasons for nonresponse as one mechanism was based on the distribution of nonresponse cases. A review of the nonresponse cases indicated that the main reason for nonresponse was direct sample member refusal. A determination was made that the number of nonresponse cases associated with inability to locate was not sufficient to warrant a separate nonresponse adjustment.

*Weight adjustment for no-field cases.* Some of the base-year nonrespondents were subsampled for inclusion in the first follow-up study and some were nonrespondents or out of scope in the first follow-up. These sample members were not fielded in the second follow-up. Since the information available for these cases was limited, only a subset of the student-level information listed in table 65 could be used to create this nonresponse adjustment. In addition to all school-level variables listed in table 65, only student race/ethnicity and student sex were known for the base-year nonrespondents who were also first follow-up nonrespondents not fielded for the second follow-up.

A total of 23 variables were used as main effects in the GEM process. Additionally, as the number of first follow-up nonrespondents not fielded for the second follow-up was small, interactions of the main effects were not included in this first modeling process. The nonresponse adjustment factor resulting from this process is denoted WTADJ13.

The GEM process used to calculate nonresponse adjustments includes a trimming process and the final weight adjustment factor is calculated in such a fashion as to produce trimmed weights. The values of the weight F2IWT were examined and extreme weights (3.7 percent unweighted and 13.6 percent weighted) were identified. The extreme weights were flagged and used to help produce the final nonresponse adjustment factor WTADJ13.

Table I-10 (appendix I) lists the final predictor variables used in the student nonresponse adjustment model that accounts for those base-year nonrespondents who were first follow-up nonrespondents not fielded for the second follow-up. This table also lists the number of respondents, the weighted response rate, and the average weight adjustment by each level of each predictor variable included in the final nonresponse model. While the average adjustment factor, by variable level, was generally near 1, the individual student-level adjustment factors varied from 0.1 to 1.9 with a median of 1.1.

The temporary weight  $F2IWT * WTADJ13$  was the input to the process used to calculate the nonresponse adjustment necessary to account for nonresponse among fielded cases in the second follow-up.

*Weight adjustment sample member nonresponse.* Since the ELS:2002 sample members fielded for the second follow-up were base-year respondents, first follow-up respondents, or both, more student-level information could be used in the calculation of this nonresponse adjustment than for the nonresponse adjustment WTADJ13. In addition to all school-level variables listed in table 65, all student-level variables except Enrollment Status were known for second follow-up respondents and second follow-up nonrespondents. The variable G10COHRT

was not used in this weight adjustment process since all respondents and nonrespondents for this panel weight are in the 10th-grade cohort.

A total of 31 variables were used as main effects in the GEM process. These variables were also used in a CHAID analysis to determine important interactions for the nonresponse adjustment model. The nonresponse adjustment factor resulting from this process is denoted WTADJ14.

The GEM process used to calculate nonresponse adjustments includes a trimming process and the final weight adjustment factor is calculated in such a fashion as to produce trimmed weights. The values of the weight  $F2IWT*WTADJ13$  were examined and extreme weights (4.14 percent unweighted and 11.1 percent weighted) were identified. The extreme weights were flagged and used to help produce the final nonresponse adjustment factor WTADJ14.

Table I-11 (appendix I) lists the final predictor variables, main effects, and interactions used in the student nonresponse adjustment model that accounts for those second follow-up fielded sample members who did not respond. This table also lists the number of respondents, the weighted response rate, and the average weight adjustment by each level of each predictor variable included in the final nonresponse model. While the average adjustment factor, by variable level, was generally near 1, the individual student-level adjustment factors varied from 0.1 to 1.8 with a median of 1.1.

The temporary weight  $F2IWT*WTADJ13*WTADJ14$  was the input to the process used to calculate the calibration adjustment necessary to ensure that prior-round weight sums were preserved.

*Weight adjustment used to calibrate weight sums.* A weight adjustment factor was calculated using GEM to ensure that the second follow-up panel weight F2BYWT preserved overall and marginal totals from prior rounds. The ELS:2002 sample members included in the weight calibration include second follow-up respondents and second follow-up out-of-scope sample members. In prior rounds, questionnaire-incapable members were considered respondents in the weight calibration but, in the second follow-up, questionnaire-incapable sample members were considered to be out of scope. Since these questionnaire-incapable members were included in the second follow-up calibration, the control totals used in the calibration process were derived from prior-round weight totals that include the questionnaire-incapable sample members. For the second follow-up panel weight F2BYWT, control totals were calculated using the first follow-up expanded sample cross-sectional weight BYEXPWT.

Four key variables were used in the modeling process: Census region, School type, Sex, and Race/ethnicity. Since all sample members who received a F2BYWT are in the 10th-grade cohort, there was no need to include the variable G10COHRT in the calibration model. Additionally, since the set of ELS:2002 sample members eligible for this panel weight is not representative of the 12th-grade cohort, control totals for the 12th-grade cohort were not preserved. The resulting calibration adjustment factor is denoted WTADJ15.

The GEM process used to calculate calibration adjustments includes a trimming process and the final weight adjustment factor is calculated in such a fashion as to produce trimmed weights. The values of the weight  $F2IWT*WTADJ13*WTADJ14$  were examined and extreme weights (3.2 percent unweighted and 9.2 percent weighted) were identified. The extreme weights were flagged and used to help produce the final calibration adjustment factor WTADJ15.

Table I-12 (appendix I) lists the final model variables for which weight sums were preserved. This table also lists the control total and average weight adjustment by each level of each variable used in the calibration model. While the average adjustment factor, by variable level, was generally near 1, the individual student-level adjustment factors varied from 0.1 to 1.1 with a median of 1.0.

The final panel weight F2BYWT is calculated as:

$$F2BYWT = F1DWT * WTADJ1 * WTADJ2 * WTADJ3 * WTADJ13 * WTADJ14 * WTADJ15.$$

Table 65 shows various statistical properties of the final second follow-up panel weight F2BYWT.

**Table 65. Statistical properties of panel weight F2BYWT: 2006**

Weight	F2BYWT
Mean	239.4
Variance	26,188.0
Standard deviation	161.8
Coefficient of variation (x 100)	67.6
Minimum	5.3
Maximum	793.0
Skewness	0.9
Kurtosis	0.5
Sum	3,357,400
Number of cases	14,000

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

### 6.3.7 BRR Weights for the Data Analysis System

Four sets of 200 BRR replicate weights were computed as an alternative variance estimation procedure because NCES's DAS requires BRR weights for variance estimation. The 200 replicates were constructed so that there are a sufficient number of replicates for the new regression feature of the DAS. The four sets correspond to the four weights described in section 6.3.2:

- F2Q1—F2Q200;
- F2TRS1—F2TRS200;
- F2BYP1—F2BYP200; and
- F2F1P1—F2F1P200.

The second follow-up replicate weights were computed in a similar manner to those computed for the base year and first follow-up.

The BRR procedure is an alternative variance estimation procedure that computes the variance based on a balanced set of pseudoreplicates. The BRR variance estimation process involves modeling the design as if it were a two-PSU-per-stratum design. Variances were calculated using a random group type of variance estimation procedure, with a balanced set of 200 replicates as the groups. Balancing was done by using an orthogonal matrix (200 x 200

Hadamard matrix) and allows the use of less than the full set of  $2^L$  possible replicates, where L is the number of analysis strata. To achieve full orthogonal balance, the number of BRR strata needs to be less than the number of replicates. Therefore, we created 200 replicates in 199 strata. Section 6.3.7.1 describes the strata and PSUs (replicates) that were created for the base-year replicate weights and used again in the first and second follow-ups. Section 6.3.7.2 describes the weight adjustments made for the second follow-up, and section 6.3.7.3 summarizes the results of the replicate weighting.

### 6.3.7.1 Strata and PSUs

For Taylor series variance estimation, 361 analysis strata containing responding schools were created from the 96 sampling strata based on the sample design. In order to replicate the school weight, it is necessary for the BRR strata to contain all sample schools (respondents and nonrespondents). For the base year, 594 analysis strata were formed for the purpose of computing school-level Taylor series variance estimates. We collapsed these 594 analysis strata into 199 BRR strata. We estimated the base-year expected sample size for each sample school in the 594 strata and then collapsed strata randomly across size groups (small, medium, large) so that the 199 strata have approximately equal sizes. Collapsing randomly allows schools of different types, regions, or urbanities to be together in a stratum. This provides more degrees of freedom for variance estimation for domains and helps obtain more accurate variance estimates within domains. Within the 199 BRR strata, there are two PSUs. Each school in a stratum was randomly assigned to one of the two PSUs.

The strata were randomly assigned to the rows of the Hadamard matrix. The 200 columns of the matrix are the replicates. Within each stratum, the matrix contains values of +1 and -1; one PSU was randomly assigned +1 and the other PSU was assigned -1. For PSUs with a value of +1, the school base (sampling) weight was multiplied by 2 to create the initial BRR weight, otherwise the school base weight was multiplied by zero. Approximately half of the schools in each of the 200 replicates have initial BRR weights of zero and the other half have initial BRR weights double the initial base weight.

### 6.3.7.2 Weight Adjustments

While both Taylor series and BRR variance estimation methods reflect the increase in variance due to unequal weighting, the BRR weights can also be designed to reflect the variance impact (increase or decrease) of the weight adjustment process. The impact of the weight adjustment process is captured by repeating nonresponse adjustment and calibration processes on each BRR half sample.

The F2 replication process mirrored the F2 analysis weight construction, and the design weight was the F1 replicate design weight. All F2 weight adjustments were replicated, including the adjustment for unknown eligibility, two nonresponse adjustments, and calibration. The original F2 nonresponse and calibration models were used initially for each of the 200 replicates. However, some of the models did not converge for some replicates, so variables were deleted one by one from the models until convergence was achieved. The variables deleted were those that seemed to be causing the convergence problems, as long as they were not key design variables. The weight distribution was calibrated to the F1 weight sums. Since the F2 weights were not poststratified to external (known) totals, the estimates could legitimately reflect some variation in base-year totals due to sampling variability. To recognize the calibration to F1, each

half sample was calibrated to F1 half sample replicate weight sums rather than calibrated to F1 full sample analysis weight sums.

### 6.3.7.3 Results

When weights are adjusted by poststratification to align sample estimates with certain “known” population totals called controls, the sampling variance for estimates of the controls goes to zero, and the variance for related statistics is expected to be reduced. Repeating the poststratification (to the common “known” set of external totals) step on each half sample replicate ensures that the variance estimates for the control total estimates are zero and is expected to reduce the variance estimates for statistics correlated with the totals. However, when the calibration is to previous round half sample data, such as in the F2, the variance estimates for the control total estimates are not zero. This is because the control total for each replicate is different, hence there is variance between replicates.

Using the set of variables used to compute the design effects (see section 6.4), standard errors were computed using both the Taylor series and BRR variance estimation methods. Taylor series variance estimates were computed using the four F2 analysis weights, and the BRR variance estimation used the four sets of F2 BRR weights. For each of the four comparisons between the two methods, the Taylor series standard error was less than the BRR standard error for about 80 percent of the variables analyzed. Since BRR takes into account the variance due to weight adjustments, these results are expected.

### 6.3.8 Quality Control

Quality control was emphasized on all activities, including weighting. Because of the central importance of the analysis weights to population estimation, a senior statistician thoroughly checked each set of weights. The most fundamental type of check was the verification of totals that are algebraically equivalent (e.g., marginal totals of the weights of eligible students prior to nonresponse adjustment and of respondents after nonresponse adjustment). In addition, various analytic properties of the initial weights, the weight adjustment factors, and the final weights were examined, both overall and within sampling strata, including

- distribution of the weights;
- ratio of the maximum weight divided by the minimum weight; and
- unequal weighting design effect, or variance inflation effect ( $1 + CV^2$ ).

Additionally, two-dimensional tables of before and after weight adjustments were reviewed to ensure that the weight distribution was not distorted.

## 6.4 Second Follow-up Standard Errors and Design Effects

### 6.4.1 Standard Errors

For probability-based sample surveys, most estimates are nonlinear statistics. For example, a mean or proportion, which is expressed as  $\Sigma wy / \Sigma w$ ,<sup>81</sup> is nonlinear because the denominator is a survey estimate of the (unknown) population total. In this situation, the

<sup>81</sup> Where  $w$  is the sample weight, and  $y$  is a 0/1 variable indicating whether a certain characteristic is present for the sample member.

variances of the estimates cannot be expressed in closed form. One common procedure for estimating variances of survey statistics is the Taylor series linearization procedure. This procedure takes the first-order Taylor series approximation of the nonlinear statistic and then substitutes the linear representation into the appropriate variance formula based on the sample design. Woodruff presented the mathematical formulation of this procedure (Woodruff 1971). The variance estimation must also take into account stratification and clustering. There are other variance estimation procedures, such as jackknife and BRR. Taylor series estimation was used for the base year and first follow-up and also used for the second follow-up. BRR weights were produced for the second follow-up for use in the ELS:2002/06 DAS.

Variance estimation procedures assumed a with-replacement design at the first stage of sampling. Because school sampling rates were moderately low, this assumption yields estimates that are only slightly biased in the positive direction. For stratified multistage surveys and a with-replacement sample design, the Taylor series procedure requires the specification of analysis strata and analysis PSUs. The base-year sampling design employed 96 sampling strata and 752 primary sampling units. Given that the school sample was selected using probability with minimum replacement, for variance estimation in the base year, variance estimation strata were formed consisting of two PSUs per stratum (Chromy 1981). Some 361 analysis strata, containing two PSUs per stratum, were formed by grouping together the 752 sampling PSUs. The responding schools were sorted within sampling strata in the same order as was used for sampling, and then adjacent analysis PSUs were paired to form analysis strata. However, whenever there was an odd number of schools in a sampling stratum, an analysis stratum with three PSUs would be formed. The same analysis strata and PSUs as in the base year were used in the first follow-up and in the second follow-up.

As described in chapter 3, the ELS:2002 base-year sampling design was a stratified two-stage design. A stratified sample of schools was selected with probabilities proportional to a composite measure of size at the first stage, and a stratified systematic sample of students was selected from sample schools at the second stage. At the first stage, the school sampling rates varied considerably by school sampling strata. At the second stage, Asian and Hispanic students were sampled at higher rates than other students. Because of this complex sampling design, statistical analyses should be conducted using software that properly accounts for the complex survey design.

Many commonly used statistical computing packages assume that the data were obtained from a simple random sample; that is, they assume that the observations are independent and identically distributed. When the data have been collected using a complex sampling design, the simple random sampling assumption usually leads to an underestimate of the sampling variance, which would lead to artificially small confidence intervals and liberal hypothesis test results (i.e., rejecting the null hypothesis when it is in fact true more often than indicated by the nominal Type I error level) (Carlson, Johnson, and Cohen 1993).

Statistical strategies that have been developed to address this issue include first-order Taylor series expansion of the variance equation, balanced repeated replication, and the jackknife approach (Wolter 2007). Special-purpose software packages that have been developed for analysis of complex sample survey data include SUDAAN, WesVar, and Stata. Evaluations of the relative performances of these packages are reported by Cohen (1997).



- SUDAAN is a commercial product developed by RTI International; information regarding the features of this package and its lease terms is available from the website <http://www.rti.org/sudaan>.
- WesVar is a product of Westat, Inc.; information regarding the features of this package and its lease terms is available from the website <http://www.westat.com/wesvar>.
- Information regarding the features of Stata and its lease terms is available from the website <http://www.stata.com>.
- In addition to the variance estimation packages noted above, the American Institutes for Research has developed the AM Statistical Software. AM software can be downloaded for free from the following website: <http://am.air.org/>.

Following is an example of generic SUDAAN code to produce estimates and standard errors using Taylor series, followed by an example from Stata. The symbols `/*` and `*/` in the code indicate the beginning and end of a comment. Note that the dataset must be sorted by analysis strata and analysis PSUs before analyzing the data in SUDAAN.

```
proc descript data=/* insert filename*/ design=wr;
  nest analstr analpsu; /* these variables are the analysis strata and analysis PSUs,
  respectively */
  weight F2QWT;
  var /*insert variables*/;
  subpopn /* insert domain of interest if domain is a subset of students*/;
  print nsum mean semean / style=nchs;
run;
```

Stata code is as follows:

```
drop _all

set memory 18000

use "/* insert filename */", clear

sort analstr analpsu /* these variables are the analysis strata and analysis PSUs,
respectively */

svyset analpsu [pweight=f2qwt], strata(analstr)

svy: tab /*insert variables*/, subpop (name of domain) row se
```

The above reflects the version 9 command structure; earlier versions of Stata require the following syntax:

```
svyset [pweight=f2qwt], strata(analstr) psu(analpsu)

svytab /*insert variables*/, subpop (name of domain) row se
```

## 6.4.2 Design Effects

The impact of the departures of the ELS:2002 complex sample design from a simple random sample design on the precision of sample estimates can be measured by the design effect. The design effect is the ratio of the actual variance of the statistic to the variance that would have been obtained had the sample been a simple random sample. The design standard errors will be different from the standard errors that are based on the assumption that the data are from a simple random sample. The ELS:2002 sample departs from the assumption of simple random sampling in three major respects: student samples were stratified by student characteristics, students were selected with unequal probabilities of selection, and the sample of students was clustered by school. A simple random sample is, by contrast, unclustered and not stratified. Additionally, in a simple random sample, all members of the population have the same probability of selection. Generally, clustering and unequal probabilities of selection increase the variance of sample estimates relative to a simple random sample, and stratification decreases the variance of estimates.

Standard errors and design effects were computed for all respondents. Standard errors and design effects were computed for 30 means and proportions overall for all respondents and for subgroups of all respondents. The subgroups are similar to those used in NELS:88, the ELS:2002 base year, and the ELS:2002 first follow-up:

- sex (male and female);
- race/ethnicity (Asian/Pacific Islander, Black, Hispanic, White/other, multiracial);
- school type (public, Catholic, and other private);
- SES (lowest quarter, middle two quarters, and highest quarter); and
- postsecondary enrollment (ever enrolled in a postsecondary institution, never enrolled in a postsecondary institution).

It is important to compare design effects across cohorts (e.g., ELS:2002 versus NELS:88), so table 5.3.1 from the Methodology Report: NELS:88 Third Follow-Up (Haggerty et al. 1996) was initially used to help guide the items picked. However, the ELS:2002 items chosen differ quite a bit from the items used in constructing design effects for NELS:88 as there were substantial differences in the types and composition of variables produced in each study. Nonetheless, the items chosen are a good representation of the different items in the ELS:2002 second follow-up survey questionnaire. These items should provide a range of design effects that will give a reasonable average for both the entire sample and for analytically important subgroups. However, because item matching with NELS:88 was difficult, the ELS:2002 design

effects may not be comparable with the NELS:88 repeated design effects. Ideally, one would like to compare exact items between survey systems. Table 66 lists the 30 items chosen for computing design effects for all respondents and subgroups. For categorical variables, the item value corresponding to the category of interest is listed.

**Table 66. Items chosen for computing design effects for all respondents and subgroups: 2006**

Survey item	Variable name	Item value <sup>1</sup>
Ever dropped out	F2EVERDO	1
Fall 2003–Summer 2004 high school graduate	F2HSSTAT	1
Received GED or other equivalency	F2HSSTAT	6
Ever applied to a postsecondary school	F2EVRAPP	1
Meet with advisor about academic plans often	F2B18B	3
Participate in other extracurricular activities often	F2B18G	3
Postsecondary education paid with grants/scholarships	F2B25A	1
Expect to finish college, but not advanced degree	F2STEXP	6
Ever held a job since leaving high school	F2EVRJOB	1
First job is working for an employer	F2C07	1
Current employer offers health insurance	F2C21	1
At age 30 expects to have a job as a laborer	F2OCC30	5
At age 30 expects to have a job as a manager	F2OCC30	6
At age 30 expects to have a job in the military	F2OCC30	7
At age 30 expects to have a professional job (group a)	F2OCC30	9
At age 30 expects to have a sales job	F2OCC30	13
At age 30 expects to have a job as a school teacher	F2OCC30	14
College degree but not advanced degree needed for job at age 30	F2C41	6
Respondent's current marital status is single	F2D01	1
Respondent's current marital status is married	F2D01	2
Number of friends or roommates living with respondent	F2D08C	Continuous
Number of siblings living with respondent	F2D08D	Continuous
Respondent lives in school-provided housing in spring 2006	F2D07	1
Respondent performed community service in past 2 years	F2D09	1
Volunteered with school/community organizations	F2D10B	1
Volunteered with church-related group	F2D10D	1
Voted in 2004 presidential election	F2D13	1
Respondent served in military	F2D14	1
Respondent's parent/guardian divorced in last 2 years	F2D15A	1
Respondent's parent/guardian lost job in last 2 years	F2D15B	1

<sup>1</sup> For categorical variables, the item value corresponds to the category of interest, and for continuous variables, the item value is indicated as continuous.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

The variables used were the versions after imputation (see section 6.5), and all variables used were after disclosure avoidance (see section 6.6). For all respondents, the standard errors and design effects were calculated using both the cross-sectional weight (F2QWT) and the panel weight (F2F1WT). When using the panel weight, only panel respondents were included. The difference between the cross-sectional and panel respondents is that first follow-up nonrespondents who were second follow-up respondents are cross-sectional respondents but are not panel respondents.

Appendix J contains tables of design effects for all respondents. Each table includes the survey item (or composite variable), variable name and value, percent estimate, design standard error, simple random sample standard error, sample size (N), design effect (DEFF), and square root of the design effect (DEFT). Tables 67 and 68 summarize the average DEFFs and DEFTs for the full sample and panel sample, respectively, for all respondents and each subgroup. The reader should note that the mean DEFTs reported in tables 67 and 68 were not calculated directly from the mean DEFF but, rather, are based on the summary statistics from the tables in appendix J.

**Table 67. Mean design effects and root design effects for the second follow-up full sample, by selected characteristics: 2006**

Characteristic	Mean design effect	Mean root design effect
All respondents	1.90	1.37
Male	1.65	1.28
Female	1.71	1.30
American Indian or Alaska Native	1.39	1.17
Asian or Pacific Islander	1.53	1.23
Black or African American	1.44	1.20
Hispanic or Latino	1.48	1.21
White and all other races <sup>1</sup>	1.74	1.31
More than one race	1.62	1.27
Public schools	1.67	1.28
Catholic schools	1.63	1.26
Other private Schools	2.39	1.50
Low socioeconomic status (SES)	1.46	1.21
Middle SES	1.58	1.25
High SES	1.76	1.32
Ever enrolled in postsecondary	1.78	1.33
Never enrolled in postsecondary	1.44	1.20

<sup>1</sup> "White and all other races" is predominantly White, with a very small number of individuals from other race categories.

NOTE: The mean root design effect was not calculated directly from the mean design effect but, rather, is the average root design effect over selected items. See appendix J of this document for more information.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

**Table 68. Mean design effects and root design effects for the second follow-up panel sample, by selected characteristics: 2006**

Characteristic	Mean design effect	Mean root design effect
All respondents	1.90	1.37
Male	1.66	1.29
Female	1.74	1.31
American Indian or Alaska Native	1.47	1.20
Asian or Pacific Islander	1.53	1.23
Black or African American	1.44	1.20
Hispanic or Latino	1.45	1.20
White and all other races <sup>1</sup>	1.75	1.32
More than one race	1.67	1.29
Public schools	1.66	1.28
Catholic schools	1.60	1.25
Other private schools	2.30	1.47
Low socioeconomic status (SES)	1.44	1.20
Middle SES	1.61	1.26
High SES	1.77	1.33
Ever enrolled in postsecondary	1.83	1.35
Never enrolled in postsecondary	1.43	1.20

<sup>1</sup> "White and all other races" is predominantly White, with a very small number of individuals from other race categories.

NOTE: The mean root design effect was not calculated directly from the mean design effect but, rather, is the average root design effect over selected items. See appendix J of this document for more information.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

Table 69 shows the design effects from the base-year and first follow-up for subgroups. The second follow-up design effects are lower for all respondents and for all of the common subgroups used in design effects calculations than the base-year and first follow-up design effects.

The smaller design effects in the second follow-up compared with those in the base year and first follow-up may be due to the general tendency in longitudinal studies for design effects to lessen over time, as dispersion reduces the original clustering. In the second follow-up, almost all sample members had left the base-year school, the clusters of students within schools dispersed to an extent. Social characteristics of the sample members potentially varied to a greater extent as the clusters dispersed.

**Table 69. Mean design effects for base-year and first follow-up student questionnaire data, by selected characteristics: 2002 and 2004**

Group	Mean design effect base year	Mean design effect first follow-up full sample	Mean design effect first follow-up panel sample
All students	2.35	2.26	2.23
Dropouts	†	1.31	1.31
Male	1.90	1.90	1.88
Female	2.01	1.94	1.93
American Indian or Alaska Native	1.42	1.51	1.50
Asian or Pacific Islander	2.27	2.14	2.17
Black or African American	1.67	1.49	1.49
Hispanic or Latino	1.82	1.59	1.60
More than one race	1.63	1.71	1.70
White and all other races <sup>1</sup>	2.03	1.84	1.83
Public schools	2.07	1.97	1.94
Catholic schools	2.43	2.25	2.25
Other private schools	3.53	3.02	3.00
Low socioeconomic status (SES)	1.70	1.66	1.64
Middle SES	1.73	1.68	1.67
High SES	1.99	1.91	1.92
Urban	2.88	2.85	2.80
Suburban	2.15	2.08	2.08
Rural	1.94	1.71	1.71

† Not applicable.

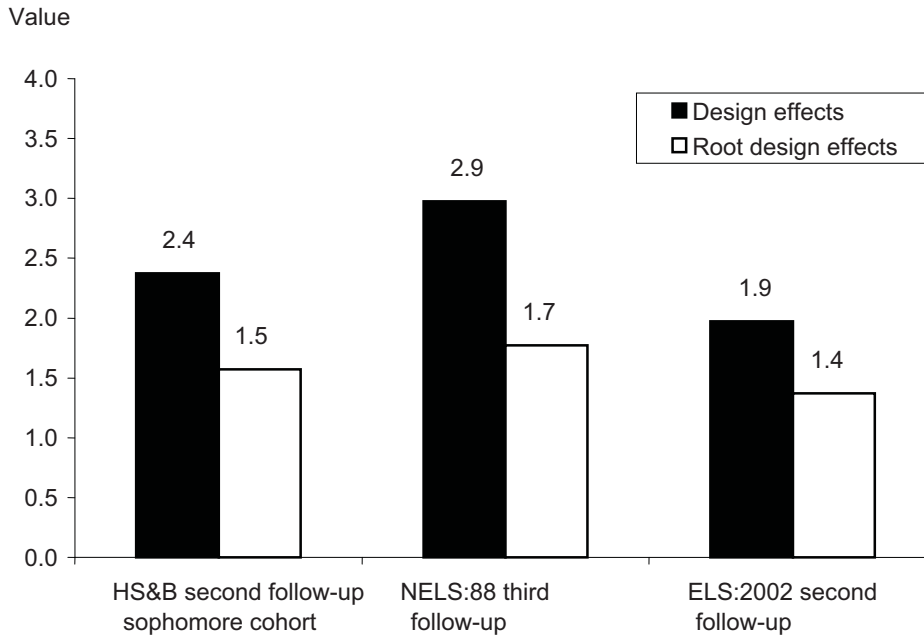
<sup>1</sup> "White and all other races" is predominantly White, with a very small number of individuals from other race categories. All race categories exclude individuals of Hispanic or Latino origin.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002" and "First Follow-up, 2004."

As discussed in section 3 of this chapter, trimming weights reduces the variance which reduces the design effect. Additionally, the items used to compute the mean design effects were different in the second follow-up than in the base year and first follow-up, because the design effects were not expected to change much between the two rounds of the study. It is more important to compare design effects across cohorts, as described below, so the items were chosen to be as comparable to NELS:88 third follow-up items as possible.

The design effects indicate that the ELS:2002 second follow-up full sample was more efficient than the NELS:88 third follow-up full sample and the HS&B second follow-up sophomore cohort full sample. For means and proportions based on second follow-up questionnaire data for all respondents, the average design effect in ELS:2002 was 1.90; the comparable figures were 2.94 for the NELS:88 third follow-up and 2.40 for the HS&B sophomore cohort second follow-up. Figure 14 shows the mean design effects and root design effects for the HS&B second follow-up sophomore cohort, NELS:88 third follow-up, and ELS:2002 second follow-up.

**Figure 14. Full sample mean design effects and root design effects, by longitudinal study: Selected years, 1972–2006**



SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B), "Second Follow-up, 1984"; National Education Longitudinal Study of 1988 (NELS:88), "Third Follow-up, 1994"; and Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

The smaller design effects in ELS:2002 compared with those for NELS:88 and HS&B are probably due to subsampling. No subsampling was conducted in the ELS:2002 second follow-up, but additional subsampling was done in the other studies. In NELS:88, subsampling was performed in the first, third, and (not relevant to ELS:2002 comparisons) fourth follow-ups. (See Haggerty et al. [1996] for relevant details.) In HS&B, sophomore cohort members were subsampled for inclusion in the HS&B high school transcript study and this subsample was the basis for the HS&B second follow-up study. (See Zahs et al. [1995] for more details.) The general tendency in longitudinal studies is for design effects to lessen over time, as dispersion reduces the original clustering. However, subsampling increases design effects because it introduces additional variability into the weights with an attendant loss in sample efficiency.

The smaller design effects in ELS:2002 compared with those for the HS&B sophomore cohort also may reflect the somewhat smaller cluster size used in the latter survey in the base year. Although the clusters were reduced somewhat in the first follow-up for both studies, a number of students remained in the base-year school. The HS&B base-year sample design called for 36 sophomores selected from each school. The ELS:2002 sample design called for about 26 sophomores selected from each school. Clustering tends to increase the variance of survey estimates because the observations within a cluster are similar and therefore add less information than independently selected observations. The impact of clustering depends mainly on two factors: the number of observations within each cluster and the degree of within-cluster homogeneity. When cluster sizes vary, the impact of clustering (DEFF<sub>c</sub>) can be estimated by

$$DEFFc = 1 + (\bar{b} - 1) \rho,$$

where  $\bar{b}$  refers to the average cluster size (the average number of students selected from each school) and  $\rho$  refers to the intraclass correlation coefficient, a measure of the degree of within-cluster homogeneity. If the value of  $\rho$  (which varies from one variable to the next) averaged about 0.05 in both studies, then the reduced cluster size in ELS:2002 would almost exactly account for the reduction in the design effects relative to HS&B.

If one must perform a quick analysis of ELS:2002 data without using one of the software packages for analysis of complex survey data, the design effects tables in appendix J can be used to make approximate adjustments to the standard errors of survey statistics computed using the standard software packages that assume simple random sampling designs. One cannot be confident regarding the actual design-based standard error without performing the analysis using one of the software packages specifically designed for analysis of data from complex sample surveys.

Standard errors for a proportion can be estimated from the standard error computed using the formula for the standard error of a proportion based on a simple random sample and the appropriate DEFT:

$$SE = DEFT * (p(1-p)/n)^{1/2}.$$

Similarly, the standard error of a mean can be estimated from the weighted variance of the individual scores and the appropriate mean DEFT:

$$SE = DEFT * (\text{Var}/n)^{1/2}.$$

Tables 67 and 68 make it clear that the DEFFs and DEFTs vary considerably by subgroup. It is therefore important to use the mean DEFT for the relevant subgroup in calculating approximate standard errors for subgroup statistics.

Standard error estimates may be needed for subgroups that are not shown in the appendix. One rule of thumb may be useful in such situations. The general rule states that design effects will generally be smaller for groups that are formed by subdividing the subgroups listed in the tables. (Smaller subgroups will be affected less by clustering than larger subgroups; in terms of the equation for DEFFc,  $\bar{b}$  will be reduced.) Estimates for Hispanic males, for example, will generally have smaller design effects than the corresponding estimates for all Hispanics or all males. For this reason, it will usually be conservative to use the subgroup mean DEFT to approximate standard errors for estimates concerning a portion of the subgroup. This rule only applies when the variable used to subdivide a subgroup crosscuts schools. Sex is one such variable because most schools include students of both sexes. It will not reduce the average cluster size to form groups that are based on subsets of schools.

Standard errors may also be needed for other types of estimates than the simple means and proportions that are the basis for the results presented in the above tables. A second method can be used to estimate approximate standard errors for comparisons between subgroups. If the subgroups crosscut schools, then the design effect for the difference between the subgroup means will be somewhat smaller than the design effect for the individual means; consequently, the variance of the difference estimate will be less than the sum of the variances of the two subgroup means from which it is derived:



$$\text{Var}(b-a) = \text{Var}(b) + \text{Var}(a)$$

where  $\text{Var}(b-a)$  refers to the variance of the estimated difference between the subgroup means, and  $\text{Var}(a)$  and  $\text{Var}(b)$  refer to the variances of the two subgroup means. This equation assumes that the covariance of the subgroup means is negligible. It follows from this equation that  $\text{Var}(a) + \text{Var}(b)$  can be used in place of  $\text{Var}(b-a)$  with conservative results.

A final principle is that more complex estimators show smaller design effects than simple estimators (Kish and Frankel 1974/2003). Thus, correlation and regression coefficients tend to have smaller design effects than subgroup comparisons, and subgroup comparisons have smaller design effects than means. This principle implies that it will be conservative to use the DEFTs in the above tables in calculating approximate standard errors for complex statistics, such as multiple regression coefficients. The procedure for calculating such approximate standard errors is the same as with simpler estimates: first, a standard error is calculated using the formula for data from a simple random sample; then the standard error is multiplied by the appropriate DEFT.

One analytic strategy for accommodating complex survey designs is to use the mean design effect to adjust for the effective sample size resulting from the design. For example, one could create a weight that is the multiplicative inverse of the design effect and use that weight (in conjunction with sampling weights) to deflate the obtained sample size to take into account the inefficiencies due to a sample design that is a departure from a simple random sample. Using this procedure, statistics calculated by a statistical program such as SAS or SPSS will reflect the reduction in sample size in the calculation of standard errors and degrees of freedom. Such techniques capture the effect of the sample design on sample statistics only approximately. However, while not providing a full accounting of the sample design, this procedure provides some adjustment for the sample design and is probably better than conducting analysis that assumes the data were collected from a simple random sample. The analyst applying this correction procedure should carefully examine the statistical software being used and assess whether the program treats weights in such a way as to produce the effect described above.

## 6.5 Second Follow-up Imputation

### 6.5.1 Imputation Variables

Five key analysis variables were selected for imputation for the ELS:2002 second follow-up study. These were five new variables from the second follow-up study. Table 70 lists the selected variables. The five variables selected for imputation include indicators of whether the respondent ever applied to or attended a postsecondary institution, whether the respondent ever held a job for pay since high school, total job earnings in 2005 calendar year, and expectations for the highest level of education to be obtained. These variables were chosen because they are classification variables typically used in NCES's descriptive reporting.

**Table 70. Second follow-up imputation variables, by number and weighted proportion imputed: 2006**

Variable	Number of cases imputed	Weighted percent imputed <sup>1</sup>
Ever attended a postsecondary institution (F2EVRATT)	#	0.00
Ever applied to a postsecondary institution (F2EVRAPP)	#	0.01
Ever held a job for pay since high school (F2EVRJOB)	50	0.41
Highest level of education expected to complete (F2STEXP)	60	0.44
Total job earnings in 2005 calendar year (F2JOBERN)	2,000	14.67

# Rounds to zero.

<sup>1</sup> The denominator used in calculating the weighted percent missing varies by variable due to restrictions on eligibility for imputation.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

### 6.5.2 Imputation Methodology

The ELS:2002 second follow-up data were imputed using weighted sequential hot deck imputation (Cox 1980) which was used to impute all five variables. Sequential hot deck imputation is a common procedure used for item nonresponse. This method uses the respondent survey data (donors) to provide imputed values for records with missing values. The basic principle of sequential hot deck imputation involves defining imputation classes, which generally consist of a cross-classification of covariates, and then replacing missing values sequentially from a single pass through the survey data within the imputation classes. When sequential hot deck imputation is performed using the sampling weights of the item respondents and nonrespondents, the procedure is called weighted sequential hot deck imputation. This procedure takes into account the unequal probabilities of selection in the original sample by using the sampling weight to specify the expected number of times a particular respondent's answer was used to replace a missing item. These expected selection frequencies are specified so that, over repeated applications of the algorithm, the expected value of the weighted distribution of the imputed values will equal in expectation within imputation class the weighted distribution of the reported answers.

### 6.5.3 Imputation Results

Similar to the base-year and first follow-up studies, these key variables were imputed for second follow-up respondents where a respondent is defined as a sample member who completes a sufficient portion of the questionnaire. The order in which variables were imputed depended on whether the response of one variable was dependent on the response of another variable. For example, the variable describing whether the respondent ever attended a postsecondary institution was imputed after the variable describing whether the respondent ever applied to a postsecondary institution. Similarly, the variable describing total job earnings in calendar year 2005 is dependent on the variable describing whether the respondent ever held a job for pay since high school. Within these dependencies, the variables were imputed starting with the variable containing the lowest percent missing up to the variable with the highest percent missing. Table 71 presents the imputation classes and sorting variables used in the weighted sequential hot deck imputation procedure. Table 72 presents the before and after weighted distributions for the imputed variables.

#### **6.5.4 Imputation Evaluation**

The key measure for determining whether the imputation methods produce acceptable results is that the before- and after-imputation weighted distributions are similar. For evaluation of the imputation results, distributions were considered to be similar when absolute differences are less than 5 percent where the absolute difference is calculated by subtracting the before-imputation weighted percent from the after-imputation weighted percent. If absolute differences were greater than 5 percent, then the unweighted distributions were examined to see if the large differences were due to small sample sizes. Any large differences were evaluated and corrected when possible (for example, by using different imputation classes), and documented when no resolution was possible.

**Table 71. Order of imputation variables and variables used in CHAID analysis: 2006**

Imputation variable	Sort variables	Predictor variables
Ever applied to a postsecondary institution (F2EVRAPP)	Geographic region of school (BYREGION) School type (BYSCTRL) School urbanicity (BYURBAN)	Enrollment status (F1ENRFIN) Student race/ethnicity (F1RACE) Highest level of education expected to complete (F1STEXP) Current occupation-coded (F2CURROCC) Highest level of education attempted (F2EDLEVL) Ever dropped out (F2EVERDO) Grade level spring term 2004 (F2F1GRDE) High school completion status in 2006 (F2HSSTAT) Respondent type (F2RTYPE) Student sex (F2SEX)
Ever attended a postsecondary institution (F2EVRATT)	Geographic region of school (BYREGION) School type (BYSCTRL) School urbanicity (BYURBAN)	Enrollment status (F1ENRFIN) Student race/ethnicity (F1RACE) Highest level of education expected to complete (F1STEXP) Current occupation-coded (F2CURROCC) Highest level of education attempted (F2EDLEVL) Ever dropped out (F2EVERDO) Grade level spring term 2004 (F2F1GRDE) High school completion status in 2006 (F2HSSTAT) Respondent type (F2RTYPE) Student sex (F2SEX)
Highest level of education expected to complete (F2STEXP)	Geographic region of school (BYREGION) School type (BYSCTRL) School urbanicity (BYURBAN)	Enrollment status (F1ENRFIN) Student race/ethnicity (F1RACE) Highest level of education expected to complete (F1STEXP) Current occupation-coded (F2CURROCC) Highest level of education attempted (F2EDLEVL) Ever dropped out (F2EVERDO) Grade level spring term 2004 (F2F1GRDE) High school completion status in 2006 (F2HSSTAT) Respondent type (F2RTYPE) Student sex (F2SEX)
Ever held a job for pay since high school (F2EVRJOB)	Geographic region of school (BYREGION) School type (BYSCTRL) School urbanicity (BYURBAN)	Enrollment status (F1ENRFIN) Student race/ethnicity (F1RACE) Highest level of education expected to complete (F1STEXP) Current occupation-coded (F2CURROCC) Highest level of education attempted (F2EDLEVL) Ever dropped out (F2EVERDO) Grade level spring term 2004 (F2F1GRDE) High school completion status in 2006 (F2HSSTAT) Respondent type (F2RTYPE) Student sex (F2SEX)
Total job earnings in calendar year 2005 (F2JOBERN)	Geographic region of school (BYREGION) School type (BYSCTRL) School urbanicity (BYURBAN)	Enrollment status (F1ENRFIN) Student race/ethnicity (F1RACE) Highest level of education expected to complete (F1STEXP) Current occupation-coded (F2CURROCC) Highest level of education attempted (F2EDLEVL) Ever dropped out (F2EVERDO) Grade level spring term 2004 (F2F1GRDE) High school completion status in 2006 (F2HSSTAT) Respondent type (F2RTYPE) Student sex (F2SEX)

NOTE: CHAID = Chi-squared automatic interaction detection analysis.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

**Table 72. Weighted distribution of imputed variables before and after imputation: 2006**

Variable name	Variable description	Variable category	Before imputation		After imputation	
			Sample size	Weighted percent	Sample size	Weighted percent
F2EVRAPP	Ever applied to postsecondary school	Total	14,100	100.0	14,100	100.0
		Legitimate skip	110	1.0	110	1.0
		No	2,700	21.9	2,700	21.9
		Yes	11,400	77.1	11,400	77.1
F2EVRATT	Ever attended postsecondary school	Total	14,100	100.0	14,100	100.0
		Legitimate skip	110	1.0	110	1.0
		No	3,500	28.9	3,500	28.9
		Yes	10,500	70.1	10,500	70.1
F2STEXP	Highest level of education respondent expects to complete	Total	13,000	100.0	14,100	100.0
		Less than high school graduation	30	0.3	30	0.3
		GED or other equivalency only	200	1.8	200	1.8
		High school graduation only	680	5.7	680	5.7
		Attend or complete 2-year college/school	2,000	16.1	2,000	16.1
		Attend college, 4-year degree incomplete	370	2.8	370	2.8
		Graduate from college	4,500	31.6	4,500	31.6
		Obtain a master's degree or equivalent	3,500	23.2	3,500	23.1
		Obtain Ph.D., M.D., or other advanced degree	1,800	10.8	1,800	10.8
		Don't know	1,100	7.7	1,100	7.7
F2EVRJOB	Ever held a job for pay since leaving high school	Total	14,100	100.0	14,100	100.0
		Legitimate skip	110	1.0	110	1.0
		No	1,200	7.4	1,200	7.4
		Yes	12,800	91.6	12,900	91.6
F2JOBERN	Respondent's total 2005 job earnings	Total	13,800	100.0	14,100	100.0
		Legitimate skip	1,200	7.9	1,200	7.7
		No income	390	2.8	400	2.8
		Less than \$1,000	1,000	6.9	1,100	6.9
		\$1,000 to \$2,999	2,700	18.0	2,700	18.0
		\$3,000 to \$5,999	2,900	20.8	3,000	20.8
		\$6,000 to \$9,999	1,900	13.9	2,000	14.0
		\$10,000 to \$14,999	1,600	12.8	1,700	12.8
		\$15,000 to \$19,999	900	7.3	900	7.4
		\$20,000 to \$24,999	500	4.5	600	4.6
		\$25,000 to \$34,999	410	3.5	430	3.7
		\$35,000 to \$49,999	120	0.9	120	1.0
		\$50,000 and above	60	0.6	70	0.6

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

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

## 6.6 Data Security; Second Follow-up Disclosure Risk Analysis and Protections

Data security was a pervasive concern for the second follow-up. Extensive confidentiality and data security procedures were employed for ELS:2002 data collection and data processing

activities; some of those procedures are summarized briefly here. All project staff signed confidentiality agreements and affidavits of nondisclosure and are prohibited by law from using the obtained information for any purposes other than this research study. The second follow-up interview data were collected via the web on a server protected with a Secure Sockets Layer encryption policy, which forces all data transferred to or from the website to be encrypted and transmitted only via secure (HTTPS) connection to conforming web browsers. Sample members received an e-mail and a lead letter that described the purpose of the study, that contained the URL to the ELS:2002 secure website, and a user ID number and strong randomly generated credential which allowed them access to the web-based interview. The only mechanism of access to the self-administered web-based interview was through this ID number and credential. Sample members could only access their individual case using their ID number and credential; they could not access data or information about anyone else. The ID numbers provided to sample members were completely different from the data IDs included on the ECB and DAS. Data were prepared in accordance with NCES-approved disclosure avoidance plans. The data disclosure guidelines are designed to minimize the possibility of a data user being able to identify individuals on the file by matching outliers or other unique data to external data sources.

Because of the paramount importance of protecting the confidentiality of NCES data that contain information about specific individuals, ELS:2002 second follow-up data files were subject to various procedures to minimize disclosure risk. The ELS:2002 second follow-up data products and the disclosure treatment methods employed to produce them are described in the following sections.

### **6.6.1 Second Follow-up Data Products**

The set of data products produced for the ELS:2002 second follow-up are different than the set of data products produced in the base year and first follow-up in that no public-use data file was created for the second follow-up. A restricted-use data file and a file developed for use with the NCES DAS were created.

The disclosure treatment developed for the ELS:2002 second follow-up is composed of several steps:

- Review the collected data and identify items that may increase risk of disclosure.
- Apply disclosure treatment<sup>82</sup> to these risky items in order to lower risk of disclosure.
- Produce a restricted-use data file that incorporates the disclosure treated data.
- Produce a file for the DAS that is derived as a subset of items in the disclosure treated restricted-use data file.

The disclosure treatment methods used to produce the ELS:2002 second follow-up data files include variable recoding, variable suppression, and swapping. These methods are described below.

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<sup>82</sup> The NCES Statistical Standards (Seastrom 2003) ([http://nces.ed.gov/statprog/2002/std4\\_2.asp](http://nces.ed.gov/statprog/2002/std4_2.asp)), specifically NCES Standard 4-2, provide information both about the legislative background and legal requirements of maintaining confidentiality, and definitions of key terms (perturbation, coarsening, disclosure risk analysis, data swapping, and so forth).

## 6.6.2 Recoding, Suppression, and Swapping

Some of the data used during data collection activities were deemed to be too identifying and were not included in the restricted-use data file or the file for the DAS. Some restricted-use data were deemed to be too identifying for inclusion in the file for the DAS and these data were not included in the file for the DAS.

For items in the restricted-use file, recoding was used to produce more analytically useful variables. Some items had values that occurred with extremely low frequencies and the items were therefore recoded in order to ensure that all values of all items occurred with a reasonable frequency. Some items included in the file for the DAS were created by producing a recoded version of a restricted-use item. Since the DAS employs an automatic cell suppression methodology that suppresses cell values if the number of responders providing data for that cell is below a certain threshold, recoding of restricted-use items for inclusion in the DAS was carried out in order to reduce the number of cells that would be suppressed by the DAS, thereby increasing the analytic utility of the data included in the DAS.

Swapping was applied to ELS:2002 data items determined to potentially increase risk of disclosure. Respondents were randomly selected for swapping to achieve a specific, but undisclosed, swapping rate. In data swapping, the values of the variables being swapped are exchanged between carefully selected pairs of records: a target record and a donor record. By so doing, even if a tentative identification of an individual is made, because every case in the file has some undisclosed probability of having been swapped, uncertainty remains about the accuracy and interpretation of the match. The swapping was done independently of the swapping conducted in the base year and first follow-up.

Since perturbation (swapping) of the ELS:2002 data may change the relationships between data items, an extensive data quality check was carried out in order to limit the impact of swapping on relationships. Before-and-after weighted distributions and correlations for swapped variables show that, after applying the disclosure limitation techniques, the analytic utility of the data files was not compromised.

## 6.7 Second Follow-up Unit and Item Nonresponse Bias Analysis

### 6.7.1 Unit Nonresponse Bias Analysis

Unit nonresponse causes bias in survey estimates when the outcomes of respondents and nonrespondents are different. For the ELS:2002 second follow-up, student response is defined as the sample member completing at least a specified portion of the questionnaire. The weighted response rate<sup>83</sup> was 84.5 percent overall and was greater than 85 percent for all but one of the 33 domains considered in the nonresponse bias analysis. The domains selected for the unit nonresponse bias analysis were derived from the domains listed in section 6.3. Examples of domains used in the nonresponse bias analysis are given below:

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<sup>83</sup> Readers are reminded that a smaller denominator was used for general response rate calculations, based on cases actually fielded, than for response rate calculations for weighting purposes. This is because the unfielded cases must be accommodated in the nonresponse adjustments. These unfielded cases in the response rate denominator include sample members who failed to participate in both the base year and first follow-up, freshened students who did not respond in the first follow-up, and a handful of sample members who asked to withdraw from the study.

- Spring 2002 Black 10th-grade students;
- Spring 2002 Hispanic 10th-grade students;
- Spring 2002 Asian 10th-grade students;
- Spring 2002 White/Other 10th-grade students;
- Spring 2002 Public School 10th-grade students;
- Spring 2002 Catholic School 10th-grade students;
- Spring 2002 Other Private School 10th-grade students;
- Spring 2002 10th-grade students who graduated by August 31, 2004;
- Spring 2004 Black 12th-grade students;
- Spring 2004 Hispanic 12th-grade students;
- Spring 2004 Asian 12th-grade students;
- Spring 2004 White/Other 12th-grade students;
- Spring 2004 Public School 12th-grade students;
- Spring 2004 Catholic School 12th-grade students;
- Spring 2004 Other Private School 12th-grade students; and
- Spring 2004 12th-grade students who graduated by August 31, 2004.

The response rate was below 85 percent for one domain (the racial group White/Other), so a nonresponse bias analysis was conducted for this domain. Since the overall response rate was below 85 percent, nonresponse bias analyses were conducted as required under NCES standards. Cross-sectional and panel weights were used in the nonresponse bias analyses.

The nonresponse bias was estimated for variables known for both respondents and nonrespondents. Since the sample for the second follow-up study consists of respondents from the base-year or first follow-up studies, sample member data were used in the nonresponse bias analysis, though some of the available data may have been imputed.<sup>84</sup> The sample member data that were used include:

- student race/ethnicity;
- student sex;
- student's native language;
- family composition;
- parents' highest level of education;
- mother/female guardian's occupation;

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<sup>84</sup> For example, some base-year nonrespondents were sampled for inclusion in the first follow-up study. Some of these base-year nonrespondents responded in the first follow-up and some base-year data were collected on these individuals. If these individuals did not provide these base-year data in the first follow-up questionnaires then some of their base-year data were imputed.



- father/male guardian's occupation;
- total family income from all sources; and
- SES.

The sample member's spring 2004 enrollment status was also used and defined as follows:

- in school, in grade (in grade 12);
- in school, out of grade (in grade 10 or 11, ungraded, or graduated early); and
- out of school (dropout or homeschooled).

We also used the sample member cohort flags:

- G10COHRT—indicates a member of the sophomore cohort (i.e., spring 2002 10th-grader); and
- G12COHRT—indicates a member of the senior cohort (i.e., spring 2004 12th-grader).

There were also extensive data available for schools from the base-year school administrator questionnaire, so these data were used to help reduce potential nonresponse bias. Students were linked to the base-year school from which they were sampled. The school sampling frame constructed from the CCD and PSS also contains data for all base-year schools. School data used included the following:

- school sector;
- urbanicity;
- region;
- sophomore enrollment;
- total enrollment;
- number of minutes per class;
- number of class periods;
- number of school days;
- number of students receiving free or reduced-price lunch;
- number of full-time teachers;
- percentage of full-time teachers certified;
- number of part-time teachers;
- number of different grades taught at the school;
- school level;
- coeducational status;
- percentage of students with an Individualized Education Program;

- percentage of students with limited English proficiency;
- percentage Hispanic or Latino sophomores;
- percentage Asian sophomores;
- percentage Black or African American sophomores; and
- percentage all other race sophomores (includes White).

The procedures used for the nonresponse bias analysis were similar to those used in the base year and first follow-up. First, sample member data known for both respondents and nonrespondents were identified. Second, since the set of data known for both respondents and nonrespondents was limited, all of these data were incorporated into nonresponse models used for the second follow-up. The nonresponse adjustments described in section 6.3 were designed to significantly reduce or eliminate nonresponse bias for variables included in the models. Variables not known for most respondents and nonrespondents could not be included in the nonresponse adjustments, and therefore nonresponse bias could not explicitly be reduced for these variables. However, many of the variables in the nonresponse models are correlated with many of the other variables.

Third, after the sample member weights were computed, remaining bias for data known for most respondents and nonrespondents was estimated and statistically tested to check if there was any remaining significant nonresponse bias. Fourth, the remaining bias after student weight adjustments was divided by the standard error, that is, bias/standard error.

The bias in an estimated mean based on respondents,  $\bar{y}_R$ , is the difference between this mean and the target parameter,  $\pi$  (i.e., the mean that would be estimated if a complete census of the target population was conducted). This bias can be expressed as follows:

$$B(\bar{y}_R) = \bar{y}_R - \pi.$$

The estimated mean based on nonrespondents,  $\bar{y}_{NR}$ , can be computed if data for the particular variable for most of the nonrespondents are available. The estimation of  $\pi$  is as follows:

$$\hat{\pi} = (1 - \eta) \bar{y}_R + \eta \bar{y}_{NR}$$

where  $\eta$  is the weighted unit nonresponse rate. For the variables that are from the frame rather than from the sample,  $\pi$  can be estimated without sampling error. Therefore, the bias can be estimated as follows:

$$\hat{B}(\bar{y}_R) = \bar{y}_R - \hat{\pi}$$

or equivalently

$$\hat{B}(\bar{y}_R) = \eta(\bar{y}_R - \bar{y}_{NR}).$$

This formula shows that the estimate of the nonresponse bias is the difference between the mean for respondents and nonrespondents multiplied by the weighted nonresponse rate. The

variance of the bias was computed using Taylor series estimation in RTI's software package SUDAAN.

Tables K-1 and K-2 in appendix K show the nonresponse bias before and after weight adjustments for selected variables for sample members where F2QWT is used in table K-1 and F2F1WT is used in table K-2. The first set of columns in each table shows the estimated bias before nonresponse adjustment for the variables available for most responding and nonresponding students. Statistical tests ( $t$  tests) were used to test each level of the variables for significance of the bias at the  $0.05/(c-1)$  significance level, where  $c$  is the number of categories (levels) within the primary variable. Below is a summary of the before-adjustment significant bias for tables K-1 and K-2:

- At least one level of 19 of the 33 variables was biased for the cross-sectional weight and 21 of the 33 for the panel weight.
- Thirty-seven levels of variables were found to be significantly biased for the cross-sectional weight and 38 for the panel weight.
- Significant biases were usually small.

The second set of columns in tables K-1 and K-2 shows the estimated bias after weight adjustments (using F2QWT for table K-1 and F2F1WT for table K-2) for the variables available for most responding and nonresponding students. The bias after weight adjustments was computed as the difference between the estimate using nonresponse-adjusted and calibrated (final) weights and the estimate using the design (base) weights prior to nonresponse and calibration adjustment. This latter estimate is an estimate of  $\pi$  because it is the estimate of the target population using the design weights. Similar to the testing of before-adjustment bias,  $t$  tests were performed to test the significance of the bias for each level of the variables. In both tables K-1 and K-2, the estimated bias usually decreased after weight adjustments. Therefore, the number of significantly biased levels of variables decreased from 37 *before* adjustment to 10 *after* adjustment in table K-1 and from 38 *before* adjustment to 16 *after* adjustment in table K-2. In table K-2, the amount of significant bias increased for three levels in two variables. In table K-3, the amount of significant bias increased for eight levels in five variables.

Tables K-3 and K-4 in appendix K show the nonresponse bias before and after weight adjustments for selected variables in the single domain (White/Other race category) where the response rate was less than 85 percent. F2QWT was used in table K-3 and F2F1WT was used in table K-4. As in tables K-1 and K-2, the first set of columns in each table shows the estimated bias before nonresponse adjustment for the variables available for most responding and nonresponding students. Statistical tests ( $t$  tests) were again used to test the significance of the bias at the  $0.05/(c-1)$  significance level. Below is a summary of the before-adjustment significant bias for tables K-3 and K-4:

- At least one level of 23 variables and a total of 45 levels were found to be significantly biased in table K-3.
- At least one level of 13 variables and a total of 24 levels were found to be significantly biased in table K-4.
- Significant biases were usually small.

As in tables K-1 and K-2, the second set of columns in tables K-3 and K-4 shows the estimated bias after weight adjustments (using F2QWT for table K-3 and F2F1WT for table K-4) for the variables available for most responding and nonresponding students. The bias after weight adjustments was computed the same way as described above for tables K-1 and K-2. Statistical tests ( $t$  tests) were performed to test the significance of the bias for each level of the variables. In both tables, the estimated bias sometimes decreased after weight adjustments and sometimes increased after weight adjustments. In tables K-3 and K-4, the amount of significant bias increased for four levels among three variables and for five levels among two variables, respectively. Note that sample members are assigned to these domains based on data known for respondents and nonrespondents, and sample members may actually be in different domains. Therefore, these bias estimates are approximate.

The nonresponse bias analyses in conjunction with the weighting adjustments described above do not eliminate all bias. They reduce bias for some of the variables known for most respondents and nonrespondents, which are considered to be some of the analytically important variables and are correlated with many of the other variables. Significant bias after weight adjustments is minimal for the variables analyzed. Some of these variables are used to help create composite (or derived) variables. There may be bias remaining in other variables.

Figures K-1 through K-4 in appendix K compare the estimated relative bias before nonresponse and calibration adjustment with the estimated relative bias after nonresponse and calibration adjustment. Figures K-1 and K-2 examine relative bias for the entire ELS:2002 second follow-up sample using F2QWT and F2F1WT, respectively. Figures K-3 and K-4 examine relative bias for the single domain (White/Other race category) identified as having less than an 85 percent response rate with figure K-3 using F2QWT and figure K-4 using F2F1WT. Relative bias is the bias of the estimate divided by the estimate. It provides an indication of the order of magnitude of the bias with respect to the estimate. Figures K-1 through K-4 indicate that when the relative bias was large before nonresponse adjustment, it was almost always reduced after nonresponse adjustment. When the relative bias was small before nonresponse adjustment, it stayed small after nonresponse adjustment with occasional small increases. These figures clearly show that the nonresponse adjustment reduced bias for sample members.

Nonresponse bias can have an effect on significance testing. Tables K-1 through K-4 include an estimate of the bias ratio (sample bias divided by the standard error). If this ratio is larger than 2 percent, then the probability of a Type I error is greater than 0.05. Figures K-5 through K-8 in appendix K show the sample bias ratio by the Type I error rate. Figures K-5 and K-6 examine bias ratios for the entire ELS:2002 second follow-up sample using F2QWT and F2F1WT, respectively. Figures K-7 and K-8 examine the bias ratios for the single domain (White/Other race category) identified as having a response rate less than 85 percent. F2QWT is used in figure K-7 and F2F1WT is used in figure K-8. Figure K-5 shows that for many of the sample member variables included in the nonresponse bias analysis, the Type I error rate is at or is close to 0.05, and outliers were not graphed. Figures K-6 through K-8 show that although some variables have a Type I error rate at or near 0.05, there are more variables that have a higher Type I error rate. These figures do not take the school bias ratio into account. The school bias ratio varies by school variable, as shown in the ELS:2002 base-year data file user's manual (Ingels et al. 2004). If it is assumed that the school bias ratio is zero, then there is no effect on the sample member bias ratio. However, if the school bias ratio is large, then the Type I error rates

are larger. Although the tables above show that nonresponse bias is minimal, the data user should exercise caution when conducting statistical tests.

### 6.7.2 Item Nonresponse Bias Analysis

Since the overall weighted unit response rate (84.5 percent) was less than 85 percent, an item nonresponse bias analysis was carried out as required under NCES statistical standards. The first step in the nonresponse bias analysis was to calculate the weighted<sup>85</sup> response rate for every questionnaire item included in the ELS:2002 second follow-up. Four items were found to have response rates lower than 85 percent:

- Date of marriage.<sup>86</sup> (F2D02P/F2D02R)
- Which of the following are reasons why you decided not to continue your education right after high school? (F2B11NA)
- Which of the following are reasons why you have not continued your education after high school? (F2B08NA)
- How did you earn the GED or equivalency, or in other words, what program or school were you enrolled in, if any? (F2A04A)

These items had weighted response rates of 82.9, 61.2, 58.4, and 36.7 percent, respectively. Tables K-5 through K-8 compare item respondents and nonrespondents to these four items using six characteristics known for more respondents and nonrespondents. Weighted distributions of the values of these six characteristics were generated using both respondents and nonrespondents, using respondents only, and using nonrespondents only and these distributions are presented in tables K-5 through K-8. It should be noted that all unweighted sample counts were rounded for reporting purposes.

Three statistically significant biases (table K-5) were identified for the item Date of Marriage. No statistically significant biases (table K-6) were identified for the item F2B11NA. Two statistically significant biases (table K-7) were identified for the item F2B08NA. One statistically significant bias (table K-8) was identified for the item F2A04A.

Six of the 76 bias comparisons yielded a statistically significant bias. Four of the six statistically significant biases indicate overrepresentation of females or Whites/other among the respondents, as compared to the nonrespondents, and are the largest biases among all six.

<sup>85</sup> Weighted response rates were calculated using the F2 cross-sectional weight, F2QWT.

<sup>86</sup> The restricted-use version of this variable gives month and year while the public-use version only gives quarter and year.



# Chapter 7

## Data File Contents

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This chapter describes the Education Longitudinal Study of 2002 (ELS:2002) base-year to first follow-up and base-year to second follow-up longitudinal data file contents. It addresses the following topics: the structure of the electronic codebook (ECB) system (appendix B), including the megafiles; the nature of the Data Analysis System (DAS); and the questionnaire and composite variables, including their naming conventions and an overview of composite variables (also see appendix L, ECB and DAS variable list; appendix M, list of composite variables; and appendix N, variables imported into ELS:2002 from external sources).

### 7.1 Base-Year to First Follow-up ECB Data Structure

ELS:2002 base-year to first follow-up data have been made available in public- and (for licensed users) restricted-use versions<sup>87</sup> in an ECB format on CD-ROM. The ECB is designed to be run in a Microsoft Windows environment. A version of the restricted ECB with high school transcript data added was released in November 2006. (This version is called E4T [NCES 2006-351]; however, the transcript data are also included on the second follow-up [2006] restricted release.) At the same time that the transcript and course offerings data were added in, a final first follow-up test score was added as well. This was the concordance score linking the scales of the 2005 National Assessment of Educational Progress mathematics assessment to the 2004 ELS:2002 math score; the concordant scale score is described at length in chapter 2 of this volume.

The ECB system serves as an electronic version of a fully documented survey codebook. It allows the data user to browse through all ELS:2002 variables contained on the data files, search variable and value names for keywords related to particular research questions, review the wording of these items along with notes and other pertinent information related to them, examine the definitions and programs used to develop composite and classification variables, and output the data for statistical analysis. The ECB also provides an electronic display of the distribution of counts and percentages for each variable in the dataset. Analysts can use the ECB to select or tag variables of interest, print hardcopy codebooks that display the distributions of the tagged variables, and generate SAS and SPSS program code (including variable and value labels) that can be used with the analyst's own statistical software.

The base-year to first follow-up ECB comprises two large "megafiles," one at the student level (with other data sources supplying contextual data for analysis of the student) and one at the high school level. The megafile at the student level encompasses base-year student (student questionnaire and test, parent, and teacher questionnaires) and school (administrator, library, facilities) data in conjunction with first follow-up student (student, transfer, dropout, early graduate, and homeschool questionnaires, student tests and transcripts) and school administrator data.

The second megafile, at the school level, encompasses base-year data (facilities checklist, the school administrator questionnaire, the library media center questionnaire) and first follow-

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<sup>87</sup> A license is required to access the restricted-use ECB (<http://nces.ed.gov/pubsearch/licenses.asp>).

up school administrator questionnaire and course offerings data. Analysts should be aware that the base-year school data may be used as a standalone, nationally representative sample of 2001–02 schools with 10th grades, but that the school data for the 2003–04 school year are *not* precisely generalizable to the nation’s 2003–04 high schools with 12th grades.

The content and organization of the transcript and course offerings data (course-level file, student-level file, school-level file, and course offerings file) are further described in Bozick et al. (2006).

### 7.1.1 Base-Year to Second Follow-up ECB Data Structure

The base-year to second follow-up data are available in a restricted-use ECB (NCES 2008-346) on CD-ROM. This ECB contains all of the base-year to first follow-up data (including high school transcript data) as well as the second follow-up data. The structure of the new base-year to second follow-up ECB builds on the past ECBs but contains additional dimensions. Again, there are both student and high school-level megafiles but there is also a postsecondary institutional file and an extant data sources file that reflects ancillary data imported from external administrative records. A “Quick Guide” for using the ECB is included in this report as appendix B.

### 7.1.2 Student Megafile

The student file contains all prior-round data,<sup>88</sup> retaining the basic structure as in the base-year to first follow-up Transcript ECB (E4T: NCES 2006-351). New variables were usually added to new sections and then inserted into a logical grouping of sections (i.e., composites, sample member response data, school replicated data, etc.). The section titled “ID and Universe Variables” is an exception in spanning rounds of data collection.

Sections of the student file (BYF2STU) are as follows:

- ID and Universe Variables;
- Base-year (BY) Weights and Composites;
- First follow-up (F1) Weights and Composites;
- F1 Transcript Composites;
- Second follow-up (F2) Weights and Composites;
- Second follow-up Extant Data Source Composites;
- BY Student Questionnaire;
- F1 Student Questionnaire;
- F1 Dropout Questionnaire;
- F1 Transfer Questionnaire;
- F1 Early Graduate Questionnaire;

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<sup>88</sup> While all data elements have been retained, not all base-year and first follow-up data have been carried over. Specifically, in two rare instances data have been expunged: past data for deceased sample members, and data for sample members who withdrew their participation with instructions that past data be dropped.



- F1 New Participant Supplement;
- F2 Survey;
- BY Parent Questionnaire;
- BY Teacher Questionnaire (English);
- BY Teacher Questionnaire (Math);
- BY School Composites;
- F1 School Composites;
- BY Administrator Questionnaire;
- F1 Administrator Questionnaire;
- BY Library Questionnaire; and
- BY Facilities Checklist.

### **7.1.3 High School Megafile**

The school file reflects data for the base-year, first follow-up, and first follow-up transcript data collection; the first follow-up was the final round for collection of school-level data directly from high schools. Common Core of Data and Private School Survey data were added to the restricted-use ECB as a convenience to the ECB user. The School ID is constructed such that student file records can be merged with the high school data.

### **7.1.4 Postsecondary Institution File**

The postsecondary institution file is newly added with the second follow-up and links students to postsecondary institutions applied to and attended. The key on the file is Stu\_ID, order number, and Integrated Postsecondary Education Data System ID. Data for the institutions are obtained in the second follow-up interview, and collected by looping over each institution for a series of questions about application and attendance, among others. The looped iterations were normalized (one record for each unique postsecondary institution per caseid) and placed into the institution file structure. The order number enables researchers to associate information for a given institution from the student-level file with information about the given institution. An order number helps researchers determine a uniquely identifiable key and to allow users to easily link institution-based items from the student file to the institution file.

If the respondent reported attending one postsecondary institution, this institution is listed first for that student. If the respondent indicated attending more than one postsecondary institution, the one the respondent attended first would be listed first and so on. Institutions that respondents applied to but did not attend follow in the order they were named in the interview.

### **7.1.5 Extant Data Source Files: Ancillary Data Links in the ELS:2002 Base-Year to Second Follow-up ECB**

Rather than merge data from extant data sources on the student file, separate files were constructed that can be linked to the student file. Sample members will have one record on each data source file when data are available. If information is not available for that data source, then

the student record will be excluded from that data source file. The following data source files were utilized:

- the Central Processing System<sup>89</sup>;
- the National Student Loan Data System<sup>90</sup>;
- the Scholastic Aptitude Test (SAT);
- the ACT; and
- the General Educational Development (GED).

Variables representing the extant sources data imported into the second follow-up are listed in appendix N of this document. Some composite variables have been constructed to facilitate use of the SAT and ACT test score data. Further details on merged SAT/ACT data may be found later in this chapter (section 7.2.2.3 ).

### 7.1.6 Reserve Codes

There are a number of reasons for data to be missing for given variables. We account for these situations by filling items with reserve codes. The following reserve code scheme was used:

- -1 “Don’t know.” This reserve code was not used in the second follow-up and is retained for prior-round data.
- -2, “Refused.” This reserve code was not used in the second follow-up and is retained for prior-round data.
- -3 “Item legitimate skip/NA.” Filled for questions that are not answered because prior answers route the respondent elsewhere.
- -4 “Nonrespondent.” Filled for all variables across the entire instrument when a sample member did not respond to the instrument.
- -5 “Out of Range.” This reserve code was not used in the second follow-up and is retained for prior-round data.
- -6 “Multiple Response.” This reserve code was not used in the second follow-up and is retained for prior-round data.
- -7 “Partial interview-breakoff.” Filled for questions that are not answered because the respondent has broken off the interview without completing it. This also includes particular items that were not included on abbreviated versions of previous-round questionnaires.
- -8 “Survey component legitimate skip/NA.” Filled for all variables across the entire instrument when a sample member does not apply to a particular instrument or round. It is similar to -4 in that it applies to all variables across an entire instrument;

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<sup>89</sup> The Central Processing System contains Free Application for Federal Student Aid data.

<sup>90</sup> The National Student Loan Data System (NSLDS) database contains records of all federal loans, and Pell grant information, for anyone who has such a loan or grant.

however, the reason is different in that the sample member never had the chance to respond.

- -9 “Missing.” Filled for questions that are not answered when the routing suggests that they should have responded.

### 7.1.7 Data Analysis System

In addition to the ECBs, for users who do not require direct access to microdata, ELS:2002 data are also available from the National Center for Education Statistics through a web-based DAS which includes data through 2006 and selected transcript variables (e.g., coursetaking summaries and categorical data for grade point average) from the high school transcript file. The DAS software makes it possible for users to specify and generate their own tables. In addition to the table estimates, the DAS calculates standard errors and weighted sample sizes for these estimates. Finally, the DAS will also produce a correlation matrix of selected variables to be used for linear regression models. Included in the output with the correlation matrix are the design effects for each variable in the matrix. Since statistical procedures generally compute regression coefficients based on simple random sample assumptions, the standard errors must be adjusted with the design effects to take into account the stratified sampling method used in the ELS:2002 surveys. The DAS can be accessed electronically at <http://nces.ed.gov/DAS>.

The DAS will give essentially, but not precisely, the same estimates and standard errors as the ECB. Because of its rounding conventions, DAS estimates will differ from ECB estimates by being slightly less precise. Because a different method is used for variance estimation, standard errors of measurement, while highly similar, will seldom be identical (the ECB estimates sampling errors through a Taylor Series linearization; the DAS estimates standard errors using the balanced repeated replication method of approximating the estimator by balanced repeated replication of the sampled population).

## 7.2 Instrument and Composite Variables

### 7.2.1 Naming Conventions

Data users should find naming conventions for variables, flags, and weights intuitive and quite similar to those employed in the National Education Longitudinal Study of 1988. Most variables begin with an indicator of the wave (e.g., base-year variables begin with BY, first follow-up with F1, and second follow-up with F2). Weights follow the same wave-naming convention and also contain the suffix WT (e.g., BYSTUWT is the name for the final student weight for base-year questionnaire completion, F2QWT is the equivalent second follow-up questionnaire completion weight, and BYSCHWT is the name for the base-year final school weight). Just as first follow-up variables begin with the prefix F1, second follow-up (2006) variables begin with F2.

In the base year and first follow-up (but not the second follow-up), variable names also distinguish (in their third character) between components and questionnaire types. F1S, for example, indicates a first follow-up student questionnaire variable, whereas F1A stands for administrator questionnaire items, and F1D refers to the “out of school” (dropout) questionnaire. Variables that reflect specific items in the questionnaire carry the question number in the variable

name, immediately after the component indicator. Hence, F1S58 would be item 58 from the first follow-up student questionnaire, and F1D19 would be item 19 in the dropout instrument.

The round-specific constructed variables are typically not anchored in a single questionnaire item and may sometimes reflect nonquestionnaire sources of information, such as the assessments. First follow-up test scores carry the prefix F1TX. F1TXMQU, for example, indicates the quartile score for the first follow-up mathematics test. Flags are indicated by the suffix FLG or FG. Variable names also distinguish between the public (P) and restricted (R) use forms, where variables differ between them (the base-year and first follow-up public-use variables are a subset of the restricted-use superset).

Finally, some slightly different information is included in second follow-up variable names. In base year and first follow-up, variable names contain a letter to reference a questionnaire (e.g., S = Student) in addition to the round prefix (BY or F1) and frequently reference the question number (composite and transcript variables do not link to specific questionnaire items so they contain a descriptive reference). The second follow-up instrument is an electronic questionnaire with many pathways; there is no fixed hardcopy questionnaire nor question numbers. However, a sequential number within each thematic area or module has been assigned to each item from the interview. Whenever possible, second follow-up variable names were constructed as F2{Section Letter}{Sequential Number}{sub-item letter if applicable}. The applicable section letters for the 2006 round are as follows:

- A—High school section;
- B—Postsecondary section;
- C—Employment section; and
- D—Community section.

Variables that do not follow the sequential numbering naming convention are:

- Postsecondary institution variables—These variables were obtained at the respondent level and looped through each institution. The final file is normalized with each record representing one of the institutions the respondent identified in the interview. The variables are named with a descriptive reference.
- Composites—These variables were given names consistent with the descriptive names of prior round composites, prefixed with the 2006 round indicator (i.e., F2).

For the ELS:2002 second follow-up, no hardcopy codebooks were produced. For base-year to first follow-up data, the hardcopy codebooks appear as portable document format (PDF) files for the web-published version of the data documentation manual (see <http://nces.ed.gov/surveys/els2002>) and correspond to appendix G of Ingels et al. (2005b). The codebook supplies a comprehensive description of the student data file. For each variable on the student component data file, the codebook provides a summary of the related information, including the question number and wording, the variable name, and the responses to the item, along with their unweighted frequency and percent and weighted percent. It also provides missing data frequencies sorted by reserve codes. For the high school transcript data, hardcopy codebooks are also available, as an appendix to Bozick et al. (2006). Unlike the other hardcopy codebooks, however, the hardcopy transcript codebooks are only available as part of the restricted-use data.

## 7.2.2 Second Follow-up Composite Variables

The second follow-up data file includes many composite variables for the convenience of data users. Appendix M provides a complete list of second follow-up composite variables. Composite variables combine or reorganize data whereas instrument variables (that is, variables named with an “F2A,” “F2B,” “F2C” or “F2D” prefix) represent the data as they were collected in the interview. This section provides a descriptive overview of two types of composite variables. Composite variables that are constructed from multiple data sources will be discussed first. The month-by-month enrollment and employment history composite variables will be covered second. More detailed descriptions of the construction methods used for each of these composite variables and the associated code are provided in the ECB.

### 7.2.2.1 Composite Variables Constructed From Multiple Data Sources

First, we will provide an overview of the second follow-up composite variables that merge data from multiple sources. In each of these composite variables, data collected from the second follow-up interview is one input. The second follow-up data collection began at the end of January 2006 and continued through early September 2006. Respondents provided information based on their status at the time of their interview.

Many of these composite variables use information collected from the *High School* section of the interview as one input. Owing to the complexity of these variables, they will be treated first in their own subsection. A discussion of composite variables that integrate data from the *Postsecondary Education* section of the second follow-up interview with Integrated Postsecondary Education Data System (IPEDS) data follows.

*Composite variables using high school completion data from multiple sources.* Many of the second follow-up composite variables draw upon data from the High School section of the interview. The data user is cautioned that most of the variables that provide data as they were collected in the High School section of the second follow-up interview, that is, variables with an “F2A” prefix, are not standalone variables to be used in analyses, but rather they serve as inputs to composite variables. They are provided on the ECB to reflect the direct responses to items administered in this section of the interview and for reference or validation of composite variable construction. They are not included on the DAS.

The *High School* section data are supplemented by data from three primary sources; the first follow-up early graduate and dropout interviews, the high school transcript data as provided on the high school transcript ECB, and the high school transcript data as preloaded in the second follow-up interview. A distinction is drawn between the high school transcript data as provided on the ECB and the preloaded transcript information because these data were still undergoing quality control procedures when the second follow-up data collection began. In an effort to preload only stable transcript data, transcript information was only preloaded for cases where the following conditions were met: (1) the data indicated that a high school diploma or certificate of attendance had been awarded; (2) the high school completion date was May or June 2004, the modal dates of completion; and (3) quality control had been completed. High school completion information as reported in the first follow-up early graduate and dropout questionnaires was also preloaded. F2PHSDG indicates the credential earned as it was preloaded. The preloaded high school completion dates are found in F2PHSDT.

Inevitably, data collected from multiple sources are inconsistent for a small number of cases. Therefore, for the purpose of constructing many composite variables using data from multiple sources, decisions must be made with respect to which data sources take precedence over other data sources.<sup>91</sup> Some of these decisions were “built in” to the preloaded data. Specifically, if the sample member reported earning a high school credential and a completion date in his or her first follow-up early graduate or dropout questionnaire, this information was preloaded instead of any high school transcript data that may exist for that sample member. In other words, high school completion information collected in the first follow-up early graduate or dropout questionnaire was given precedence over high school transcript data. This approach was taken for two reasons. First, as previously mentioned, the high school transcript data were still undergoing quality control procedures for some cases when data collection began. In addition, since the preloaded information was presented to the second follow-up respondent in the interview by way of customized question wording, consistency with the respondents’ own perception of their high school completion status was desired. In cases where the preload variables were not populated, second follow-up respondents were only asked if they had completed high school, for the credential they had earned, and when they received that credential if these data were not preloaded. Finally, if data were not available from the preloads or second follow-up responses, the high school transcript data, as provided on the high school transcript ECB, were referenced for some composite variables.

In summary, the precedence order of data sources for composite variables constructed from the *High School* section data is as follows:

1. First follow-up respondent report in the early graduate or dropout questionnaire questionnaires (including but not limited to preloaded high school completion data);
2. Preloaded high school transcript data (high school diploma or certificate of attendance in May or June 2004; see F2PHSDG and F2PHSDT);
3. Second follow-up respondent report in the *High School* section of the interview (F2A variables; only populated if 1 and 2 are not); and,
4. Final high school transcript data (as necessary for some composite variables).

Not all of the high school composite variables draw on all of these data sources however. For example, composite variables that pertain only to second follow-up respondents do not integrate the fourth source, final high school transcript data (except in the rare instances of second follow-up item nonresponse).

A number of these multisource composite variables reference the spring term of 2004, the reference period for the first follow-up data collection. The first of these, F2F1GRDE, updates F1GRADE for first follow-up nonrespondents. It indicates the grade level in the spring term of 2004 for sample members who were attending high school at that time. First follow-up nonrespondents were identified in the second follow-up as spring-term 2004 12th-graders by their response to a direct question about their grade level during that time (F2A12) or by logical imputation based on having received a diploma or certificate of attendance in April, May, or June 2004. In keeping with the classification rules used for first follow-up respondents, first

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<sup>91</sup> Some composite variables constructed from multiple data sources incorporate all information from all data sources. For example, the variable F2EVERDO is set to “1” if any source indicates a dropout episode. However, for most composite variables, inconsistencies are reconciled based on decision rules.

follow-up nonrespondents who indicated that they had completed their high school credential prior to April 2004<sup>92</sup> (early graduates) were not included in the 12th-grade cohort. A closely related variable, G12COHRT, indicates which ELS:2002 sample members were in the 12th grade, the modal grade level, in the spring term of 2004.

Another variable that relates to this time period, F2SP04DO, indicates whether the sample member was a spring-term 2004 dropout or early alternative completer as defined by the classification rules used in the first follow-up data collection. A sample member was considered a spring-term 2004 dropout if he or she had experienced a dropout episode of at least 4 consecutive weeks during that term. The dropout episode could have begun prior to the start of the spring term. F2SP04DO identifies a sizable number of first follow-up nonrespondents who were spring-term 2004 dropouts. This variable also identifies a small number of first follow-up respondents who were high school students at the time of their first follow-up interview, but experienced a dropout episode during the spring term of 2004 subsequent to their first follow-up participation. Sample members who completed high school early by earning a GED are also accounted for in this variable. Given its comprehensive nature, this variable may be used for national estimates of dropout status during the term when most cohort members were completing high school.

The composite variables F2WYLV1–F2WYLV14 are populated for the spring-term 2004 dropouts and early alternative completers who are identified in F2SP04DO. These variables indicate the respondents' reasons for dropping out of high school prior to or during the spring term of 2004. These composite variables combine the responses provided in the first follow-up dropout and early graduate questionnaires with the responses provided in the *High School* section of the second follow-up interview. These questions were never asked of the same sample member in both the first and second follow-up interviews. Therefore, inconsistent information from these two sources was not an issue.

High school dropouts as of the second follow-up interview in 2006 are identified in F2HSSTAT. This variable also indicates whether these dropouts reported working toward a GED. The variable is populated for the sample universe: it includes information about both second follow-up respondents and non-respondents.

There are two other variables that identify high school dropouts: F2EVERDO and F2DOSTAT. Unlike F2SP04DO and F2HSSTAT which identify dropouts at a particular period of time, these variables identify individuals who had dropped out of school at any one of the data collection points. The data collection points are the first follow-up, the high school transcript, and the second follow-up data collections and the enrollment status updates between data collections. The enrollment status updates did not reference the entire period of time between data collections. In other words, the information on dropout episodes held in these variables is not comprehensive. A dropout episode which began and ended between any two data collection points would not be detected. F2EVERDO simply indicates whether a dropout episode was detected for a given sample member. F2DOSTAT indicates whether there is any evidence of a dropout episode as well as high school completion status as of the second follow-up interview.

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<sup>92</sup> In the first follow-up, early graduates were defined as respondents who completed a high school credential on or before March 15, 2004. Since first follow-up nonrespondents were often completing the second follow-up interview 2 years after earning their high school credential, they were unlikely to remember the precise date of that event. Therefore, only month and year of high school completion were collected in the second follow-up interview. Consequently, early alternative completers identified in the second follow-up are defined as those who earned their GED prior to April 2004.

There are several other variables that relate to dropouts and/or GED recipients. F2HSLVDP (and F2HSLVDR on the ECB) indicates when GED recipients and 2006 dropouts last attended high school. F2GEDPRG (and F2GEDOTH on the ECB) indicates the program through which the GED was earned. F2GEDST indicates the state in which the GED was earned. Reasons for completing a GED are provided in F2WYGED1 through F2WYGED6. All of these variables combine data collected in the first follow-up early graduate and dropout questionnaires with data collected in the *High School* section of the second follow-up interview. Because sample members were never asked to answer these questions twice, the possibility of inconsistent responses from the first and second follow-up interview was prevented. F2GEDPRG, F2GEDOTH, F2GEDST and F2WYGED1-6 are only populated for sample members who reported in their first or second follow-up interview that they had earned a GED. On the other hand, F2EVRGED identifies sample members for whom we have evidence of GED completion from any one of the following sources: first follow-up interview, high school transcript, second follow-up interview and/or data from the American Council on Education (ACE).

Several of the multisource composite variables are related to educational attainment. F2HSSTAT indicates high school completion status as of the second follow-up interview. For those who had completed high school, F2HSCPDP (and F2HSCPDR in the ECB) indicates the high school completion date. F2EDLEVL indicates educational attainment including any postsecondary attendance as reported in the *Postsecondary Education* section of the interview.

F2RTYPE categorizes second follow-up respondents into one of six categories based on the timing of any postsecondary enrollment in relation to their high school completion/exit date; standard enrollee, delayer, leaver, delayer-leaver, nonenrollee and high school student. Eligibility for certain portions of the interview is dependent on the respondent's type (see section 2.5).

*Composite variables integrating second follow-up postsecondary education data with IPEDS data.* Second follow-up respondents were asked to name the postsecondary institutions to which they had applied (when they first submitted applications), the institutions where they were admitted, and the institution(s) they had attended. The name and location of each institution as entered into the web interview was matched against a list of postsecondary institutions from IPEDS. The correct match was selected from a display of potential matches. When a selection was made, the institution's IPEDS unit ID was stored in the ELS:2002 database. The IPEDS data include a wealth of information on postsecondary institutions. A few key characteristics of these institutions such as state, level of offering (i.e., 4 or more years; at least 2, but less than 4 years; less than 2 years), institutional control (i.e., public, private not-for-profit, private for-profit) and sector (e.g., public, 4-year or above; private not-for-profit, 4-year or above) are included in the ELS second follow-up institution data file for convenience (see F2ISTATE, F2ILEVEL, F2ICNTRL, and F2ISECTR). The level of offering, institutional control, and sector of the first postsecondary institution attended (see F2PS1 and section 2.5) are provided on the sample member file (see F2PS1LVL, F2PS1CTR, F2PS1SEC). In a small number of cases, the data in these composite variables were provided by the respondent rather than the IPEDS data. When a match was not found in the IPEDS institution listing, respondents were asked to provide the state, level of offering, and institutional control of the institution. Project staff later attempted to select the appropriate institution from the IPEDS listing. When successful, the IPEDS information was preferred over the respondent's report of these data. However, if project staff were not able to identify an IPEDS institution for these cases, the information as reported by the



respondent was provided in the composite variables. The ELS:2002 second follow-up institution file also includes the IPEDS unit ID so analysts may link to the IPEDS data to draw upon other variables of interest (see F2IIPED).

### 7.2.2.2 Month-by-Month Enrollment and Employment History Composites

In the *Postsecondary Education* section of the second follow-up interview, all respondents who reported attending a postsecondary institution since high school were asked to provide the months they were enrolled. The month-by-month enrollment at each institution attended, beginning with January 2004, is provided on the postsecondary institution file (see F2I0401–F2I0608). Since some respondents last attended high school prior to 2004, F2IPRE4 indicates the number of months of postsecondary enrollment since high school in 2002 and 2003. Since some respondents had attended more than one postsecondary institution, a series of composite variables was created to indicate enrollment across institutions (see F2PSPRE4, F2PS0401–F2PS0608). Enrollment at any postsecondary institution in a given month is represented as attendance in these composite variables.

There is also a series of composite variables indicating month-by-month employment status (F2EM0206–F2EM0608). These composites were built from a series of questions posed to second follow-up respondents who indicated that they had not attended a postsecondary institution and were not currently enrolled in high school. Nonenrollees provided, as applicable, the date they began their first job after high school, the date they left that job, and the date they started their current job. Employment was assumed to be continuous between the start and end date of a job. The months for which employment could not be logically imputed based on these dates were referenced in follow-up questions about employment and labor force status. If the respondent indicated employment during one of these months, the composite variable indicates employment. To determine labor force status, respondents who indicated that they were not working in a given month were asked if they were looking for work at that time. The number and percent of months unemployed since high school completion or exit (or since June 2002 if last attended prior to that date) are also provided (F2NUNEMP and F2PUNEMP).

### 7.2.2.3 Composite Variables Constructed From Transcript and External Data Sources: Blended Test Scores/ACT-SAT Concordance

SAT and ACT test scores were obtained from high school transcripts collected in the ELS:2002 first follow-up in 2005, and from the College Board, and ACT in 2007. These data sources were combined to provide maximum coverage of the subset of the second follow-up sample that had taken either or both of the exams. A concordance between ACT and SAT scores was generated also. If the data source is an ACT score and the composite score is provided in terms of an SAT score, ACT to SAT concordance rules are applied. If the source is SAT data and the composite score is provided in terms of an ACT score, SAT to ACT concordance rules were applied. Concordance rules are explained in the following document:

[http://www.collegeboard.com/prod\\_downloads/highered/ra/sat/satACT\\_concordance.pdf](http://www.collegeboard.com/prod_downloads/highered/ra/sat/satACT_concordance.pdf).

The following SAT and ACT scores are available on the ECB:

- TXEESATC—Highest entrance exam composite score (in terms of SAT score);
- TXEEACTC—Highest entrance exam composite score (in terms of ACT score);
- TXEESATM—Highest entrance exam Math score (in terms of SAT score);
- TXACTC—Highest ACT composite score;

- TXACTM—Highest ACT Math score;
- TXACTR—Highest ACT Reading score;
- TXACTE—Highest ACT English score;
- TXACTS—Highest ACT Science score;
- TXSATM—Highest SAT Math score;
- TXSATV—Highest SAT Verbal score; and
- TXSATC—Highest SAT composite score.

*AP exam score composites.* AP exam scores were obtained from High School transcripts and College Board. A combination of these data sources is used to provide a score for the test score composites. Composites are available for each AP examination subject.

*SAT subject test score composites.* SAT subject test (SAT II) scores were obtained from high school transcripts and College Board. A combination of these data sources is used to provide a score for the test score composites. Composites are available for each subject test.

*Obtaining ECB or DAS.* Information on obtaining the restricted-use ELS:2002/06 base-year to second follow-up ECB—as well as information on obtaining the base-year to second follow-up DAS—can be found by reviewing the data products for the study at <http://nces.ed.gov/pubsearch>. IES/NCES will only accept restricted-use data license applications through its electronic application system (see <http://nces.ed.gov/statprog/instruct.asp>). More information about applying for restricted-use data licenses is available at <http://nces.ed.gov/statprog/instruct.asp> and in the *Restricted-Use Data Procedures Manual* at <http://nces.ed.gov/statprog/rudman/toc.asp>.

# References

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- Angoff, W.H. (1982). Summary and Derivation of Equating Methods Used at ETS. In P.W. Holland and D.B. Rubin (Eds.), *Test Equating* (pp. 55–79). New York: Academic Press.
- Beaton, A.E., and Gonzalez, E. (1995). *The NAEP Primer*. Chestnut Hill, MA: Center for the Study of Testing, Evaluation, and Educational Policy, Boston College.
- Bozick, R., and Ingels, S.J. (2007). *Mathematics Coursetaking and Achievement at the End of High School: Evidence from the Education Longitudinal Study of 2002 (ELS:2002)*. (NCES 2008-306). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.
- Bozick, R., and Lauff, E. (2007). *A First Look at the Initial Postsecondary Experiences of the Sophomore Class of 2002 (ELS:2002)* (NCES 2008-308). U.S. Department of Education, Washington, DC: National Center for Education Statistics.
- Bozick, R., Lytle, T., Siegel, P.H., Ingels, S.J., Rogers, J.E., Lauff, E., and Planty, M. (2006). *Education Longitudinal Study of 2002: First Follow-up Transcript Component Data File Documentation* (NCES 2006-338). U.S. Department of Education. Washington, DC: National Center for Education Statistics.
- Burns, L.J., Heuer, R., Ingels, S.J., Pollack, J.M., Pratt, D.J., Rock, D., Rogers, J., Scott, L.A., Siegel, P., and Stutts, E. (2003). *ELS:2002 Base Year Field Test Report* (NCES 2003-03). U.S. Department of Education. Washington, DC: National Center for Education Statistics.
- Cahalan, M.W., Ingels, S.J., Burns, L.J., Planty, M., and Daniel, B. (2006). *United States High School Sophomores: A Twenty-Two Year Comparison, 1980-2002* (NCES 2006-327). U.S. Department of Education. Washington, DC: National Center for Education Statistics.
- Carlson, B.L., Johnson, A.E., and Cohen, S.B. (1993). An Evaluation of the Use of Personal Computers for Variance Estimation with Complex Survey Data. *Journal of Official Statistics*, 9(4): 795–814.
- Chromy, J.R. (1981). Variance Estimators for a Sequential Sample Selection Procedure. In D. Krewski, R. Platek, and J.N.K. Rao (Eds.), *Current Topics in Survey Sampling* (pp. 329–347). New York: Academic Press.
- Cohen, S.B. (1997). An Evaluation of Alternative PC-Based Software Packages Developed for the Analysis of Complex Survey Data. *The American Statistician*, 57(13): 285–292.
- Cox, B.G. (1980). The Weighted Sequential Hot Deck Imputation Procedure. *Proceedings of the Section on Survey Research Methods* (pp. 721–726). The American Statistical Association.
- Curtin, T.R., Ingels, S.J., Wu, S., and Heuer, R. (2002). *NELS:88 Base Year to Fourth Follow-up Data File User's Manual* (NCES 2002-323). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.

- Dalton, B., Ingels, S.J., Downing, J., and Bozick, R. (2007). *Advanced Mathematics and Science Coursetaking in the Spring High School Senior Classes of 1982, 1992, and 2004* (NCES 2007-312). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.
- Deville, J.C., and Särndal, C-E. (1992). Calibration Estimating in Survey Sampling. *Journal of the American Statistical Association*, 87: 376–382.
- Dorans, N.J. (2004). Equating, Concordance and Expectation. *Applied Psychological Measurement*, 28(4): 227–246.
- Embretson, S.E., and Reise, S. (2000). *Item Response Theory for Psychologists*. Mahwah, NJ: Erlbaum.
- Fleiss, J.L., Levin, B.A., and Paik, M.C. (2003). *Statistical Methods for Rates and Proportions*, (3rd ed.). New York: Wiley Series in Probability and Statistics.
- Folsom, R.E., and Singh, A.C. (2000). The Generalized Exponential Model for Sampling Weight Calibration for Extreme Values, Nonresponse, and Poststratification. *Proceedings of the Section on Survey Research Methods* (pp. 598–603). The American Statistical Association.
- Haggerty, C., Dugoni, B., Reed, L., Cederlund A, and Taylor, J.R. (1996). *NELS:88/94 Methodology Report* (NCES 96-174). U.S. Department of Education. Washington, DC: National Center for Education Statistics.
- Hambleton, R.K., Swaminathan, H., and Rogers, H.J. (1991). *Fundamentals of Item Response Theory*. Newbury Park, CA: Sage Publications, Inc.
- Hurst, D., Tan, A., Meek, A., and Sellers, J. (2003). *Overview and Inventory of State Education Reforms: 1990 to 2000* (NCES 2003-020). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.
- Ingels, S.J. (1996). *Sample Exclusion in NELS:88—Characteristics of Base Year Ineligible Students: Changes in Eligibility Status After Four Years* (NCES 96-723). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.
- Ingels, S.J., Burns, L.J., Chen, X., Cataldi, E.F., and Charleston, S. (2005a). *A Profile of the American High School Sophomore in 2002* (NCES 2005-338). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.
- Ingels, S.J., Curtin, T.R., Kaufman, P., Alt, M.N., and Chen, X. (2002). *Coming of Age in the 1990s: The Eighth-Grade Class of 1988 12 Years Later* (NCES 2002-321). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.

- Ingels, S.J., Dowd, K.L., Baldrige, J.D., Stipe, J.L., Bartot, V.H., and Frankel, M.R. (1994a). *NELS:88 Second Follow-up: Student Component Data File User's Manual* (NCES 94-374). U.S. Department of Education. Washington, DC: National Center for Education Statistics.
- Ingels, S.J., Dowd, K.L., Taylor, J.R., Bartot, V.H., Frankel, M.R., and Pulliam, P.A. (1995). *NELS:88 Second Follow-Up: Transcript Component Data File User's Manual* (NCES 95-377). U.S. Department of Education. Washington, DC: National Center for Education Statistics.
- Ingels, S.J., Planty, M., and Bozick, R. (2005). *A Profile of the American High School Senior in 2004: A First Look—Initial Results From the First Follow-up of the Education Longitudinal Study of 2002 (ELS:2002)* (NCES 2006-348). 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). U.S. Department of Education. Washington, DC: National Center for Education Statistics.
- Ingels, S.J., Pratt, D.J., Rogers, J.E., Siegel, P.H., and Stutts, E.S. (2005b). *Education Longitudinal Study of 2002: Base-Year to First Follow-up Data File Documentation* (NCES 2006-344). U.S. Department of Education. Washington, DC: National Center for Education Statistics.
- Ingels, S.J., Scott, L.A., Rock, D.A., Pollack, J.M., and Rasinski, K. (1994b). *NELS:88 First Follow-up Final Technical Report* (NCES 94-632). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.
- Kaufman, P., and Rasinski, K. (1991). *Quality of the Responses of Eighth-Grade Students in NELS:88* (NCES 91-487). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.
- Kish, L., and Frankel, M.R. (1974). Inference from Complex Samples. *Journal of the Royal Statistical Society, Series B (Methodological)*, 36: 2–37. Reprinted: G. Kalton and S. Heeringa, eds., *Leslie Kish: Selected Papers* (New York: Wiley, 2003).
- Kolen, M.J., and Brennan, R.L. (2004). *Test Equating, Scaling, and Linking: Methods and Practices*, (2nd ed.). New York: Springer-Verlag.
- Lemke, M., Lippman, L., Bairu, G., Calsyn, C., Kruger, T., Jocelyn, L., Kastberg, D., Liu, Y., Roey, S., and Williams, T. (2001). *Outcomes of Learning: Results from the 2000 Program for International Student Assessment of 15-Year-Olds in Reading, Mathematics, and Science Literacy* (NCES 2002-115). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.

- Lemke, M., Sen, A., Pahlke, E., Partelow, L., Miller, D., Williams, T., Kastberg, D., and Jocelyn, L. (2004). *International Outcomes of Learning in Mathematics Literacy and Problem Solving: PISA 2003 Results from the U.S. Perspective*. (NCES 2005-003). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.
- Linn, R.L. (1993). Linking Results of Distinct Assessments. *Applied Measurement in Education*, 6: 83–102.
- Lord, F.M. (1980). *Applications of Item Response Theory to Practical Testing Problems*. Hillsdale, NJ: Erlbaum.
- McLaughlin, D.H., and Cohen, J. (1997). *NELS:88 Survey Item Evaluation Report* (NCES 97-052). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.
- Mislevy, R.J. (1992). *Linking Educational Assessments: Concepts, Issues, Methods and Prospects*. Princeton, NJ: Policy Information Center, Educational Testing Service.
- Muraki, E.J., and Bock, R.D. (1991). PARSCALE: Parameter Scaling of Rating Data (computer software). Chicago, IL: Scientific Software, Inc.
- National Assessment Governing Board (NAGB) (2004). *Mathematics Framework for the 2005 National Assessment of Educational Progress*. Washington, DC: Author.
- Planty, M., Bozick R., and Ingels, S.J. (2006). *Academic Pathways, Preparation, and Performance—A Descriptive Overview of the Transcripts from the High School Graduating Class of 2004* (NCES 2007-316). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.
- Planty, M., and DeVoe, J.F. (2005). *An Examination of the Conditions of School Facilities Attended by 10th-Grade Students in 2002* (NCES 2006-302). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.
- Pommerich, M., and Dorans, N.J. (2004). Linking Scores via Concordance. *Applied Psychological Measurement*, 28(4).
- Rasinski, K., Ingels, S.J., Rock, D.A., and Pollack, J. (1993). *America's High School Sophomores: A Ten-Year Comparison* (NCES 93-087). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.
- Riccobono, J.A., Henderson, L.B., Burkheimer, G.J., Place, C., and Levinsohn, J.R. (1981). *National Longitudinal Study: Base Year (1972) through Fourth Follow-up (1979) Data File User's Manual*. U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.

- Robitaille, D.F., Schmidt, W.H., Raizen, S., McKnight, C., Britton, E., and Nicole, C. (1993). *Curriculum Frameworks for Mathematics and Science* (TIMSS Monograph No. 1). Vancouver, British Columbia: Pacific Educational Press.
- Rock, D.A. (2007). *A Note on Gain Scores and Their Interpretation in Developmental Models Designed to Measure Change in the Early School Years*. (Report RR-07-08). Princeton, N.J.: Educational Testing Service. Available: <http://www.ets.org/research/contact.html>
- Rock, D.A., and Pollack, J.M. (1995). *Psychometric Report for the NELS:88 Base Year Through Second Follow-Up* (NCES 95-382). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.
- Samejima, F. (1994). Roles of Fisher-type information in latent trait models. In H. Bozdogan (Ed.), *Multivariate Statistical Modeling* (Volume 2 of the Proceedings of the First U.S.-Japan Conference on the Frontiers of Statistical Modeling). Dordrecht, the Netherlands: Kluwer Academic Publishers.
- Scott, L.A. (2004). *School Library Media Centers: Selected Results From the Education Longitudinal Study of 2002 (ELS:2002)* (NCES 2005-302). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.
- Scott, L.A., and Ingels, S.J. (2007). *Interpreting 12th-Graders' NAEP-Scaled Mathematics Performance Using High School Predictors and Postsecondary Outcomes from the National Education Longitudinal Study of 1988 (NELS:88)* (NCES 2007-328). U.S. Department of Education. Washington, DC: National Center for Education Statistics.
- Seastrom, M. (2003). *NCES Statistical Standards* (NCES 2003-601). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office. Available: <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2003601>.
- Spencer, B.D., Frankel, M.R., Ingels, S.J., Rasinski, K., and Tourangeau, R. (1990). *NELS:88 Base Year Sample Design Report* (NCES 90-463). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.
- Spencer, B.D., Sebring, P., and Campbell, B. (1987). *High School and Beyond Third Follow-up (1986) Sample Design Report* (NCES 88-402). U.S. Department of Education. Washington, DC: National Center for Education Statistics.
- Tourangeau, R., Sebring, P., Campbell, B., Glusberg, M., Spencer, B.D., and Singleton, M. (1987). *The National Longitudinal Study of the High School Class of 1972 (NLS:72) Fifth Follow-up (1986) Data File User's Manual* (NCES 87-406c). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.
- Van der Linden, W.J., and Hambleton, R.K. (Eds.) (1997). *Handbook of Modern Item Response Theory*. New York: Springer-Verlag.
- Wolter, K. (2007). *Introduction to Variance Estimation*. Second Edition. New York: Springer-Verlag.

Woodruff, R.S. (1971). A Simple Method for Approximating the Variance of a Complicated Estimate. *Journal of the American Statistical Association*, 66: 411–414.

Zahs, D., Pedlow, S., Morrissey, M., Marnell, P., and Nichols, B. (1995). *High School and Beyond Fourth Follow-up Methodology Report* (NCES 95-426). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.



# **Appendix A**

## **Cross-Cohort Comparisons**

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## A.1 Cross-Cohort Comparison Crosswalks

The Education Longitudinal Study of 2002 (ELS:2002) second follow-up (2006) data can be used in cross-cohort (intercohort) comparisons to earlier National Center for Education Statistics (NCES) high school cohorts at a comparable point in their educational and occupational careers. Specifically, the following time series comparisons may be made:

- High school seniors 2 years out of high school: National Longitudinal Study of the High School Class of 1972 (NLS:72) (1974), the High School and Beyond (HS&B) senior cohort (1982), HS&B sophomore cohort (1984), the National Education Longitudinal Study of 1988 (NELS:88) (1994), and ELS:2002 (2006).
- High school sophomores 4 years later: HS&B (1984), NELS:88 (1994), and ELS:2002 (2006). Such comparisons may encompass dropouts, students, or both.
- In addition to capturing cross-sections, each at a single time point, one may compare various panels to capture longitudinal intercohort changes. Viable panels could be drawn from the data of seniors 2 years later (1972–1974 vs. 1980–1982, 1982–1984, 1992–1994, and 2004–2006; or the trajectories of sophomores over a 4-year period (1980–1984 vs. 1990–1994 and 2002–2006). Much more extended longitudinal comparisons between ELS:2002 and NELS:88 and HS&B can presumably be made in the future.<sup>1</sup>

Although the four studies<sup>2</sup> have been designed to produce comparable results, there are also differences between them that may affect the comparability as well as the precision of estimates. Analysts should be aware of and take into account the factors discussed below, as they pertain to assessment results, questionnaire content, archival records data (such as academic transcripts), and other factors (such as differences in eligibility, sample design, response rates, and so on).<sup>3</sup>

### A.1.1 Comparability of Test Scores

While some cross-cohort comparison of assessment results is possible, it is limited by two factors: first, different subjects were tested at different points in time; and second, not all of

<sup>1</sup> For example, starting with high school 9th-grade transcripts in 1979 and 1989, proceeding through the high school years with test and questionnaire data as well as transcript information, and tapping postsecondary transcripts for a period of about 8.5 years past high school (to the fall of 1990 and 2000), the 11-year educational trajectories of the postsecondary-bound portions of the HS&B and NELS:88 cohorts over this critical transition period could be compared. The ELS:2002 cohort could be added as a third comparison point, at the end of study.

<sup>2</sup> A fifth NCES high school cohort longitudinal study, the High School Longitudinal Study of 2009, is currently in its planning and development phase. While its design will differ—data collection at fall of ninth grade, spring of eleventh grade, and continuing into the postsecondary years—it will offer some scope for comparison of trends in expectations, values and beliefs across the transition period from high school to postsecondary education and the labor force.

<sup>3</sup> For a detailed discussion of cross-cohort comparability issues in the base year and first follow-up, as well as a crosswalk of comparable items, see Ingels et al. (2005), appendix H. For a broad discussion of comparability issues across all four high school cohorts, see Ingels (2004). For a detailed discussion of comparability issues in the transcript component, see Bozick et al. (2006), appendix A. Many of the content differences between similar but not identical items across the three sophomore year questionnaires are highlighted in the recent trend report by Cahalan et al. (2006). Dalton et al. (2007) illustrate use of transcript data to analyze math and science coursetaking trends from HS&B through ELS:2002, while Ingels and Dalton (2007, forthcoming) compare seniors in the period 1972–2004.

the tests have been (or can be) equated. Table A-1 shows subjects tested by study and high school round.

**Table A-1. Test subjects in the longitudinal high school cohorts, by study and year conducted: 1972–2004**

Study and year conducted	Test subjects
NLS:72, 1972	Vocabulary, reading, mathematics, inductive reasoning, memory, and perception
HS&B 1980 senior cohort, 1980	Vocabulary, reading, mathematics, picture number, mosaic comparison, and visualization in three dimensions
HS&B 1980 sophomore cohort, 1980	Vocabulary, reading, mathematics, science, writing, and civics
HS&B 1980 sophomore cohort, 1982	Vocabulary, reading, mathematics, science, writing, and civics
NELS:88, 1990	Reading, mathematics, science, and social studies
NELS:88, 1992	Reading, mathematics, science, and social studies
ELS:2002, 2002	Reading and mathematics
ELS:2002, 2004	Mathematics

NOTE: ELS:2002 = Education Longitudinal Study of 2002; HS&B = High School and Beyond Longitudinal Study; NELS:88 = National Education Longitudinal Study of 1988; NLS:72 = National Longitudinal Study of the High School Class of 1972.

SOURCE: Ingels et al. (2005).

Test linkages of some variety have been effected to certain external data sources such as the National Assessment of Educational Progress (NAEP) and the Program for International Student Assessment (PISA) (specifically, these linkages are concordances, in which ELS:2002 test results have been put on the NAEP or PISA scale), as well as across some points of comparison within the four longitudinal high school cohort studies (these linkages are based on anchor [common item] equating). Table A-2 shows tests for which there is a linkage. However, even when tests have not been placed on the same scale, one may still use an effect size metric to examine group differences or change in the position of one group relative to another over time. (For examples of such analysis, see Green, Dugoni, and Ingels 1995, and Hedges and Nowell 1995).

**Table A-2. NCES linked test scores for the longitudinal high school cohorts, by base test: 1972–2005**

Base test	Linked tests
NLS:72 mathematics (G12)	HS&B mathematics
HS&B 1980 mathematics (G10)	NELS:88 1990 mathematics, ELS:2002 2002 mathematics
NELS:88 1990 reading (G10)	ELS:2002 2002 reading
NELS:88 1992 mathematics (G12)	ELS:2002 2004 mathematics
NELS:88 1992 mathematics (G12)	NAEP 1992 mathematics
ELS:2002 2002 reading (G10)	PISA 2000 reading
ELS:2002 2002 mathematics (G10)	PISA 2003 mathematics
ELS:2002 2004 mathematics (G12)	NAEP 2005 mathematics

NOTE: ELS:2002 = Education Longitudinal Study of 2002; HS&B = High School and Beyond Longitudinal Study; NAEP = National Assessment of Educational Progress; NELS:88 = National Education Longitudinal Study of 1988; PISA = Program for International Student Assessment. NCES = National Center for Education Statistics.

SOURCE: Ingels et al. (2005).

### A.1.2 Comparability of Questionnaire Content

No item crosswalk has been created for the second follow-up questionnaire data. Although the ELS:2002 second follow-up has collected data that are very similar to the data obtained by NELS:88 (and HS&B and NLS:72), many of the specific data elements for 2006 have been changed in various ways. Data users who would like to compare ELS:2002 second follow-up results with those of the NELS:88 third follow-up (1994) should examine the questionnaire content information provided in this manual in conjunction with the NELS:88 computer-assisted telephone interview (CATI) instrument code (appendix A in Haggerty et al. 1996) or the 1994 base questionnaire (appendix Q in Ingels et al. 1994).

### A.1.3 Comparability of High School Transcripts

Comparisons may be drawn between ELS:2002, NELS:88, and HS&B high school transcript data, in terms of Carnegie units earned in academic coursetaking (English, mathematics, science, social studies, computer science, and foreign language), as well as specific courses completed in academic (and other) subjects. For an example of such analyses, covering coursetaking from 1982 to 2004, see Dalton et al. (2007). Comparisons may also be drawn to the NAEP high school transcript studies.<sup>4</sup>

A sample design difference between HS&B on the one hand and NELS:88 and ELS:2002 on the other has implications for comparisons of the transcripts of seniors across the studies. The HS&B sophomore cohort was not freshened in 1982 to ensure a truly representative senior cohort; however, the NELS:88 and ELS:2002 cohorts were freshened to give spring-term seniors who were not sophomores or not in the country 2 years previously some chance of selection into the study. If one wants to compare a spring senior cohort, or the subset of spring seniors who in fact graduated (say with a regular or honors diploma), then HS&B provides a biased sample. However, the bias is comparatively small, and represents, from the point of view of trends in coursetaking (such as more advanced coursetaking over time) a conservative bias that understates the actual amount of positive change. This matter is discussed in depth in Dalton et al. (2007).

Analysts interested in comparing coursetaking patterns should examine the Classification of Secondary School Courses (CSSC) codes available in each study. The CSSC codes are the same across studies, thus facilitating direct comparisons. However, the list has evolved and certain subject areas (for example, computer science) have changed accordingly. For some analyses, users may wish to construct measures in a variety of ways to ensure that their findings are robust with respect to different variable specifications. In addition, analysts should consider changes in subject areas over time when conducting time trend analyses and interpreting findings.

One obstacle to precise comparison is that some students were excluded from HS&B and from NELS:88, owing to severe disabilities or language barriers. No students were excluded

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<sup>4</sup> NAEP is a spring-defined cohort. To ensure a spring-to-spring basis for comparing ELS:2002 transcripts to NAEP transcripts, the graduating class should be defined (using the high school exit status variable for subsetting) as those who graduated between January 1 and August 31, 2004. Apart from compatibility with NAEP grade cohort definitions, this reference period also best reflects the ELS:2002 (and, adjusted to year, NELS:88) sample designs, since sample freshening is keyed to the spring term. For example, 2003 fall term (or 1991 fall term for NELS:88) 12th-graders who were not 10th-graders in the United States 2 years before and who graduated prior to the spring term are not represented in freshening, from which they are systematically excluded.

from the ELS:2004 transcript component (or from the NAEP transcript studies). However, if one restricts the analysis sample from each survey to a subset of sample members who were high school graduates with a regular or honors diploma and had a complete set of transcripts, then HS&B and NELS:88 will be roughly equivalent in sample to the NAEP and ELS:2002 transcript samples (see Hoachlander 1991 or Ingels and Taylor 1995 on the use of this filter, which defines a complete transcript as one that records 16 or more Carnegie units, with a positive, nonzero number of credits completed in English). However, even when no adjustment is made for difference in inclusion or exclusion, the impact on estimates is small and in a predictable direction (for a detailed appraisal of the magnitude and implications of sample exclusion in HS&B and NELS:88, see Ingels 1996). Table A-3 shows eligibility and exclusion for NCES high school academic transcript collections by data source.

**Table A-3. Eligibility and exclusion for NCES high school academic transcript collections, by data source: 1987–2005**

Eligibility/exclusion in NCES transcript studies	Data source
Severely disabled and non-English-speaking students excluded	HS&B
No students excluded	HSTS: 1987, 1990, 1994, 1998, 2000, 2005
Severely disabled and non-English-speaking students excluded	NELS:88
No students excluded	ELS:2002

NOTE: NCES = National Center for Education Statistics; HS&B = High School and Beyond Longitudinal Study; HSTS = High School Transcript Studies; NELS-88 = National Education Longitudinal Study of 1988; ELS: 2002 = Education Longitudinal Study of 2002.

SOURCE: Ingels et al. (2005).

#### A.1.4 Other Factors Affecting Comparability

Though the studies were designed to be as comparable as possible, caution must nonetheless be exercised in comparing NLS:72, HS&B, NELS:88, and ELS:2002 data. School and student response rates differed somewhat, as did item response rates. Missing item data have been statistically imputed in ELS:2002 (for key variables only), though not in the prior studies (the impact of imputation on comparability across studies is explored in Ingels et al. 2005, NCES 2006-344, appendix C). Likewise, missing test scores have been imputed in ELS:2002. Eligibility rules were sometimes somewhat different. The earlier studies used a weighting cell approach for nonresponse adjustments in weighting; ELS:2002 used propensity modeling. (However, methodological work conducted in ELS:2002—see appendix K—suggests this difference would have little impact and should not be a threat to comparability.) There were differences in mode and precise timing of survey administration. The technology of data collection has also changed considerably over the years, especially for out-of-school cohorts. These data were first collected by paper-and-pencil questionnaires, which were replaced first with computerized telephone and personal interviews, and then in the ELS:2002 second follow-up almost completely by web self-administrations. The extent of the impact of mode effects has not been measured in field test experiments or by other devices, although every effort has been made to construct questionnaires that minimize the potential for mode differences. Sociolinguistic changes in the United States over this 32-year period may also affect comparability, and even standard classification variables, such as race classifications, have subtly changed over time.

## A.2 Appendix A References

- Bozick, R., Lytle, T., Siegel, P.H., Ingels, S.J., Rogers, J.E., Lauff, E., and Planty, M. (2006). *Education Longitudinal Study of 2002: First Follow-up Transcript Component Data File Documentation* (NCES 2006-338). U.S. Department of Education. Washington, DC: National Center for Education Statistics.
- Cahalan, M.W., Ingels, S.J., Burns, L.J., Planty, M., and Daniel, B. (2006). *United States High School Sophomores: A Twenty-Two Year Comparison, 1980–2002* (NCES 2006-327). U.S. Department of Education. Washington, DC: National Center for Education Statistics.
- Dalton, B., Ingels, S.J., Downing, J. and Bozick, R. (2007). *Advanced Mathematics and Science Course-taking in the Spring High School Senior Classes of 1982, 1992, and 2004* (NCES 2007-312). Washington, DC: National Center for Education Statistics.
- Green, P.J., Dugoni, B., and Ingels, S.J. (1995). *Trends Among High School Seniors, 1972–1992* (NCES 95-380). U.S. Department of Education. Washington, DC: National Center for Education Statistics.
- Haggerty, C., Dugoni, B., Reed, L., Cederlund, A., and Taylor, J.R. (1996). *NELS:88/94 Methodology Report* (NCES 96-174). U.S. Department of Education. Washington, DC: National Center for Education Statistics.
- Hedges, L.V., and Nowell, A. (1995). Sex Differences in Mental Test Scores, Variability, and Numbers of High-Scoring Individuals. *Science* 269(7): 41–45.
- Hoachlander, E.G. (1991). *Participation in Secondary Vocational Education, 1982–1987* (NCES 91-667). U.S. Department of Education. Washington, DC: National Center for Education Statistics.
- Ingels, S.J. (1996). *Sample Exclusion in NELS:88—Characteristics of Base-Year Ineligible Students; Changes in Eligibility Status After Four Years* (NCES 96-723). U.S. Department of Education. Washington, DC: National Center for Education Statistics.
- Ingels, S.J. (2004, April). *Creating Time Series Data Sets: Reconciling the Conflicting Imperatives of Continuity and Change*. Paper presented at the American Educational Research Association Annual Meeting, San Diego, California (ERIC ED490756). Retrieved July 10, 2007, from <http://www.eric.ed.gov>.
- Ingels, S.J., and Dalton, B. (forthcoming). *Trends Among High School Seniors, 1972–2004*. Washington, DC: National Center for Education Statistics.
- Ingels, S.J., Dowd, K.L., Baldrige, J.D., Stipe, J.L., Bartot, V.H., and Frankel, M.R. (1994). *NELS:88 Second Follow-up: Student Component Data File User's Manual* (NCES 94-374). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Ingels, S.J., Pratt, D.J., Rogers, J., Siegel, P.H., and Stutts, E.S. (2005). *Education Longitudinal Study of 2002: Base Year to First Follow-up Data File User's Manual* (NCES 2006-344). U.S. Department of Education. Washington, DC: National Center for Education Statistics. Retrieved October 15, 2006, from <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2006344>.

Ingels, S.J., and Taylor, J.R. (1995). *National Education Longitudinal Study of 1988: Conducting Cross-Cohort Comparisons Using HS&B, NAEP, and NELS:88 Academic Transcript Data* (NCES 95-06). U.S. Department of Education. Washington, DC: National Center for Education Statistics Working Paper.



**Appendix B**  
**Quick Guide to Using the ELS:2002/06 Data**

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The purpose of the “Quick Guide” is to orient users of the Education Longitudinal Survey of 2002 (ELS:2002) electronic codebook (ECB) data to suggested techniques for working with the data files. Special attention will be paid to topics that will help users easily achieve error-free results in working with ELS:2002 data. This guide is meant to serve as an introduction to, not a replacement for, the *ELS:2002 Base-Year to Second Follow-up Data File Documentation* (NCES 2008-347).

The first two sections of this guide provide an overview of the ELS:2002 survey and available data files. The information found in this appendix is based on the ELS:2002/06 ECB (NCES 2007-346). The third section provides general instructions on how to get started using the ELS:2002/06 data and an orientation to the software that can be used to manipulate the data. The final section contains a series of frequently asked questions (FAQs) that are based on past user inquiries to the National Center for Education Statistics (NCES) and the responses.

## **B.1 Introduction to ELS:2002**

### **B.1.1 Overview**

ELS:2002 represents a major longitudinal effort designed to provide trend data about critical transitions experienced by students as they proceed through high school and into postsecondary education or their careers. The 2002 sophomore cohort (augmented by an overlapping 2004 senior cohort) is being followed, initially at 2-year intervals, to collect policy-relevant data about educational processes and outcomes, especially as such data pertain to student learning, predictors of dropping out, and high school effects on students’ access to, and success in, postsecondary education and the workforce.

In the spring-term 2002 base year of the study, over 15,000 high school sophomores were surveyed and assessed in a national sample of 752 public and private high schools with 10th grades. Their parents, teachers, principals, and librarians were surveyed as well. In addition, cognitive tests in mathematics and reading were administered to these students.

In the first of the follow-ups, base-year students who remained in their base-year schools were resurveyed and tested (in mathematics) 2 years later, along with a freshening sample that makes the study representative of spring 2004 high school seniors nationwide. Students who had transferred to a different school, had switched to a homeschool environment, graduated early, or who had dropped out were administered a customized questionnaire tailored to their first follow-up status. School administrators at the participating schools were surveyed once again. Academic transcripts were collected in the winter of 2004–2005; student transcript and course catalogue/offerings data have been added to the ELS:2002 database.

The second follow-up data collection took place in 2006, when most sample members were 2 years out of high school, and maps the transition of the majority of cohort members out of secondary education. For the cohort as a whole, the second follow-up obtained information that will permit researchers and policymakers to better understand issues of postsecondary educational access and choice. Thus, a major focus of the second follow-up interview was the postsecondary decision-making process as reflected in applications to college and initial postsecondary enrollment histories. Additionally, it followed students who did not enroll in college in the 2-year period immediately after high school, and thus provides information on

reasons students did not attend. It also provides information on the transition of non-college-bound students into the labor force.

The second follow-up survey used a web-enabled system to program the 2006 questionnaire for self-administration. The same electronic instrument was used for interviewer administration as well, through CATI and CAPI instruments. (The self-administered and interviewer-administered survey instruments are indistinguishable in terms of screen text and skip patterns in each of the three modes.) The advantages of a web-based instrument include real-time data capture and access, including data editing in parallel with data collection.

### **B.1.2 Major Features**

The major features of ELS:2002 include the integration of student, dropout, parent, teacher, and school data; the initial concentration on a 10th-grade student cohort with the same individuals surveyed repeatedly over time; the addition of a 12th-grade cohort 2 years later; the inclusion of supplementary components such as a course offerings and high school transcript study; and the design linkages to previous longitudinal studies (the National Longitudinal Study of 1972 [NLS:72], High School and Beyond [HS&B], and the National Education Longitudinal Study of 1988 [NELS:88]) and other current studies such as the Program for International Student Assessment (PISA) and the National Assessment of Educational Progress (NAEP).

### **B.1.3 Research Issues**

Apart from helping to describe the status of high school students and their schools, ELS:2002 will provide information to help address a number of key policy and research questions. Part of its aim is to inform decision makers, educational practitioners, and parents about the changes in the operation of the educational system over time and the effects of various elements of the system on the lives of the individuals who pass through it. By design, for most purposes, the basic unit of analysis is the student, with the other components providing contextual information. The second follow-up (2006) data mark, for most sample members, the transition from high school to postsecondary education or the world of work. Issues that can be addressed with ELS:2002 data include

- students' academic growth in mathematics;
- the process of dropping out of high school;
- the association between family background and the home education support system and students' educational success;
- the features of effective schools;
- the relationship between coursetaking choices and success in the high school years (and thereafter); and
- the distribution of educational opportunities as registered in the distinctive school experiences and performance of students from various subgroups. Such subgroups include the following:
  - students in public and private high schools;
  - language minority students;

- students with disabilities;
- students in urban, suburban, and rural settings;
- students in different regions of the country;
- students from upper, middle, and lower socioeconomic status levels;
- male and female high school students; and
- students from different racial or ethnic groups.

With completion of high school, and starting with the 2006 round, new topics can be addressed, including

- the later educational and labor market activities of high school dropouts;
- the transition of those who directly enter the labor market;
- access to, and choice of, postsecondary educational institutions; and
- adult roles, such as family formation and civic participation.

Further in the future, ELS:2002 data may support analyses of further issues:

- persistence in postsecondary education;
- baccalaureate attainment; and
- early social and economic rates of return on education.

These research and policy issues can be investigated at several distinct levels of analysis. The overall scope and design of the study provide for the following four analytical levels:

- cross-sectional profiles of the nation's high school sophomores (2002), seniors (2004), and post-sophomore-year dropouts (2004);
- longitudinal analysis (including examination of life course changes);
- intercohort comparisons with American high school students of earlier decades; and
- international comparisons: U.S. 15-year-olds to 15-year-olds in other nations, including postsecondary and other longitudinal outcomes for the United States that can be related to scale scores in mathematics and reading from PISA.

Since there are a number of content and design similarities between ELS:2002 and its predecessor, NELS:88, researchers are strongly encouraged to examine the NELS:88 annotated bibliography found at <http://nces.ed.gov/surveys/nels88/Bibliography.asp>. Although it has not yet grown to the dimensions of the NELS:88 literature, a bibliography is also maintained for ELS:2002 at <http://nces.ed.gov/surveys/els2002/Bibliography.asp>.

The NELS:88 and ELS:2002 bibliographies, arranged alphabetically by author by year, provide abstracts for journal articles, books, conference presentations, reports, and dissertations that have used the NELS:88 data. They were derived from computer searches of online bibliographic databases such as Dissertation Abstracts, ERIC, Psychological Abstracts, Sociological Abstracts, and Major Papers, as well as the NCES website.

Although the ELS:2002 database supports a wide range of analyses, ELS:2002 does have both substantive and methodological limitations. Because of increasing concern with burden on schools and greater restrictions on the collection of sensitive data, the base year and first follow-up ELS:2002 questionnaires and test battery reflect a reduced number both of items and policy areas. As with any data collection effort, there are design constraints (e.g., ELS:2002 did not sample regional or area vocational schools; the study did not test dropouts in 2004) and limitations of the data (e.g., small cell sizes for certain groups of individuals) that must be taken into consideration when planning analyses that use ELS:2002.

#### **B.1.4 Must-Read Publications**

Before a researcher attempts to use the ELS:2002 data files, it is strongly suggested that time be spent reading the ELS:2002 user's documentation that references the ELS:2002 base-year, first, and second follow-up studies. The following list of documents will provide researchers with much of the information that they will need to understand the complexities of the ELS:2002 data files. In addition, several substantive reports provide a base from which researchers can identify potential research topics from the ELS:2002 data files. These reports are also listed below. Finally, researchers should consult the ELS:2002 website for the latest information and releases: [nces.ed.gov/surveys/els2002/](http://nces.ed.gov/surveys/els2002/).

#### **Manuals and Technical Documentation**

- Bozick, R., Lytle, T., Siegel, P.H., Ingels, S.J., Rogers, J.E., Lauff, E., and Planty, M. (2006). *Education Longitudinal Study of 2002: First Follow-up Transcript Component Data File Documentation* (NCES 2006-338). U.S. Department of Education. Washington, DC: National Center for Education Statistics. (Note: this report is available only with the ELS:2002 restricted use transcript files.)
- Burns, L.J., Heuer, R., Ingels, S.J., Pollack, J., Pratt, D.J., Rock, D., Rogers, J., Scott, L.A., Siegel, P., and Stutts, E. (2003). *Education Longitudinal Study of 2002 Base Year Field Test Report* (NCES 2003-03). U.S. Department of Education. Washington, DC: National Center for Education Statistics.
- Ingels, S.J., Pratt, D.J., Rogers, J.E., Siegel, P.H., and Stutts, E. (2004). *Education Longitudinal Study of 2002: Base Year Data File User's Manual* (NCES 2004-405). U.S. Department of Education. Washington, DC: National Center for Education Statistics.
- Ingels, S.J., Pratt, D.J., Rogers, J.E., Siegel, P.H., and Stutts, E. (2005). *Education Longitudinal Study of 2002: Base-Year to First Follow-Up Data File Documentation* (NCES 2006-344). U.S. Department of Education. Washington, DC: National Center for Education Statistics.
- Ingels, S.J., Pratt, D.J., Wilson, D., Burns, L.J., Currivan D., Rogers, J.E., and Hubbard-Bednasz, S. (2007) *Education Longitudinal Study of 2002: Base-Year to Second Follow-up Data File Documentation* (NCES 2008-347). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

## NCES Reports

### Cross-Cohort Analyses: Sophomores, 1980–2002

Cahalan, M.W., Ingels, S.J., Burns, L.J., Planty, M., and Daniel, B. (2006). *United States High School Sophomores: A Twenty-Two Year Comparison, 1980–2002* (NCES 2006-327). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.

### Cross-Cohort Analyses: Seniors, 1982–2004, 1972–2004

Dalton, B., Ingels, S.J., Downing, J. and Bozick, R. (2007). *Advanced Mathematics and Science Course-taking in the Spring High School Senior Classes of 1982, 1992, and 2004* (NCES 2007-312). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.

Ingels, S.J., and Dalton, B. (2007, forthcoming). *Trends Among High School Seniors, 1972–2004*. Washington, DC: National Center for Education Statistics.

### Cross-Sectional Analyses: Base Year Schools<sup>1</sup>

Planty, M., and DeVoe, J.F. (2005). *An Examination of the Conditions of School Facilities Attended by Tenth-Grade Students in 2002* (NCES 2006-302). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.

Scott, L.A. (2004). *School Library Media Centers: Selected Results From the Education Longitudinal Study of 2002* (ELS:2002) (NCES 2005-302). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.

### Cross-Sectional Analyses: Sophomores, Seniors, and the 2004 Graduating Class

Ingels, S.J., Burns, L.J., Chen, X., Cataldi, E.F., and Charleston, S. (2005). *A Profile of the American High School Sophomore in 2002: Initial Results from the Base Year of the Education Longitudinal Study of 2002* (NCES 2005-338). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Ingels, S.J., Planty, M., and Bozick, R. (2005). *A Profile of the American High School Senior in 2004: A First Look—Initial Results from the First Follow-up of the Education Longitudinal Study of 2002* (NCES 2006-348). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Planty, M., Bozick, R., and Ingels, S.J. (2006). *Academic Pathways, Preparation, and Performance: A Descriptive Overview of the Transcripts from the High School Graduating Class of 2003-04* (NCES 2007-316). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.

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<sup>1</sup> Both publications report results both at the school level and at the student level.

## Longitudinal Analyses

Bozick, R., and Ingels, S.J. (2007). *Mathematics Coursetaking and Achievement at the End of High School: Evidence from the Education Longitudinal Study of 2002* (ELS:2002) (NCES 2007-329). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.

Bozick, R., and Lauff, E. (2007). *A First Look at the Initial Postsecondary Experiences of the Sophomore Class of 2002* (ELS:2002) (NCES 2007-308). U.S. Department of Education, Washington, DC: National Center for Education Statistics.

Hampden-Thompson, G., Kienzl, G., Daniel, B., and Kinukawa, A. (2007). *Course Credit Accrual and Dropping Out of High School*. (NCES 2007-018). Issue Brief. U.S. Department of Education. Washington, DC: National Center for Education Statistics.

## B.2 Description of ELS:2002 Files and Electronic Codebooks

The ELS:2002/06 data files are available on a restricted-use ECB. The following waves of ELS:2002 data are included:

2002—Base Year (BY)

2004—First Follow-up (F1) (including transcripts)

2006—Second Follow-up (F2)

Those who do not require direct access to microdata may also be interested in NCES's ELS:2002 web-based Data Analysis System (DAS).

### B.2.1 Dataset: ELS:2002 Base Year (2002) Through Second Follow-up (2006)

The restricted-use student “megafire” contains about 16,200 cases and includes all respondents who participated in either initial wave (base year and/or first follow-up), with the exception of a handful of cases that have been removed from the longitudinal file owing to death, study withdrawal, or continuing ineligibility. The student megafire includes base-year questionnaire-incapables who became eligible respondents in the first follow-up as well as freshened 12th-grade respondents (see Ingels et al. 2005 for a description of base-year questionnaire-incapables and freshened 12th-grade students). Data for each student for 2002 (base year), 2004 (first follow-up), and 2006 (second follow-up) can be thought of as one continuous record that contains the following sections:

1. universe and cross-round student status variables;
2. base-year composite variables, assessment scores, and weights;
3. first follow-up composite variables, assessment scores, and weights;
4. first follow-up student high school transcript variables;
5. second follow-up composite variables and weights;
6. base-year student questionnaire variables;
7. first follow-up student questionnaire variables;
8. first follow-up dropout questionnaire variables;



9. first follow-up transfer questionnaire variables;
10. first follow-up early graduate questionnaire variables;
11. first follow-up new participant supplement variables;
12. second follow-up questionnaire variables:
  - 12a. high school;
  - 12b. postsecondary education;
  - 12c. employment;
  - 12d. community engagement;
13. base-year parent variables;
14. base-year teacher variables (both English and math);
15. base-year school composites at the student level;
16. first follow-up school composites at the student level;
17. base-year school administrator questionnaire variables at the student level;
18. base-year school library questionnaire variables at the student level; and
19. base-year school facilities checklist variables at the student level.

The restricted-use school megafile includes approximately 2,000 schools identified as base-year-responding schools, first follow-up new and “convenience” schools, and schools identified in the transcript component. The school file contains the following sections:

1. base-year school composites and weight at the school level;
2. first follow-up school composites at the school level;
3. base-year school administrator questionnaire variables at the school level;
4. base-year school library questionnaire variables at the school level;
5. base-year school facilities checklist variables at the school level; and
6. first follow-up course offerings variables at the school level.

The restricted use ECB includes the following additional sections that are linkable to the student megafile:

1. high school transcript student course file;
2. high school transcript course offering file;
3. postsecondary institutional file; and
4. ancillary records data sources (e.g., ACT and SAT, postsecondary federal grant and loan files, GED test results).

Not all sections will apply to every student. Data for each section is dependent on the sample member’s historical status. For example, a second follow-up respondent who was freshened in the first follow-up will have no base-year student data. In another example, a student who is in school and in the 12th grade in 2004 will not have any data for other first follow-up instruments: dropout, early graduate, or homeschooled.

## **B.2.2 Description of ELS:2002 Electronic Codebooks**

The dataset described above is integrated within NCES's Electronic Codebook (ECB) system. The ECB is a tool that allows the user to browse through the lists of ELS:2002 variables, variable descriptions, and frequencies.

The ECB allows the user to search a list of variables based on key words or labels; tag (i.e., select) variables for analysis; generate SAS and SPSS syntax for system files; produce printed codebooks of selected variables; import tag files; access data files for extraction; and create system files for use in statistical software packages like SPSS and SAS. See the ELS:2002 ECB guidebook on the CD-ROM for a full description of the functions of the ECB.

## **B.2.3 CD-ROM**

The datasets, ECB, and supporting documentation for the ELS:2002/06 base-year to second follow-up data collection are located on one CD-ROM (NCES 2007-346). This data product contains

- ELS:2002 base-year (2002), first follow-up (2004) (including transcript), and second follow-up (2006) data;
- ECB software (discussed above);
- this quick guide;
- an ECB guidebook; and
- electronic copies of the ELS:2002 documentation.

## **B.3 Getting Started**

This section addresses:

1. What you need to know to get started using the ELS:2002/06 data;
2. How to navigate through the data; and
3. How to generate program syntax to manipulate the data.

### **B.3.1 Getting Started Using the ELS:2002/06 Data**

#### *Minimum Requirements*

1. Obtain a CD-ROM with the ELS:2002/06 base-year through second follow-up data. This will require a licensing agreement with NCES.
2. Have access to a computer running Microsoft Windows with 5.0 MB of storage space.
3. Develop an analytical strategy for working with data. The sheer number of variables available in ELS:2002/06 and the multilevel and longitudinal nature of the database make an analytical strategy very important.

The ELS:2002/06 CD-ROM contains three folders and two files in the Root folder that are described below:

1. The Root folder includes the files QuickGuide.pdf, HELP.pdf, and the folders ECBW, Report, and Tag.
2. The ECBW folder includes the data files (student, school, transcript, and ancillary student records), documentation for data files, and an installation program (setup.exe) for the ELS:2002/06 ECB.
3. The Report folder includes an electronic copy of the ELS:2002 Base-Year to Second Follow-up Data File Documentation, the Base-Year to First Follow-up Data File Documentation, and the Base-Year Data File User's Manual.
4. The Tag folder includes three "tag" files that provide the user with tags of critical variables (e.g., IDs, stratification variables, and design weights), which can be imported into an ECB session and used as the basis for producing SPSS or SAS card files. Basically, tag files are simply a subset of variables from the entire set of variables available on the ECB. Given the large number of variables on the ECB, tag files allow users to focus on those variables they select instead of having to sift through the entire ECB each time.

#### *Loading and Using the ECB*

1. Install the ECB:
  - Insert the ELS:2002/06 CD into the CD-ROM drive.
  - Click the Windows START menu button, and select RUN.
  - Type: D:\ECBW\Setup.exe (if your CD-ROM drive is not D, enter the appropriate drive letter).
  - Click on OK to run the setup program, and follow the directions on your screen.
2. The user is ready to use the ECB once it is installed. By clicking on each "hot" key on the tool bar found at the top of the ECB screen, the user will quickly understand the structure of the file and the power provided by the ECB to produce data files. At this point, the user should consult the "Electronic Codebook Help Guide" available on the CD-ROM for a specific overview of the ECB functions. (This is a file named HELP.PDF.)
3. Examine the frequencies available for each variable on the ECB. By examining these data descriptions, the ELS:2002 user will begin to appreciate the complexity of collecting data from human subjects (legitimate values, legitimate skips, refusals, etc.). It is important to realize that some respondents:
  - did not respond to the entire instrument;
  - skipped individual items;
  - refused to complete selected items;
  - did not reach the end of the questionnaire;
  - completed abbreviated versions of the instrument;

- made illegal skips; and
- responded outside predefined valid ranges.

### **B.3.2 Navigating the ECB and Identifying a Model and Tagging Variables for Analysis**

1. Define the base population for analysis and whether longitudinal or cross-sectional analysis is required. That is, what group will this research try to generalize to (e.g., high school seniors, dropouts)?
2. Develop a conceptual model. What does prior research suggest is happening with the data (e.g., characteristics of students who are likely to drop out of school)?
3. Determine the predictor variables (e.g., disadvantaged background, low test scores), intervening processes (e.g., courses completed, teacher qualifications), and outcomes (e.g., dropping out, return to high school, completion of GED, postsecondary entry) that can be used to explain the model.
4. Determine which components (variables) of your model can be addressed with ELS:2002/06 variables. If multiple sources of the same item are available on the data files, choose the one believed to be most reliable and valid. If the variables that the researcher needs are not available on the ELS:2002/06 files, he or she should consider merging variables from other sources to which links have been supplied (e.g., Census, Common Core of Data).
5. Rethink the original model. If the variables contained on the ELS:2002/06 data files cannot be used to study the original model, rethink the model and either modify the model or choose another dataset.
6. The user can select or “tag” the variables of interest by clicking on the “tag box” next to each variable.
7. The analyst must also remember to choose the appropriate weights and flags for the population of interest. In each data file, flags can be selected to identify a particular part of the population. For example, flags are available to identify whether a student was a dropout at the first follow-up. Weights are variables placed on the dataset to compensate for the unequal probabilities of selection and to adjust for nonresponse. When used with flags, weights allow the analyst to make generalizations about the national populations represented by the various ELS:2002 samples. When weights are not used and/or when a flag is used inappropriately, the estimates generated will not be representative of the population.

### **B.3.3 Generating SAS or SPSS Program Code and Codebook Text**

1. After tagging the variables of interest, go to “File” and then “Output.”
2. Select the program (e.g., SPSS to generate SPSS program code).
3. Specify directory and name of program code file.
4. Select appropriate button in “Confirmation” box.
5. To view the program code, select “File” and then “View Output.”

6. The program code can then be opened in the appropriate software (e.g., SPSS) to generate a working system file and run analyses. It may be necessary to modify the program slightly (check for “execute” statements, period locations, and file names). The code should identify the ASCII data file location, which will be the CD-ROM.

## **B.4 Frequently Asked Questions (FAQs) About ELS:2002**

Since the first release of ELS:2002 data and with the experience from the NELS:88 and past longitudinal studies, NCES staff members have received many questions regarding “proper techniques” for working with the data. In this document, these questions (along with NCES responses) have been categorized into topical areas and presented as a guide. It is hoped that the responses will help users avoid the most commonly made mistakes in working with this important data source. This document is meant to serve as an introduction or supplement to, not a replacement for, the base-year to second follow-up data file documentation. To help the data user identify specific topics of interest, questions and responses have been grouped into the following categories:

### **General and Background Questions**

Who can I contact from the National Center for Education Statistics/Department of Education about the ELS:2002 study?

What are some of the terms that I should be familiar with in dealing with ELS:2002?

What are the interrelationships among the separate ELS:2002/06 files?

How is ELS:2002 related to prior NCES longitudinal studies?

### **Sampling**

In simple terms, explain how the ELS:2002 school and student samples were selected.

Whom do these schools and students represent?

Did ELS:2002 test the same group of students through the first follow-up study?

Does the ELS:2002 sample design support any state-level analyses?

### **Weights**

What cohorts does the ELS:2002 dataset represent and how do I subset these groups?

What are these flags and weights?

Why do we need to use weights with the ELS:2002 data?

Why would unweighted estimates not be representative?

Which weights and flags should I use in my analyses?

Thanks for the description of the weights, but what does this mean in practical terms?

### **Design Effects**

Why do I need to take account of design effects when I do my significance testing?

## Electronic Codebooks

When I receive my ELS:2002/06 CD, what are some of the steps that I should follow to check out my CD?

## Composite (Derived) Variables

What are the advantages of using composite variables in my analyses?

## Model Building

How do I select variables for a working data file?

How do I subset data files?

## Privileged or Restricted-Use Data

How do I get a restricted-use license?

## NCES Responses

### General and Background Questions

Question: Who can I contact from the National Center for Education Statistics/Department of Education about the ELS:2002 study?

Response: For additional information and questions about ELS:2002 and NCES's education longitudinal studies program, please link to the ELS:2002 web page:  
<http://nces.ed.gov/surveys/els2002/>.

Or contact:

John Wirt  
(202) 502-7478  
John.Wirt@ed.gov

Question: What are some of the terms that I should be familiar with in dealing with ELS:2002?

Response: Knowledge of the following terms will help the user in reading through the following questions and responses. Additional information on these and other terms can also be found in the ELS:2002 glossary in the appendix to the Base-Year to Second Follow-up Data File Documentation.

- Bias: respondents differ from nonrespondents;
- Cohort: factor in common (year of birth or grade);
- Cross-section: represent events at a single point in time;
- Design effects: a measure of sample efficiency, typically related to the precision of estimates;
- ECB: electronic codebook;
- Freshening: adding students to original sample during later waves of data collection to create new grade-representative cohorts (Students at the base-year sample school who were enrolled in the 12th grade in spring of 2004 but were not

in 10th grade in the United States during the spring of 2002 were given a chance of selection into the ELS:2002 sample. In spring term 2002, such students may have been out of the country, been enrolled in school in the United States in a grade other than 10th, had an extended illness or injury, been homeschooled, been institutionalized, or temporarily dropped out of school. These students comprised the first follow-up “freshening” sample.);

- IRT: Item Response Theory (permits vertical scaling of assessments, e.g., from grade 10 to 12, and lateral scaling as well, e.g., ELS:2002 results placed on the NELS:88 scale);
- Longitudinal: similar measurements at multiple points in time;
- Panel: surveying same individuals across time; and
- Weights: used to produce population estimates based on samples, or in other words, when one respondent represents a number of others in the population.

Question: What are the interrelationships among the separate ELS:2002/06 files?

Response: Using common IDs, the individual data files comprising ELS:2002/06 have been merged with each other to form data files containing student (questionnaire, test, transcript), parent, school, library, facilities, and teacher data. By design, the basic unit of analysis for most ELS:2002/06 analyses will be the student. Under this premise, the school administrator, course offerings, library, facilities, parent, and teacher data can be thought of as providing contextual (e.g., background, school characteristics, “opportunity to learn”) data.

Because the base year of ELS:2002 involved the participation of 752 randomly selected schools from across the United States that contained 10th-graders, the 10th-grade school sample can be used (in conjunction with the 2002 school weight, *BYSCHWT*) as a standalone file in which the school is the basic unit of analysis. The first follow-up school file, however, is not nationally representative of high schools with 12th grades, and therefore no school weight has been generated for them. These schools were not selected by a probabilistic method but, rather, entered ELS:2002 by virtue of containing students who participated in the ELS:2002 base-year study.

Universe variables (e.g., *F2UNIV1*) have been constructed to provide researchers with a history of the involvement of each student over the base-year and first follow-up studies of ELS:2002. These variables show the status of each student during the two data collection periods. For example, a student respondent in 2002 may become a dropout respondent in the first follow-up 2004 data collection. Universe variables can be used to subset cases to desired populations. Universe variables effectively limit the working data file to respondents who fit selected criteria (e.g., dropouts). The universe variables can be found at the beginning of the ELS:2002 data files.

Question: How is ELS:2002 related to prior NCES longitudinal studies?

Response: All of the student and dropout questionnaires employed in the base-year and first follow-up studies of ELS:2002 were designed to provide continuity and consistency with earlier education longitudinal studies.

Specific items in the ELS:2002 instruments replicate items appearing in NELS:88, HS&B, or NLS:72. The comparability and consistency of items across these three datasets allow for (but are not limited to) the execution of the following cross-cohort analyses:

- ELS:2002 2002 sophomores can be compared to NELS:88 1990 sophomores and HS&B 1980 sophomores;
- ELS:2002 2002 sophomores 2 years later (that is, in 2004) can be compared to NELS:88 1990 sophomores 2 years later (that is, in 1992) and HS&B 1980 sophomores 2 years later in 1982;
- ELS:2002 2002 sophomore cohort dropouts (as of 2004) can be compared to NELS:88 1990 sophomore cohort dropouts (as of 1992) and HS&B 1980 sophomore cohort dropouts (as of 1982);
- ELS:2002 2004 seniors can be compared to NELS:88 1992 seniors, HS&B 1980 seniors, and NLS:72 1972 seniors; and
- the transition of ELS:2006 participants out of high school can be compared to the transition of earlier cohorts: seniors 2 years later can be compared using the time points 1974, 1982, 1984, and 1994. Sophomores 4 years later can also be compared, as well as sophomore cohort dropouts 4 years later.

## Sampling

Question: In simple terms, explain how the ELS:2002 school and student samples were selected.

Response: Base year: The ELS:2002 schools were selected from a universe file of approximately 25,000 public and private 10th-grade schools across the United States. For the 752 public and private schools with 10th grades that were sampled and agreed to participate in ELS:2002, complete 10th-grade rosters were produced for each school. From this roster, approximately 25 students per school, on average, were randomly selected, with Asian and Hispanic students selected at a higher rate than others.

First follow-up: Prior to the first follow-up data collection period, approximately 8 percent of the students moved to another school. Because of these transitions, students had to be traced to their new schools. In addition, school dropouts, early graduates, and homeschoolers needed to be identified, contacted, and convinced to participate in the follow-up. New (freshened) students needed to be added to the sample so that the first follow-up data would be representative of high school seniors. There was neither subsampling out nor freshening in for the second follow-up sample in 2006, though there was some sample attrition owing to factors such as death or withdrawal from the study.

Question: Whom do these schools and students represent?

Response: The 752 participating schools in the base year represent the approximately 25,000 public and private schools in the United States in 2002 that had a 10th grade. The 15,362 ELS:2002 base-year student participants represent about 3 million 10th-graders attending schools in 2002, with the exception of Bureau of Indian Affairs schools, special schools for students with disabilities, area vocational schools that do



not enroll students directly, and schools for dependents of U.S. personnel serving overseas.

In the first follow-up sample, 14,989 members participated, representing approximately 3.5 million students, dropouts, homeschoolers, and early graduates. Of these, 13,420 sample members were students in the 12th grade, representing about 3 million seniors in public and private schools in 2004.

ELS:2002/06 data can be used to examine the following groups:

- 10th-grade students 4 years later (2006);
- 12th-grade students 2 years later (2006); and
- 2002 sophomore cohort dropouts (as of 2004) 2 years later (2006).

**Question:** Did ELS:2002 follow the same group of students through the first and second follow-up studies?

**Response:** The same individuals are followed over multiple waves. Although the major objective of ELS:2002 was to follow a group of 10th-graders, there were modifications to the sample as it progressed between 2002 and 2004. The additions included the augmentations of the base-year sample with freshened seniors in 2004, and those base-year questionnaire-incapable respondents whose eligibility status had changed 2 years later (for example, a student whose English language proficiency was not sufficient for participation in 2002 might have improved in English language skills enough to be included in 2004).

**Freshened students:** The ELS:2002 sample was freshened with additional 12th-graders in 2004. These students were added so that the sample would be nationally representative of seniors in 2004. Students who were freshened into the sample did not have the opportunity to be selected into the sample during the 10th grade (e.g., they may have been out of the country or out of grade sequence).

**Base-year questionnaire-incapable students:** In addition to freshened students, base-year questionnaire-incapable sample members were reassessed to see if they could take part in the first follow-up study. Base-year questionnaire-incapable students were individuals for whom it was determined that their lack of English language proficiency, or physical or mental disability, made it unduly difficult for them to complete self-administered questionnaires or cognitive tests, or who would not be able to produce a valid assessment of their abilities and school experiences. These students were included in the restricted-use data only as part of the expanded sample, and contextual information was collected (school administrator surveys, and when possible, parent surveys and teacher surveys). These students were reevaluated during the first follow-up study. Those whose status had changed (e.g., they had become proficient in English) such that they could participate were included as respondents.

**Second follow-up:** There was no subsampling or freshening in 2006. A few students were removed from the longitudinal file owing to factors such as death, withdrawal from the study, or continued questionnaire-incapable status. Double nonrespondents (i.e., participated in neither base year nor first follow-up) were not pursued.

Question: I understand how ELS:2002 was designed to support a national level of analysis, and subnational analyses at the Census region or division level. However, does the ELS:2002 sample design support any state-level analyses?

Response: In the base year a handful of states (California, Florida, New York, and Texas) had state-representative samples of public schools (though not of private). The rule of thumb that has traditionally been used in the high school cohort studies is that a minimum of 30 schools will be required, if a state sample is to be called representative.

For the several states for which there are state-representative samples, it is possible to conduct independent cross-sectional analyses of base-year schools or students at the state level. Because of the relatively small size of even the largest state samples, standard errors will be accordingly higher than for the national sample, and cross-classification by various subgroups may sometimes result in comparatively small, or even unstable (from an estimation perspective), cell sizes. An additional caveat is that no poststratification or other weighting adjustment has been made to ensure that estimates inflate with full accuracy to the overall or subgroup 10th-grade enrollments at the state level. A nonresponse bias analysis has not been conducted at the state level, so some bias in state-level estimates may exist. This is especially true if any states have patterns of nonresponse different from the national patterns. It therefore would be advisable to evaluate the quality of the ELS:2002 estimates and their adequacy for the intended analytic purpose, by comparing some key ELS:2002 state estimates both overall and by subpopulation with other sources, when available, to see whether they are plausibly close to each other.

It is also possible to analyze the student samples 2 years later, that is, the state's spring 2002 high school sophomores in 2004. Some of the 2002 sophomores are likely to have transferred to a school in another state by 2004; these out-of-state transfers can be identified on the ELS:2002 database. Some analysts may wish to generalize at the state level about spring 2004 seniors, or actual spring/summer 2004 graduates within a state. A state-representative base-year sophomore cohort does not necessarily make for a state-representative senior cohort. The ELS:2002 sample does to some degree "update" the sophomore sample: sophomores who drop out or who are held back are identified in the dataset; the senior year freshening procedure in the base year schools at the time of the first follow-up captures a sample of students who were not in the 2002 sampling frame by virtue of being other than 10th-graders or outside the country; and while there was no state-level freshening, there is a sort of "natural freshening" within the national borders in that students remain in the sample as they transfer to schools across state lines. While conceptually these factors contribute the elements of a state-level senior sample, weighting adjustments have not been made specifically at the state level, and to this extent estimates may be affected and in particular are likely to be less accurate than if a state-based adjustment had been made to the weights.

In sum, the four most populous states have state-representative samples in that there are sufficient public school and student sample sizes for some level of analysis. However, specific measures were not taken during freshening or weighting to ensure accurate state estimates or full state-level coverage of seniors. The study was

designed to be a national-level study; any level of state estimation is an extra benefit, and a benefit to be exploited with caution.

## Weights

Question: What groups does the ELS:2002 dataset represent and how do I subset these groups?

Response: The ELS:2002 data represent many different populations (e.g., 10th-graders in 2002; seniors in 2004; 10th-graders who were still in school at 12th grade; 10th-graders who dropped out of school by 12th grade). These groups can be identified through use of flags and analysis weights. (Analysis weights are also known as nonresponse-adjusted weights, and as final weights. They are to be distinguished from raw weights [or design weights], which have not been adjusted to compensate for patterns of nonresponse. Only analysis or final weights appear on the ELS:2002/06 data files.)

Question: What are these flags and weights?

Response: Flags are variables that were put onto the ELS:2002 files to indicate status at a given point in time (e.g., dropout in the first follow-up) or indicate a permanent sample status (e.g., member of the sophomore cohort, member of the senior cohort). Universe variables can be used like flags, that is, to subset for analysis. Universe variables can be found at the beginning of the dataset. These universe variables give the status of each individual for each data collection (e.g., eligible during base year, dropout during first follow-up). Most of the flags are in the same location as composite and derived variables. Flags can be used by the researcher to select cases for analyses. For example, F1PNLFL is the base-year through first follow-up panel flag that indicates the sample member responded at both the base-year and first follow-up waves of ELS:2002 data collection (or for 651 cases, were nonrespondents in the base year, but participated in the first follow-up).

Weights are variables that are put onto the file to compensate for unequal probabilities of selection and to adjust for the effects of nonresponse. Using weights allows a researcher to make generalizations to the national populations represented by ELS:2002. On the ELS:2002/06 student files for the base-year through second follow-up studies there are 11 different analysis weights for students in addition to a school weight:

BYSTUWT: Student final weight for base-year responding students.

BYEXPWT: An expanded sample weight that differs from BYSTUWT in that it includes the questionnaire-incapable as well as the questionnaire-capable respondents.

F1QWT: Final weight for first follow-up respondents, regardless of their base-year participation.

F1EXPWT: An expanded sample weight that differs from F1QWT in that it includes the questionnaire-incapable as well as the questionnaire-eligible respondents.

F1PNLWT: Panel weight for sample members who were respondents in both the base-year and first follow-up waves, or sample members who participated only in the first follow-up, but have selected base-year information (specifically, imputed test

scores, and standard classification variables normally asked in the base year but also asked of first follow-up new participants).

F1XPNLWT: This weight is similar to F1PNLWT except that it also includes the questionnaire-incapable sample members.

F1TRSCWT: This weight is intended for use with the high school transcript file and was created for all sample members who participated in either the base year or first follow-up (or both) who had fully or partially completed transcript data.

F2QWT: The cross-sectional weight for the second follow-up (2006). One must select either the sophomore or senior cohort to derive a meaningful analysis sample from the cases associated with F2QWT.

F2QTSCWT: This weight was created for sample members who completed a questionnaire in 2006 and were transcript respondents in 2004–2005.

F2F1WT: This panel weight accommodates sample members who participated in 2004 and 2006, or were questionnaire-incapable in 2004 but participated in 2006.

F2BYWT. This panel weight accommodates sample members who participated in 2002 and 2006 (including 2002 students not part of the cross-sectional 2002 responding sample<sup>2</sup>) or were questionnaire-incapable in 2002 but participated in 2006.

Each of these 11 weights is specific for a given population, although F1QWT, F2QWT, and their cognates do not generalize to any meaningful analysis population until subset to one of the two grade cohorts. Depending on the group to whom the data are designed to generalize, the individual weights have positive values ( $> 0$ ) for respondents who are members of that particular group and zero (0) for all others. Note that the base-year school weight is BYSCHWT.

Question: Why do we need to use weights with the ELS:2002 data?

Response: If we do not use weights, the estimates (e.g., counts, proportions, means) that we produce will not be representative of the population about which we are attempting to generalize.

Question: Why would unweighted estimates not be representative?

Response: In the base year of ELS:2002, 15,362 sampled students participated in the survey from across the nation. These 15,362 10th-grade students represent the 3 million students who attended 10th grade in the United States in 2002. Thus, each student represents approximately 196 students ( $3 \text{ million}/15,300 = 196$ ). But because some policy-relevant groups (e.g., Asians, Hispanics, students in private schools) were oversampled (greater than their proportion in the population), they are overrepresented in the file. Depending on the sampling ratio, the weights for these students would be smaller than the average student. By the same token, other students

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<sup>2</sup> In other words, base-year nonrespondents who responded in the first follow-up are included in the base-year to second follow-up panel. For this group, base-year test scores were imputed, and the base-year standard classification variables (race, SES, etc.) were collected in the first follow-up.

may represent more than 196 students because they were undersampled or part of a subsampled group during the study (base-year nonrespondents were subsampled, with the result that those retained had higher weights). Nonresponse adjustment (correcting for those students who were selected but did not participate in the survey) must also be taken into consideration because the weights of questionnaire nonrespondents are distributed among the respondents with similar characteristics. Thus, weights reflect both unequal probabilities of sampling and nonresponse adjustments. It is not unusual for a specific weight on a follow-up file to have a range of over 1,000 (e.g., F1QWT ranges from 1.77 to 1,427.47—a single student represents 1,427 other students). Therefore, it is incumbent upon the researcher to use appropriate weighting variables.

*WARNING: The researcher should avoid breaking down the sample into such small categories that the analysis is questionable. For example, if a cross-tabulation table has a single cell with fewer than 30 cases when the data are not weighted, NCES recommends that the results not be displayed or that the cell be combined with another cell (if appropriate).*

Question: Thanks for the description of the weights, but what does this mean in practical terms?

Response: Perhaps the following examples can help clarify how the analysis weights can be used to help define your sample:

Example: You are interested in examining the gains in math between the 10th and 12th grades, using the IRT-estimated number-right scores (either the NELS:88-scaled or ELS:2002-scaled scores can be used for this purpose). Decisions that you need to make include the following:

1. Which ECB should I use? If you are examining the BY to F1 period, and not using F2 data, you can use either the 2004 E4P (public use) or E6R (restricted use). But let us say you want to include transcript variables—then you have no recourse but to use the restricted ECB (or to employ the DAS).
2. Should I use a cross-sectional or panel weight? A panel weight would be more appropriate because you are following a group of students over time.
3. What do I do with the students who drop out of school? Dropouts were not tested in 2004, so they will fall out of the analysis. To select students who were high school sophomores as of the spring of 2002, you would use the 10th-grade cohort flag (G10COHRT) along with F1PNLWT.

## Design Effects

Question: Why do I need to take account of design effects when I do my significance testing?

Response: Because the ELS:2002 sample design involved stratification, disproportionate sampling of certain strata (e.g., oversampling of Hispanics), and clustered (e.g., students within a school) probability sampling, the resulting statistics are more variable than they would have been had they been based on data collected from a simple random sample of the same size. However, without accounting for the design, a researcher will underestimate variance estimates, most notably the standard errors (estimated percentages or counts are not affected by the design effects, only by weights) and actually produce estimates that are often much lower than an SRS design. Underestimating your standard errors will lead to inflated  $t$  values in

hypothesis testing. This, in turn, increases the chance of a type I error, rejecting the null hypotheses. This is when a researcher states that two groups are different when in fact they are not. A number of statistical packages (SUDAAN and STATA are two of several possible examples) take account of complex sampling designs in the calculation of standard errors. The AM software does so as well (available for free download at [am.air.org](http://am.air.org)).

### Electronic Codebooks

Question: When I receive my ELS:2002/06 CD, what are some of the steps that I should follow to check out my CD?

Response: The following steps may help you get a better understanding of the ELS:2002/06 data.

#### *Step 1—Make sure that you have the right file*

A general rule that should be followed by all researchers when they receive data from the government or any other source is to check the file for accuracy. Does this file include what you think it does? The following questions should be answered for the ELS:2002 CD.

1. Does the ELS:2002/06 CD contain the files listed in the documentation? Check directory and subdirectories.
2. After running frequencies on selected variables on the data file (e.g., first variable, last variable, and five at random in between first and last), do the frequencies agree with those shown for ECB or user manuals? If not, did you receive the correct version?
3. Do the analysis weights (final nonresponse-adjusted weights) contained on the data files allow you to replicate weighted frequencies found in the user manuals? You may want to run weighted frequencies on a single variable using each of the weights contained on the file.

#### *Step 2—Understanding the data*

Assuming that you performed the above steps and you are confident that the files appear to contain what you hoped they would, it is now time to start learning about the files that you will be working with. Start by asking the following questions:

1. What were the processes involved in getting data from students via questionnaires and cognitive tests to the medium (CD) that you now possess? Just because you did not collect the data does not mean that you do not need to know the procedures that were involved in collecting and processing the data. You also need to understand the quality control checks that were performed by the contractors in processing the data.
2. It is important to realize that some respondents did not respond to entire instruments; other respondents skipped individual items. For example, (a) some refused to complete selected items, (b) some did not reach the end of the questionnaire, (c) sometimes abbreviated versions of instruments were used in data collection, (d) some respondents made illegal skips, and (e) some respondents responded outside valid ranges.

3. What can I do to further my understanding of the cases and variables that I plan to use? You can perform your own quality control procedures by answering the following questions: Are the cases that I selected representative of the population to which I wish to generalize? How do the various breakdowns of the data compare to known population numbers? Is my sample biased—do nonrespondents look different from respondents?

### **Composite Variables**

Question: What are the advantages of using composite variables in my analyses?

Response: Composite variables (also called derived variables, constructed variables, or created variables) were developed for NCES by RTI to help the researcher analyze the ELS:2002 data. These variables were usually created from two or more variables and are often considered to be more accurate measures of the underlying concept than the individual variables that were used to create them. For example, the base-year socioeconomic status variable (BYSES) is a composite variable made up of five separate variables from the base-year parent questionnaire representing both parents' education levels, both parents' occupations, and family income. In addition, these variables have been used by many researchers over time. This provides for a consistent measure to aid in the comparability of findings between studies/research projects. For more information on particular composite variables see the ECB and Data File User's Manual/Data File Documentation.

### **Model Building**

Question: How do I select variables for a working data file?

Response: The following sequence of steps will help you to produce your own working data file.

#### *Model building*

After a researcher understands (1) how the ELS:2002/06 data were collected and processed, (2) limitations of the data, and (3) research issues that can be addressed, he or she is ready to begin selecting variables for his or her working data files.

The working data file will be used to test the models that are derived from previously developed conceptual models. Before a working dataset is created though, the following steps are suggested:

1. Develop a conceptual model—What does prior research suggest is happening with the data (e.g., characteristics of students who are likely to drop out of school)?
2. Determine the predictor variables, intervening processes, and outcomes that can be used to explain the model.
3. Determine which components (variables) of your model can be addressed with ELS:2002/06 variables—If there are multiple sources of data available on the ELS:2002/06 data files, choose the ones that the researcher believes are most reliable and valid. If the variables that the researcher needs are not available on

the ELS:2002/06 files, he/she should consider merging variables from other sources (Census, Common Core of Data) through licensing agreement.

4. Rethink original model—If the variables contained on the ELS:2002/06 data files cannot be used to study original model, rethink the model and either modify the model or choose another dataset.

Once the above steps have been completed, it is time to subset the ELS:2002/06 data files into working data files. The following steps are suggested:

1. Determine which variables are needed from each of the ELS:2002/06 data files. For example, the model may specify that the following variables are needed from selected files. For example, base-year student data on aspirations and hours of homework per week can be used to predict first follow-up outcomes like math proficiency.
2. Determine the analysis population that you wish to work with. This will need to be known so that correct survey questions, filters, and weights can be tagged and included in the extracted files.
3. Use the ECB (E6R) to tag variables and then create a SAS or SPSS system file.
4. Check log of computer runs to determine if program is doing what you want it to do rather than the directions provided by computer program.
5. Run frequencies and/or means on all variables in working data file to serve as codebook and documentation.
6. Document all cases that are excluded from the working data files (e.g., who is being deleted from the analysis).

Question: How do I subset data files?

Response: It is very important for the user of ELS:2002/06 data files to learn the proper techniques for subsetting the data. If a user does not correctly subset the files, there will be extraneous cases on the working data file that can potentially complicate the analyses and result in erroneous findings. Why subset? The ELS:2002/06 data were designed to serve many different audiences. As a result, the data can be subset to represent many different populations (e.g., the 10th-grade class of 2002; the 12th-grade class of 2004; the panel of 10th-graders who participated in the study from the base year through the first follow-up). By applying the analysis weights and utilizing the appropriate flag/universe variables to subset the data, the user can specify the population that is to be examined.



## **Restricted-Use Data**

Question: How do I get a restricted-use license?

Response: While base-year to first follow-up ECB data are available in public use files, there is only a restricted use ECB for base year to second follow-up. Some users may not require direct access to microdata they can manipulate. For them, it may be satisfactory to use the web-based Data Analysis System (DAS). However, for those who need second follow-up microdata, a license must be obtained from NCES. A restricted-file license is available only to users with an institutional affiliation and only to users in the United States. NCES will only accept restricted-use data License applications through its electronic application system (see: <http://nces.ed.gov/statprog/instruct.asp>). More information about applying for restricted-use data licenses is available at <http://nces.ed.gov/statprog/instruct.asp> and in the “Restricted-Use Data Procedures Manual” at <http://nces.ed.gov/statprog/rudman/toc.asp>.

**Appendix C**  
**Synopsis of the ELS:2002 Second Follow-up**  
**Field Test Report**

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## **C.1 Overview of Second Follow-up Field Test**

The purpose of the second follow-up field test of the Education Longitudinal Study of 2002 (ELS:2002) for the National Center for Education Statistics (NCES) was to test procedures, learn what challenges to anticipate for the full-scale data collection, and develop strategies to overcome these obstacles. This report of the second follow-up field test activities will briefly describe the approaches taken, highlight difficulties encountered, and provide recommendations for the full-scale data collection.

The report includes

- a chronologically ordered overview of the study procedures, including sampling, instrument design, data collection, and data file construction;
- a report of results, including the response rates, the effectiveness of the incentives employed, interview length, item nonresponse, item reliability, and coding accuracy; and
- recommendations for the full-scale study.

## **C.2 Procedures**

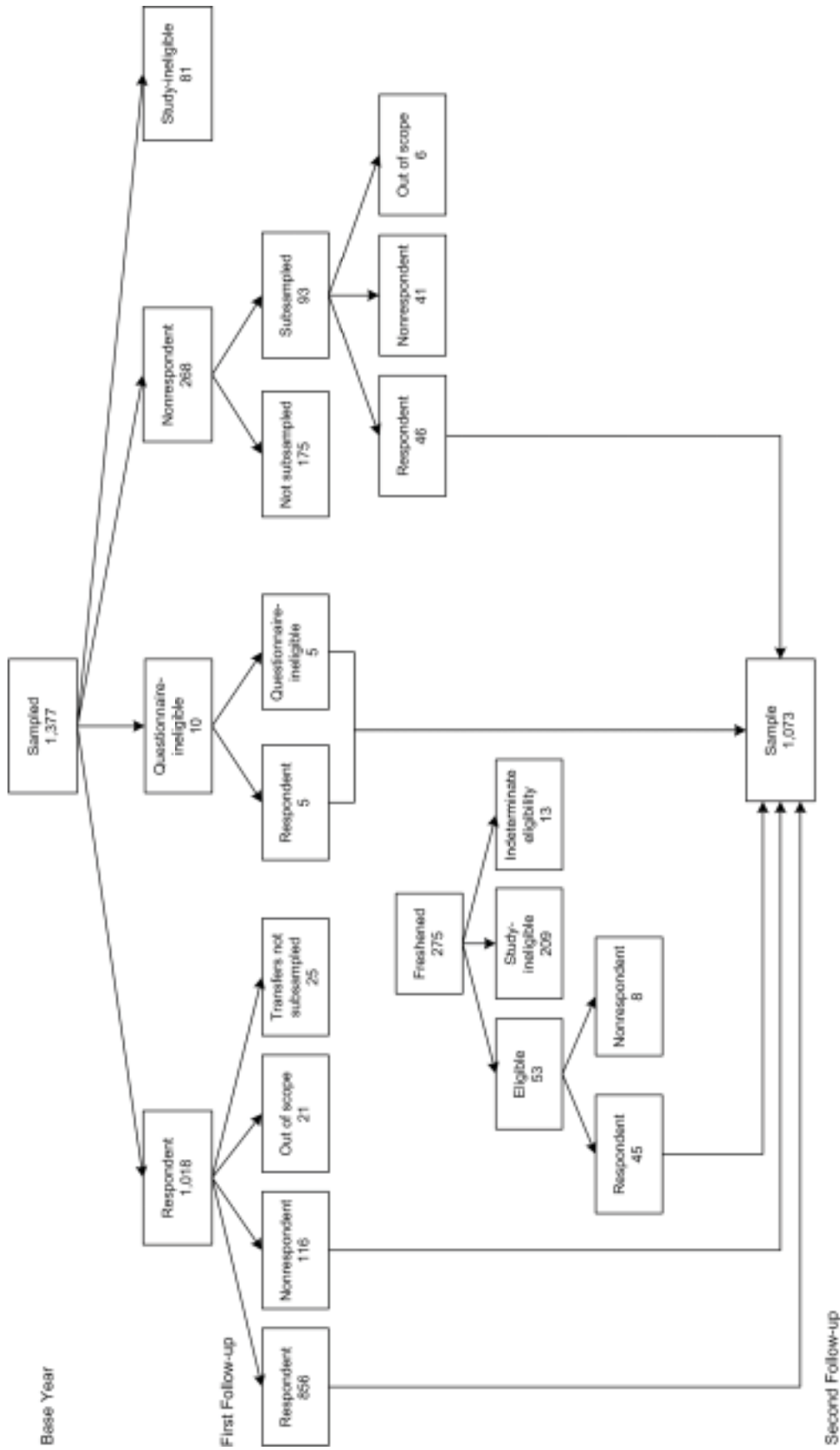
### **C.2.1 Description of Second Follow-up Field Test Sample**

The ELS:2002 second follow-up field test sample members were initially selected either in the base-year field test as 10th-grade students in spring 2001 or in the first follow-up field test as 12th-grade students in spring 2003. The students who were added in the first follow-up field test had not been eligible for selection 2 years earlier. Altogether, 1,073 ELS:2002 sample members were carried forward from the first follow-up field test sample to form the second follow-up field test sample.

As shown in figure C-1, these second follow-up field test members included

- sample members who responded in both the base-year field test and the first follow-up field test (856);
- sample members who responded in the base-year field test but did not respond in the first follow-up field test (116);
- base-year field test nonrespondents who were subsampled and responded in the first follow-up field test (46);
- freshened students (12th-graders in spring 2003 who were not eligible for selection in spring 2001) who responded to the first follow-up field test questionnaire (45); and
- base-year field test questionnaire-ineligible sample members (10).

Figure C-1. ELS:2002 field test base-year sample distribution, first follow-up sample distribution, and second follow-up sample distribution



SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up Field Test."

Those who were found to be out of scope in the first follow-up field test were excluded from the second follow-up field test sample. In addition, there were 49 sample members who were eligible for the first follow-up field test but were not included in the second follow-up field test sample. Most of these were questionnaire-eligible students who did not respond to the questionnaire in both the base-year field test and the first follow-up field test. The remainder were 12th-grade students selected during the freshening process in the first follow-up field test who did not respond to the questionnaire. These sample members were not carried forward, because they were missing both high school data points and therefore had no analytical value. The same approach will be used in the full-scale study.

Of these 1,073 sample members, 31 were found to be out of scope in the second follow-up (26 base-year respondents/F1 respondents and 5 base-year respondents/F1 nonrespondents). Table C-1 shows the distribution of the remaining 1,000 second follow-up field test study-eligible sample members according to their response status.

**Table C-1. ELS:2002 second follow-up field test sample disposition: 2005**

Sample disposition	Eligible sample	Respondent	Percent response rate
Total	1,000	800	75.3
BY respondent/F1 respondent	830	670	80.6
BY respondent/F1 nonrespondent	110	40	39.6
BY nonrespondent/F1 respondent	50	40	76.1
Freshened respondent	50	30	68.9
BY questionnaire-ineligible/F1 questionnaire-ineligible	10	#	20.0
BY questionnaire-ineligible/F1 respondent	10	10	100.0

# Rounds to zero.

NOTE: Detail may not sum to totals because of rounding. BY = base year; F2 = second follow-up field test; F1 = first follow-up field test.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up Field Test."

### C.2.2 Instrument Design and Development

A target interview length of 30 minutes was chosen for the second follow-up field test to balance the competing demands of high response rates and rich data. The expectation was that the length would be further reduced for the full-scale study based on the results of the field test. Given the premium on interview minutes, items were selected with particular care.

The primary research objectives of ELS:2002 are longitudinal. Given that this round of data collection was preceded by two rounds and would be followed by at least one more, two types of items were of highest priority. The first were items that would be predictive of future outcomes; the second were items that would represent near-term outcomes predicted by base-year and first follow-up data. As ELS:2002 is the most recent of the NCES high school cohort studies, a second priority was to replicate some items from these previous studies so that intercohort comparisons could be made. While the National Education Longitudinal Study of 1988 (NELS:88) third follow-up interview served as a springboard for discussions, attention was given to ways to improve upon or update the survey to address current issues.

Instrument developers worked closely with two experts in the field of education research to develop content and questions. In addition to the NELS:88 third follow-up interview, items were also drawn from NCES postsecondary studies such as Beginning Postsecondary Students Longitudinal Study (BPS) and the National Postsecondary Student Aid Study (NPSAS). The second follow-up field test interview had the following seven sections: High School, Postsecondary Education, Work, Finance, Family, Life, and Locating. Dividing the instrument into sections provided a structure to the interview and allowed the instrument to be programmed on a flow basis.

The High School section updated the respondents' high school status since the last interview. In the full-scale interview, respondents for whom complete transcript information is available will be able to skip this part of the section. Additional questions for first follow-up field test nonrespondents ascertained whether the sample member was in the 12th grade or a dropout in the spring term of 2003 so they could be appropriately classified. Questions about dual enrollment and college entrance and other exams rounded out the section.

The Postsecondary Education section only briefly touched on applications to postsecondary institutions, but collected a detailed enrollment history for each institution attended. Respondents were asked about any degrees or certificates earned from their self-identified "main" institution or their intentions to do so. Sample members with nonstandard enrollment patterns were questioned about their reasons for dropping out, transferring, and/or attending multiple schools. Additional information was collected about coursetaking, extracurricular participation, and academic preparation for postsecondary education. The section concluded with questions about educational plans for the future.

The Work section first collected a month-by-month employment history and then focused on the job held longest in the calendar year 2004. These questions were asked only of sample members who had no postsecondary education or students who considered themselves primarily or equally an employee. The final questions pertained to annual earnings in 2004 and occupational expectations.

In contrast to the previous section, the Finance section primarily pertained to those who had some postsecondary education. Items referred to education financing, work experience while enrolled, and spending habits. All respondents answered several questions about debt and dependents.

The final three sections were administered to all sample members. The Family section included questions about marriage, children, and living arrangements. The last substantive section, Life, covered a range of topics including values, volunteering, civic participation, time use, and use of various technologies. The final section, Locating, collected contact information for future follow-ups with the sample members.

As the content for each section of the instrument was finalized, question ordering and logic was determined. Specifications were then entered into the Instrument Development and Documentation System (IDADS). Programmers then expanded upon the specifications downloaded from IDADS to create a fully functional instrument.

As will be the case in the full-scale data collection, a single web-enabled instrument was used in the ELS:2002 second follow-up field test. Given that virtually all of the ELS:2002 field test sample members would no longer be in high school at the time of the second follow-up, a

paper-and-pencil self-administered questionnaire (PAPI SAQ), the primary means of data collection in the base-year and first follow-up, was no longer a viable approach for data collection. Sample members were no longer clustered in schools, so group administration of a PAPI SAQ was neither feasible nor cost-effective. Therefore, a different approach to data collection was needed for the second follow-up. Computer-assisted telephone interviewing (CATI) was the primary means of collecting data. However, the instrument was designed so it could also be self-administered on the Web or loaded onto a laptop computer for field administration. Using the same exact instrument across modes minimized the mode effects inherent in any multimodal study.

### **C.2.3 Data Collection**

#### **C.2.3.1 Overview**

Following is a description of the data collection procedures for the ELS:2002 second follow-up field test. First, the sample maintenance, contacting, and tracing procedures are described in sections C.2.3.2 through C.2.3.4. Data collection procedures in each mode of administration are covered in C.2.3.5. Sections on quality control procedures, incentive payments, and data file construction follow.

#### **C.2.3.2 Sample Maintenance**

Locating and maintaining contact with ELS:2002 sample members was a key challenge of the second follow-up data collection. Following the first follow-up data collection, the young adults in the sample transitioned from high school to college, the workforce, or the military. Given this dispersion, field test sample members were located using several methods.

Sample maintenance and locating efforts for the second follow-up field test sample began in December 2004, several months before the start of data collection in late March 2005. At this point two cost-effective batch tracing services were used: the United States Postal Service (USPS) National Change of Address (NCOA) and Telematch<sup>®</sup>. NCOA provided updated addresses for sample members, especially those who had recently moved. Telematch confirmed or updated the telephone number matched to each sample member at his or her most current known address. These services are most effective when used in this sequence.

Using the contact information confirmed and updated through batch tracing services, a direct mailing was sent to all field test sample members in late January. The mailing consisted of a return postcard for respondents to confirm or update their address, telephone number, and other contact information. The postcard also provided a toll-free number that sample members could call to update their contact information, although almost no sample members chose this option.

#### **C.2.3.3 Contact With Sample Members**

In late March 2005, a packet was mailed to all sample members that included a cover letter, an informational brochure, instructions for completing the interview along with a unique password and user identification, and a toll-free number and e-mail address that could be used to request assistance or pose questions. The toll-free number could also be used to complete an interview with a trained telephone interviewer.

E-mail was another channel of communication employed during data collection. A message from the project director announcing the opening of data collection was e-mailed to 746



sample members for whom an e-mail address had been collected. This e-mail provided instructions for completing an interview via the NCES website and the toll-free number for telephone completion.

Once data collection began, additional contacts were made. About 1 week after the opening of data collection, a reminder postcard was sent to all 904 sample members with a valid address who had not yet completed an interview. The postcard reminded sample members that they would receive an additional \$10 by completing an interview during an early bonus period and again provided instructions for completing an interview via the website or the toll-free number. The postcard also thanked sample members who completed the interview while the postcard was in transit.

During the early bonus period, two reminder e-mails were sent to sample members for whom an e-mail address had been collected. These e-mail notices contained the same information as the postcards. The first e-mail reminder was sent in early April to 646 sample members who had yet to complete the survey. The second was sent just over a week later to 566 sample members and emphasized that the end of the \$10 early bonus period was nearly over.

At various times during data collection, further reminders were e-mailed to sample members and their parents. Three weeks after the early bonus period had ended and outbound calling began, reminder messages were e-mailed to both sample members and their parents. Parents' e-mail addresses had been collected in earlier rounds of data collections. In mid-July, a final reminder was sent to all sample members who had not yet completed an interview to emphasize that only 2 weeks of data collection remained.

Sample members also communicated with ELS:2002 project staff via the toll-free line, or more often, through e-mail. The most frequent reason sample members sent e-mail messages was to request that their study identification number and password be sent, or to report difficulty using them. A small number of field test sample members called the toll-free number. Besides calling for assistance with self-administration of the web survey or to complete the survey by telephone, some sample members or their parents called to update contact information or to decline to participate in the study.

#### **C.2.3.4 Intensive Tracing Procedures**

Intensive tracing activities began a week after outbound CATI calls commenced. Tracing staff used a comprehensive and proven set of procedures to attempt to locate 235 sample members whose contact information proved inaccurate or missing. The located cases were returned to telephone or field data collection, as appropriate, with the updated addresses and telephone numbers. Cases that were not located were sent to field interviewers for field locating along with the historical data generated by intensive tracing efforts.

#### **C.2.3.5 Modes of Data Collection**

Data collection for the second follow-up field test opened on March 30, 2005, when sample members had the option of completing an interview via the ELS:2002 website or calling a toll-free number to complete an interview with a telephone interviewer. Outbound calling for CATI began 3 weeks later. Sample members who were particularly difficult to contact or to enlist in the study were traced in the field. In all modes, the same web-enabled instrument was used by respondents and interviewers.

#### **C.2.3.5.1 Web-enabled Self-administration**

The web-enabled survey option allowed the young adults in the second follow-up field test sample to use a data collection mode familiar to many of them—the Web. It provided them access to the survey at any location where they had internet access, allowed them to complete the survey on their own time and at their own pace, and offered greater privacy through self-administration. To avoid technical problems, the web-enabled survey system was designed to function appropriately in a wide range of computing environments, including different web browsers, different internet connections, and different computer settings.

The web-enabled interview was available for 3 weeks prior to the start of outbound telephone activities. The toll-free project number allowed sample members who wanted to participate via the Web (but encountered technical difficulties in doing so) to receive technical support. Help desk staff communicated with respondents over the telephone and via e-mail. They also offered to conduct a CATI interview with sample members who called in.

#### **C.2.3.5.2 Web-Enabled Computer-Assisted Telephone Interview**

After the first 3 weeks of field test data collection, telephone interviewing staff began calling sample members to either complete an interview or encourage completion via the website. Interviewers followed a set of standardized interviewing procedures that were determined prior to data collection and provided in interviewer training. This not only ensured that all CATI interviewers were following procedures consistently, but also helped to minimize mode effects between self-administration and interviewer administration. The CATI case management system (CATI-CMS) allowed interviewers to record notes for each call. These case history notes were then used by interviewers, supervisors, and other project staff to set appropriate callback days and times and otherwise develop an effective strategy for reaching individual sample members. CATI-CMS automatically scheduled callback times for some routine call results, such as a ring but no answer, busy signal, or answering machine. Interviewers also used CATI-CMS to code cases that could not be reached and interviewed via CATI, such as those who were disabled, unlocatable, or otherwise unreachable, in addition to coding those who initially refused to participate.

#### **C.2.3.5.3 Web-Enabled Computer-Assisted Personal Interview**

Field data collection using computer-assisted personal interviewing (CAPI) started in the beginning of June. Thereafter, cases for field data collection were assigned on a flow basis each week. The two most common reasons to assign cases to the field were that the sample member could not be located by intensive tracing efforts and that the sample member had initially refused to participate. Sample members who were located at a particular address but did not have a telephone were also assigned to field interviewing staff.

Field interviewers generally began efforts to contact each sample member using the “best” telephone number for the subject listed. Because many cases sent for field follow-up did not have a clear best telephone number, field interviewers were often required to visit the sample member’s last known address and, if the sample member was no longer there, initiate field tracing steps. When contact was made with a parent, relative, friend, or neighbor of the sample member, field interviewers asked a recommended set of questions (as appropriate) to generate leads on sample members. Field interviewers recorded all tracing steps and results of contact to maintain a case history for each sample member they attempted to locate and contact.

### **C.2.3.6 Quality Control**

Telephone interviews were monitored for errors in question delivery and data entry. Supervisors also monitored e-mails that Help Desk staff sent to sample members to ensure accurate and appropriate information was being communicated. Starting about 1 week after the opening of data collection, project staff held biweekly quality circle (QC) meetings with interviewers to ensure procedures were being followed correctly and data quality was being maintained. After each meeting, project staff summarized the issues discussed and provided the interview staff with resolutions to any problems in the form of QC memoranda.

### **C.2.3.7 Incentive Payments**

An important element for ensuring high participation rates across all subgroups was the respondent incentive plan for the ELS:2002 second follow-up field test. One of two base incentive amounts was set for each respondent, depending on whether or not they had ever been identified by their school or themselves as a dropout. The base incentive was \$20 for sample members who had no record of a dropout episode and \$40 for those who did. These base amounts were augmented by \$10 when one of the two following conditions was met.

First, to encourage sample members to participate prior to outbound telephone calling, an additional \$10 was paid to respondents who completed the survey via the Web or telephone during the first 3 weeks of data collection, the “early bonus period.” This extra incentive not only served to motivate sample members to participate early via the Web or by calling in, but it also saved the costs associated with telephone and in-person follow-up efforts.

Second, an extra \$10 incentive was offered to those sample members who proved extremely difficult to contact or enlist in the study. Sample members were designated as “difficult” cases based on previous attempts to contact and locate them. Difficult cases were those that met one or more of the following criteria:

- More than 20 calls had been made to contact the sample member without completing an interview.
- The sample member refused to participate in an initial contact.
- The sample member could not be located through any of the telephone numbers previously provided, so the case had to be sent for intensive tracing.
- The case was sent to a field interviewer for field data collection.

### **C.2.4 Data File Construction**

Frequent reviews of data began during data collection to spot any potential problems with the functioning of the instrument. Because a single instrument was used for all three modes of data collection, all response data was stored in the same database. In addition, because all skip logic was the same across modes, only one set of editing rules was required. The majority of editing cleaned out data that were entered into dependent fields where a respondent backed up and changed the response to a gate question. The same process will be implemented in the full-scale study.

All respondent records in the final dataset were verified with the Survey Control System (SCS) to spot inconsistencies. For example, it is possible that data were collected for a respondent that later was set to an ineligible status. The SCS served as a safeguard to ensure that

such data was not delivered. Furthermore, the data files served as a check against the SCS to ensure that all respondent information was included in production reports.

## C.3 Results

### C.3.1 Data Collection Results

#### C.3.1.1 Response Rates Overall

Table C-2 provides the overall response rate for the second follow-up field test data collection. Overall, 75 percent of eligible field test sample members completed an interview.

**Table C-2. ELS:2002 second follow-up field test overall response rate (unweighted): 2005**

	Eligible sample	Percent of total eligible
Total sample	1,000	100.0
Respondents	790	75.3
Nonrespondents	260	24.7

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

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up Field Test."

Table C-3 summarizes the final dispositions of the 260 second follow-up field test nonrespondents. Almost 11 percent of the sample members could not be located through tracing efforts during the data collection period. Nearly 5 percent of the sample members refused to participate in the field test. Another person such as a parent refused on behalf of 3 percent of sample members. Data collection staff was not able to complete an interview with the remaining 6 percent of field test nonrespondents for other reasons. The most common issue among this last set of nonrespondents was that these sample members were rarely at home and parents were not able to help us contact them.

**Table C-3. Final dispositions of nonrespondents in the ELS:2002 field test (unweighted): 2005**

	Nonrespondents	Percent of total eligible	Percent of nonrespondents
Total	260	24.7	100.0
Unable to locate	110	10.9	44.0
Refusal by sample member	50	4.7	18.7
Refusal by other	30	3.0	12.1
Time/effort exhausted	60	6.1	24.9

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

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up Field Test."

In the full-scale study, it will be necessary to achieve an overall response rate of 92 percent. A direct comparison of the response rate achieved in the field test with the needed response rate in the full-scale study is a bit misleading for a number of reasons. First, the full-scale data collection period will be 7 months in duration as compared to 4 months in the field test. Additional time to locate sample members and convert refusals will increase the response rate. In addition, the field test sample has a greater proportion of first follow-up nonrespondents

than the full-scale sample. As will be illustrated later in this report, first follow-up nonrespondents were particularly challenging to locate. Nonetheless, additional effort will be needed to locate enough sample members to achieve the necessary response rate.

### C.3.1.2 Response Rates by Dropout Status

An important subgroup in the ELS:2002 field test data collection was sample members for whom the study had recorded a high school dropout episode. These sample members had been identified as high school dropouts by their high school or in a previous interview. This subgroup is important for three reasons: first, the policy relevance of high school dropouts is particularly high; second, the response propensities of high school dropouts have historically been substantially lower than their peers; and third, extra incentives were allocated to encourage a higher participation rate for this group.

Table C-4 presents the response rates for those who had ever been identified as dropouts compared to those who had never been identified as dropouts. Offering sample members who had been identified as a dropout a higher base incentive (\$40 instead of \$20) appears to have been beneficial. Table C-4 shows that the response rate for dropouts was only about 8 percent lower than the response rate for nondropouts (68 percent versus 76 percent). Given the greater burden typically associated with locating dropouts and encouraging them to participate, the higher incentive amount appears to have been generally effective. Although the field test sample was somewhat limited in size, these results indicate that appropriate procedures in the second follow-up data collection may produce a response rate among dropouts nearly as high as among nondropouts.

**Table C-4. ELS:2002 field test response rates by ever dropout status (unweighted): 2005**

Dropout status, first follow-up	Outcome in ELS:2002 second follow-up field test			
	Overall		Number interviewed	Percent interviewed
	Eligible sample	Percent of total eligible		
Total sample	1,000	100.0	790	75.3
Ever dropped out	90	9.0	60	68.1
Never dropped out	950	91.0	720	76.1

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

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up Field Test."

### C.3.1.3 Response Rates by First Follow-up Response Status

First follow-up nonrespondents, a second important subgroup, constituted 11 percent of the second follow-up field test sample. First follow-up nonrespondents were offered the same \$20 base incentive as first follow-up respondents. Table C-5 shows the second follow-up field test response rates by first follow-up response status. There is a large difference in response rates for first follow-up respondents versus nonrespondents.

**Table C-5. ELS:2002 field test response rates, by first follow-up response status (unweighted): 2005**

First follow-up response status	Outcome in ELS:2002 second follow-up field test			
	Overall		Number interviewed	Percent interviewed
	Eligible sample	Percent of total eligible		
Total sample	1,000	100.0	790	75.3
F1 respondent	930	88.9	740	79.9
F1 nonrespondent	120	11.1	50	38.8

NOTE: Detail may not sum to totals because of rounding. F1 = first follow-up field test.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up Field Test."

While about 80 percent of first follow-up field test participants completed a second follow-up interview, less than 40 percent of first follow-up field test nonrespondents participated in the second follow-up. Locating issues were significant with first follow-up nonrespondents, because for many of them, the available contact information was 4 years old. It is possible that increased incentives for this group would aid in locating them, given that higher incentives may encourage contacted family members or friends to provide information about the respondent's whereabouts. Also, many first follow-up nonrespondents were likely to not be as committed to the study as first follow-up respondents, so they required additional encouragement to participate in the survey.

### C.3.1.3 Evaluation of Incentive Plan

As noted above, second follow-up field test sample members were offered differential incentive payments that varied based on completion during an early period, their dropout status, and the level of effort required to find the sample member and/or gain his/her cooperation. Altogether, field test sample members were offered one of four different incentive amounts, ranging from \$20 to \$50.

Table C-6 shows the number and percentage of respondents and nonrespondents overall and by dropout and first follow-up responses status. Respondents are classified by the incentive they received: the early bonus incentive, the base incentive only, or the difficult case incentive. Almost three quarters (74 percent) of all respondents completed the interview in the early bonus period, which demonstrates the viability of self-administration as the first mode of a multimodal design. However, the early bonus payment was not equally as effective for those who were ever identified as dropouts as compared with those who were not. Only 7 percent of second follow-up participants who had ever dropped out took part during the first 3 weeks of data collection. The early bonus incentive was even less effective for first follow-up nonrespondents (3 percent). This is likely due to the fact that many dropouts and first follow-up nonrespondents were not reached during the early bonus period due to outdated contact information.

**Table C-6. ELS:2002 field test incentive payment distribution overall and by dropout and first follow-up response status (unweighted): 2005**

Incentive payment	All sample members		Dropout status				First follow-up response status			
	Number	Percent	Never dropout		Ever dropout		F1 Respondent		F1 Nonrespondent	
			Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total	1,000	100.0	950	100.0	90	100.0	930	100.0	120	100.0
Early bonus	250	23.6	240	25.2	10	7.4	240	26.2	#	2.6
Base incentive only	290	28.2	260	26.9	40	41.5	280	29.9	20	14.7
Difficult case bonus	240	22.7	220	23.1	20	19.1	220	23.2	20	19.0
Nonrespondents <sup>1</sup>	270	25.4	240	24.8	30	31.9	190	20.6	70	63.8

# Rounds to zero.

<sup>1</sup> This row includes eight respondents who did not receive an incentive because they did not confirm or provide an address for the incentive payment mailing.

NOTE: Detail may not sum to totals because of rounding. F1 = first follow-up field test.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up Field Test."

After the early bonus period, some sample members became eligible for a bonus incentive based on a high number of unsuccessful calls, an initial refusal to participate, the inability to locate them, or the need to pursue them in the field. By the end of data collection, all remaining nonparticipants were eligible for the difficult case bonus. Therefore, all final nonrespondents were classified as difficult cases.

Table C-6 shows that almost half of all sample members met at least one of the criteria for the difficult bonus offer (48 percent; 23 percent difficult case bonus respondents plus 25 percent nonrespondents). Of the sample members with some indication of a dropout episode, 51 percent eventually qualified for the difficult case bonus (19 percent of difficult case bonus respondents plus 32 percent nonrespondents). In contrast, 83 percent of first follow-up field test nonrespondents became eligible for this bonus (19 percent of difficult case bonus respondents plus 64 percent nonrespondents). Recall that first follow-up field test nonrespondents were not offered a higher base incentive as dropouts were.

As displayed in Table C-7, almost half (47 percent) of those who were offered the difficult case bonus eventually completed the interview. These results varied by dropout and first follow-up response status. Thirty-eight percent of dropouts and 23 percent of first follow-up nonrespondents completed the interview once the difficult case bonus was offered.

**Table C-7. ELS:2002 field test response rate among difficult cases, overall and by dropout status and first follow-up response status (unweighted): 2005**

	All difficult cases		Dropout status				First follow-up response status			
	Number	Percent	Never dropout		Ever dropout		F1 Respondent		F1 Nonrespondent	
			Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total	500	100.0	450	100.0	50	100.0	410	100.0	100	100.0
F2 respondents	240	47.2	220	48.2	20	37.5	220	53.0	20	22.9
F2 nonrespondents <sup>1</sup>	270	52.8	240	51.7	30	62.5	190	47.0	70	77.1

<sup>1</sup> This row includes eight respondents who did not receive an incentive, because they did not confirm or provide an address for the incentive payment mailing.

NOTE: Detail may not sum to totals because of rounding. F1 = first follow-up field test.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up Field Test."

### C.3.1.4 Modes of Participation

Table C-8 shows the distribution of respondents across the three survey modes of participation. These figures show that nearly half of all field test interviews were completed by CATI (49 percent). Over one third of participants self-administered the web-enabled interview (37 percent), and the remaining 15 percent of respondents completed a CAPI interview.

**Table C-8. ELS:2002 field test respondents, by mode of administration (unweighted): 2005**

Mode of administration	Number of respondents	Percent of respondents
Total	790	100.0
Web	290	36.7
CATI	380	48.8
CAPI	110	14.5

NOTE: Detail may not sum to totals because of rounding. CATI = computer-assisted telephone interview; CAPI = computer-assisted personal interview.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up Field Test."

### C.3.1.5 Interview Length

The goal in the second follow-up field test was to design a 30-minute instrument with the expectation that the length would be reduced for the full-scale interview after assessing the quality of the items. This length allowed RTI to field test a sufficient number of items without significantly compromising interview response rates. Interview timing was analyzed overall, by mode of administration, and by respondents' status as student or employee.

Table C-9 shows the average length of the interview overall and by each interview section. Overall, the interview took 33 minutes to complete, about 3 minutes longer than planned. The sections covering postsecondary education and work were the longest, as intended. Two sections ran longer than expected. The Life section, which covered a range of topics including values, community involvement, and use of technology, approached the length of the Postsecondary and Work sections. The final section of the interview, in which contact information is collected for future follow-up, was over a minute longer than the typical 5 minutes allotted to it.



**Table C-9. Average length of interview, by interview section: 2005**

Interview section	Number of cases	Average time
Total interview <sup>1</sup>	744	33.3
High school	761	2.3
Postsecondary education	768	8.8
Work	773	7.3
Finances	759	1.5
Family	757	1.3
Life	767	5.8
Locating	763	6.4

<sup>1</sup> Note that the number of cases on which the averages are based fluctuates across sections. This is because timings greater than 3 standard deviations from the mean were removed from analyses. These fluctuations are mostly accounted for among web respondents. One likely reason for this is that web respondents are more likely to complete part of the survey and resume at a later time.

NOTE: Average time in minutes.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up Field Test."

Given that first follow-up nonrespondents and dropouts are generally more reluctant to participate, and perhaps less tolerant of a long interview, timing analyses were also conducted for these subgroups. On average, the interview took 34 minutes to complete for both first follow-up nonrespondents and dropouts as compared to 33 minutes for all respondents.

Table C-10 shows the average length of the interview overall and by mode of administration for all respondents. While the average length of the interview across modes was 3 minutes longer than intended, the length of the interview was on target for web self-administration at an average of 30 minutes per complete. The CATI and CAPI interviews ran long by 4 minutes and 7 minutes, respectively. The added minutes for the CATI and CAPI interviews were largely attributable to the Work, Life, and Locating sections.

**Table C-10. Average time to complete field test student interview, by mode: 2005**

Mode	All respondents	
	Number of cases	Average minutes
All modes	740	33.3
Web self-administration	260	30.4
CATI	380	34.3
CAPI	110	37.0

NOTE: Detail may not sum to totals because of rounding. CATI = computer-assisted telephone interview; CAPI = computer-assisted personal interview.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up Field Test."

The length of the interview was also compared for three different routes through the interview. In an effort to reduce the average length of the interview, the instrument was designed to selectively administer questions based on the respondents' status as a student or employee. If a respondent had attended a postsecondary institution and had also worked, the respondent was asked if he or she considered him- or herself to be primarily a student, primarily an employee, or equally a student and an employee. Based on their responses, participants with dual roles were asked a full battery of questions about their primary role and a smaller set of questions about

their secondary role. Those who identified themselves as equally a student and an employee were administered the full set of items for both roles.

Table C-11 displays the average length of the interview by identification as a student, employee, or both. Respondents who were only or primarily postsecondary students completed the interview in 31 minutes on average. Those who were not students or who identified themselves primarily as employees took over 33 minutes. Not surprisingly, the average interview time was greatest for those who identified equally with their role as a student and as an employee. On average, these respondents spent 37 minutes answering questions.

**Table C-11. Average length of interview, by interview section and role identification: 2005**

Interview section	Primarily/only student		Primarily/only employee		Equally	
	Number of cases	Average time	Number of cases	Average time	Number of cases	Average time
Total interview <sup>1</sup>	272	30.8	229	33.4	226	36.8
High school	280	2.3	230	2.4	234	2.2
Postsecondary education	281	10.4	235	5.3	235	10.9
Work	287	2.9	234	10.6	235	9.6
Finances	271	2.0	234	1.1	238	1.5
Family	280	1.2	229	1.5	232	1.3
Life	279	5.9	234	5.6	237	5.9
Locating	282	6.2	228	6.9	238	6.0

<sup>1</sup> Note that the number of cases on which the averages are based fluctuates across sections. This is because timings greater than 3 standard deviations from the mean were removed from analyses. These fluctuations are mostly accounted for among web respondents. One likely reason for this is that web respondents are more likely to complete part of the survey and resume at a later time.

NOTE: Average time in minutes.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up Field Test."

Most of this variation in overall interview length can be attributed to variation in the time elapsed in the postsecondary education and work sections. Respondents who were postsecondary students only or primarily so, like those who identified equally as students and employees, completed the Postsecondary Education section in about 10 minutes. However, the ones who considered themselves equally employees had the added burden of the full set of employment questions. The student group completed the Work section in about 3 minutes, whereas the equally employee group took almost 10 minutes.

The longer-than-anticipated average interview length for some subgroups did not have a deleterious effect on interview completions once the respondent had begun the survey. Only five respondents did not complete their interview after they had finished the High School and Postsecondary Education sections.

### C.3.2 Data Quality Analyses

#### C.3.2.1 Item Nonresponse

The quality of the data was assessed to guide selection of items for the full-scale survey. Item nonresponse rates were one measure of data quality that was evaluated. Item nonresponse rates were very low overall. Only two items were skipped by more than 5 percent of respondents.

The first of these items asked respondents what they expected their total annual income to be at 30 years of age. While about 111 respondents skipped the question (14 percent), 69 of these had previously reported that they did not know what occupation they expected to have at that age. It is reasonable to assume that most of these respondents would have chosen a “don’t know” option had it been provided.

The only other item with a nonresponse rate greater than 5 percent was the question about total annual earnings in 2004. This is not surprising given that open-ended questions about earnings are well-known to be sensitive items that tend to have relatively high nonresponse rates. In anticipation of this issue, a follow-up question was asked of those who did not provide their 2004 earnings. These respondents were asked to choose the range which included their earnings level. Ranges allow respondents to provide information without indicating their precise income. In addition, respondents who are not sure of their precise earnings may feel more comfortable providing an estimate if ranges are provided. While 97 respondents (12 percent) did not report their earnings in the open-ended question, only 25 (3 percent) did not choose an earnings category.

### **C.3.2.2 Reliability**

A subsample of 64 CATI respondents was selected at random to complete a reinterview designed to assess the temporal stability of selected interview items. Information and gate questions from the initial interview were preloaded in the reinterview to ensure that questions were asked in the same way and with the same wording across the two interviews. Reinterviews were conducted in CATI about 3 weeks following the completion of the first interview. By the end of data collection, 49 respondents had completed a telephone reinterview.

The reinterview consisted of questions newly written for the second follow-up field test that were of critical importance, either for their substance or for their impact on routing, or questions that had previously had their reliability called into question. Items were not selected if it was anticipated that the correct response may in fact change within a period of several weeks or not enough respondents would be administered the item to yield sufficient data for analysis. Sixty-three items were selected, but six of these were administered to fewer than 30 respondents and were eliminated from the analysis. The remaining 57 items are displayed in table C-12. Percent agreement was based on cases where a response was provided in both interviews. Percent agreement ranged from 43 percent to 100 percent, with two thirds of the items having matched responses in at least 75 percent of the cases.

Ten of the items with less than 75 percent agreement were subitems to two questions in the postsecondary education section. The first of these questions asked respondents to indicate whether various reasons explained why they had chosen to attend their postsecondary institution. Percent agreement ranged from 64 percent to 83 percent across these reasons for attending with three reasons matching less than 75 percent of the time. Location, affordability, and ability to work while in school were matched in 72 percent, 64 percent, and 72 percent of the cases respectively.

The second question asked postsecondary attendees how well their high school courses in various subject areas had prepared them for postsecondary institutions: not at all, somewhat, or a great deal. The percent agreement for these ratings ranged from 49 percent to 72 percent. The ratings of preparation in core high school subjects such as mathematics, English, and history/social studies had higher percent agreement (72 percent, 67 percent, and 69 percent) than

foreign languages, vocational-technical, and visual art courses (all 49 percent). The overall reliability is likely to be improved by asking respondents about their preparation for a specific institution they had attended instead of postsecondary institutions in general.

The remaining items with low reliability were subitems in two questions in the Life section of the interview. One of these questions asked all respondents how frequently they used their public library for various purposes; never, rarely, sometimes, or often. All but one of the subitems had matched responses in fewer than 75 percent of the cases, ranging from 59 percent to 71 percent. The time frame was not specified in the questions, so the respondents' reference period may have differed from the first administration to the second. The other question asked respondents how many hours per day they spent watching television on weekdays and weekend days. Categorical response options were provided. Percent agreement was 50 percent for weekdays and 43 percent for weekend days. Both library usage and television viewership is likely to differ during the school year and summer break. Because some reinterviews were administered during the summer months, temporal stability may have been compromised for these cases.

**Table C-12. Questions included on reliability reinterview, by variable label: 2005**

Variable label	Percent agreement	N
High school		
Type of high school credential received	97.4	38
Ever took course for college credit while in high school (not AP/IB)	97.5	40
Postsecondary Education		
Whether took off more than 4 months at first postsecondary school	80.6	36
Attended main school for reputation of school/program/faculty	75.0	36
Attended main school for financial aid package	80.6	36
Attended main school for location	72.2	36
Attended main school for affordability	63.9	36
Attended main school for ability to work while in school	72.2	36
Attended main school because only school accepted application	83.3	36
Attended main school for other reason	83.3	36
Took postsecondary course in evening	80.6	36
Took postsecondary course on weekends	97.2	36
Took postsecondary course at satellite campus location	97.2	36
Took postsecondary course online	94.4	36
Did not take postsecondary course online/in evening/weekends/satellite location	86.1	36
Took reading skills course in postsecondary school	83.3	36
Took basic writing skills course in postsecondary school	75.0	36
Took high school level math in postsecondary school	83.3	36
Took another basic skills course in postsecondary school	91.7	36
Took another postsecondary basic skills course	80.6	36
Took none of these basic skills courses in postsecondary school	77.8	36
Took college algebra in postsecondary school	88.9	36
Took finite/computer math in postsecondary school	97.2	36
Took statistics in postsecondary school	94.4	36
Took precalculus in postsecondary school	91.7	36
Took calculus in postsecondary school	94.4	36
Took math course more advanced than calculus in postsecondary school	100.0	36
Took technical math in postsecondary school	88.9	36
Took other math in postsecondary school	88.9	36
Did not take math in postsecondary school	86.1	36
High school math prepared for postsecondary school	72.2	36
High school science prepared for postsecondary school	51.4	35
High school English/communication prepared for postsecondary school	66.7	33
High school history/social science prepared for postsecondary school	69.4	36
High school foreign language prepared for postsecondary school	48.6	35
High school voc/technical courses prepared for postsecondary school	48.6	35
High school visual arts courses prepared for postsecondary school	48.6	35

See notes at end of table.

**Table C-12. Questions included on reliability reinterview, by variable label: 2005—Continued**

Variable label	Percent agreement	N
<b>Family</b>		
Household roster—lives alone	93.9	49
Household composition—friends	80.0	40
Household composition—biological father	90.0	40
Household composition—male guardian	100.0	35
Household composition—biological mother	83.3	42
Household composition—female guardian	100.0	35
Household composition—siblings	76.2	42
<b>Life</b>		
Registered to vote	95.9	49
Use of public library for leisure reading	71.4	49
Use of public library for Internet access	59.2	49
Use of public library to read magazines/newspaper	67.4	46
Use of public library for personal interests outside of school	59.2	49
Use of public library for databases	65.3	49
Use of public library for programs or training	87.2	47
Whether has own cell/mobile phone	95.9	49
Whether has own personal digital assistant	91.5	47
Whether has own desktop computer	87.8	49
Whether has own laptop computer	97.9	48
Hours/day spent watching TV/DVD on weekdays	50.0	48
Hours/day spent watching TV/DVD on weekend days	42.9	49

NOTE: AP = advanced placement; IB = international baccalaureate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up Field Test."

### C.3.2.3 Quality of Online Coding

The ELS:2002 field test instrument included tools that allowed online coding of literal responses for occupation and field of study. For occupation, sample members were asked about the job they held the longest in 2004 or the job they expect to have at the age of 30, or both. Occupations were coded into one of 52 categories. For field of study, sample members were asked about the degree they intended to complete.<sup>1</sup> The code frame for field of study included 192 categories.

Coders first entered text to describe the occupation or the field of study. Occupation coding was done with a set of three sequential dropdown menus, each with choices increasing in their level of specificity. The first dropdown menu contained a general list of occupations. The options presented in the second dropdown were dependent on the code selected in the first. Some selections from the second dropdown required coders to make a selection from a third, more detailed dropdown menu. The field-of-study coder operated differently. While the occupation coder was independent of the textual response, the field-of-study coder was influenced by it. Coders were presented with a customized list of fields of study based on the text string they entered. Coders had the option of selecting one of the fields of study listed or choosing the "none

<sup>1</sup> Respondents who had already completed a degree were asked to code the field of study in which it was earned. However, too few sample members had earned a degree to allow for a meaningful analysis of coding quality.

of these” option. Selecting “none of these” brought the coder to a two-tiered dropdown menu that operated like the triple dropdown menu of occupations. For both the occupation and field of study coders, interviewers were provided coding guides and trained to use probing techniques to assist in the online coding process. Self-administered web respondents were provided limited supporting text on screen.

Coding experts evaluated coding quality overall and by mode of administration. A 30 percent sample of the pairs of verbatim strings and codes was selected for analysis. Expert coders who were unaware of the codes selected during the interview evaluated the verbatim strings and assigned codes. Cases were not coded when the verbatim string lacked sufficient clarity or specificity.

Table C-13 shows the results of the recode analysis overall and for each coding system. Overall, 64 percent of the codes selected during the interview were determined to be correct. Coding accuracy ranged from 60 percent for occupation expected at age 30 to 70 percent for intended field of study. Taken together, about 6 percent of the text strings were too vague to evaluate. However, all of the text strings associated with the occupation held in 2004 had sufficient specificity to be coded. In contrast, 8 percent of the text strings for occupation expected at age 30 and 11 percent of the text strings for the intended field of study were too vague to code.

**Table C-13. Summary of ELS:2002 first follow-up field test recode results: 2005**

Type of coding	Coding attempts sampled	Percent original code correctly	Percent text string too vague to code
Total	494	64.2	6.1
Occupation in 2004	153	64.7	0.0
Occupation at age 30	201	59.7	7.5
Intended field of study	140	70.0	10.7

NOTE: ELS:2002 = Education Longitudinal Study of 2002.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), “Second Follow-up Field Test.”

Table C-14 displays the results of the analysis of coding quality by mode of administration. Overall, the correct code was selected for 64 percent of the selected cases in both modes of administration: interviewer administered via CATI/CAPI and self-administration via the Web. Statistically significant differences by mode were not detected for any of the coding systems. Coding accuracy ranged from 60 percent to 69 percent for CATI/CAPI, whereas accuracy ranged from 56 percent to 76 percent for self-administration via the Web.

**Table C-14. Summary of ELS:2002 first follow-up field test recode results, by mode of interview administration: 2005**

Type of coding	CATI/CAPI			Self-administration via the Web		
	Coding attempts sampled	Percent original code correct	Percent text string too vague to code	Coding attempts sampled	Percent original code correct	Percent text string too vague to code
Total	320	64.1	6.9	174	64.4	4.6
Occupation in 2004	105	68.6	0.0	48	56.3	0.0
Occupation at age 30	137	59.9	8.8	64	59.4	4.7
Intended field of study	78	65.4	12.8	62	75.8	8.1

NOTE: CATI = computer-assisted telephone interview; CAPI = computer-assisted personal interview.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up Field Test."

## C.4 Recommendations for the Full-Scale Study

In general, the field test effort confirmed that the data collection procedures would be appropriate and successful for the full-scale study. Nonetheless, several modifications have been recommended and implemented for the full-scale study. With respect to data collection, it was learned that parents continue to act as gatekeepers for the sample members even though the sample members are no longer minors. A concerted effort must be made in the full-scale study to convince parents of the value of the study so they cooperate and share information with their children. The full-scale study procedures include dual mailings to both the sample members and their parents. These procedures will ensure at both the sample maintenance and data collection stages that parents are aware of the procedures for the second follow-up. Direct mail and e-mail contacts with parents will also allow parents to provide updated contact information for their young adults. Also, because the majority of phone numbers available for sample members are numbers for their parents' homes, CATI procedures will be in place to guide interviewers on how to appropriately ask for and record new contact information for sample members from parents. Successful contacts with parents will be an important part of interviewer training for the full-scale study.

The use of a larger incentive for sample members classified as dropouts proved to be very successful. The response rate for dropouts approached the rate for the rest of the sample. This was highlighted in comparison with the low response rate for first follow-up field test nonrespondents. Like dropouts, previous-round nonparticipants typically have lower rates of cooperation than their participating counterparts. However, while dropouts received a higher amount, the first follow-up field test nonrespondents were offered the standard incentive amount. The response rate for first follow-up field test nonrespondents was about half that of the rate for first follow-up field test respondents. Based on this evidence, it is strongly recommended that the greater incentive amount be offered to both dropouts and first follow-up field test nonrespondents.

The survey instrument proved to take more time to complete on average than had been anticipated. Analysis of the timing data by respondent types demonstrated that the interview was considerably longer for sample members who equally identified with their student and employee roles. About one-third of the respondents reported that they considered themselves equally students and employees, and as such, were asked to complete a long battery of questions about



each role. For the full-scale study, the project staff recommends constructing two mutually exclusive paths through the postsecondary and employment sections of the interview to reduce the average minutes per complete.

Another aspect of the instrument that warrants review is the occupation and field-of-study coding applications. Post-hoc codes of verbatim strings by expert coders matched the codes selected during the interview in 60 to 70 percent of the cases, depending on the question. The project staff recommends using an assisted coder for occupation coding as well as field-of-study coding. In addition, a thorough review of the keywords used to match verbatim strings to response offerings is recommended to increase the proportion of correct codes selected during the interview by CATI/CAPI interviewers and web respondents.

# **Appendix D**

## **Data File Documentation Errata**

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The following errata appear in the *Base-Year to First Follow-Up Data File Documentation* at page 36 (table 5), where the variable names for IRT-estimated number-right scores in mathematics are misstated. The variable name BYTXMIR2 should be F1TXMBIR. The variable name F1TXMIR2 should be F1TXM1IR. The appropriate variable name for the rescaled base-year IRT-estimated number-right score (F1TXMBIR) appears correctly in chapter 2 of this report. The appropriate variable name for the first follow-up IRT-estimated number-right score (F1TXM1IR) also appears correctly in chapter 2 of this report.

In the *Base Year Data File User's Manual* and in the *Base-Year to First Follow-Up Data File Documentation* the following misstatement occurs: “ $w$  is the estimated population and  $y$  is a 0/1 variable indicating whether or not a certain characteristic is present for the sample member.” The corrected statement is: “ $w$  is the sample weight and  $y$  is a 0/1 variable indicating whether a certain characteristic is present for the sample member.” The misstatement may be found on page 100 (footnote 38) of the base-year report, and on page 90 (footnote 25) of the base-year to first follow-up report.

**Appendix E**  
**Flow Chart and Facsimile for the Second**  
**Follow-up Questionnaire**

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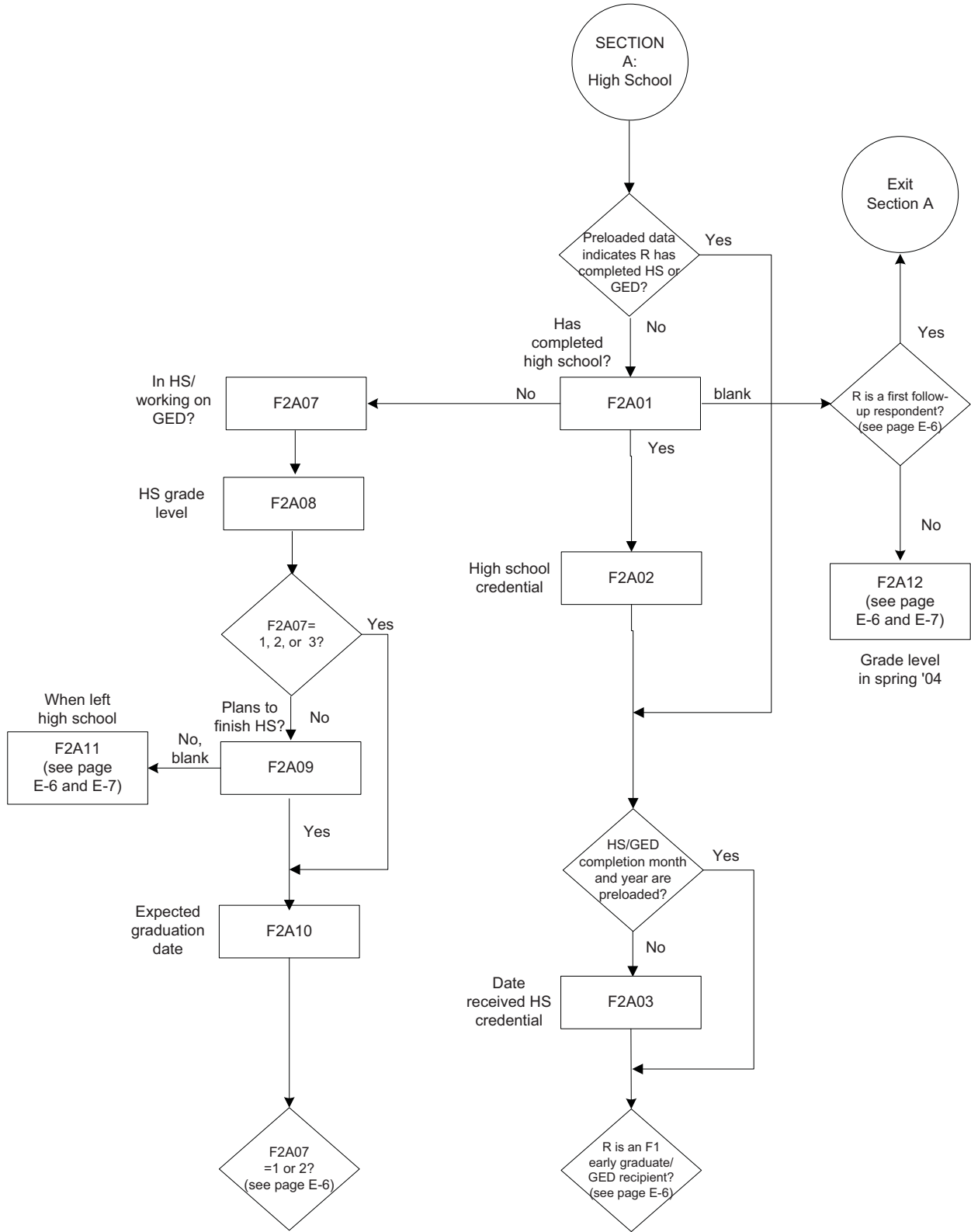


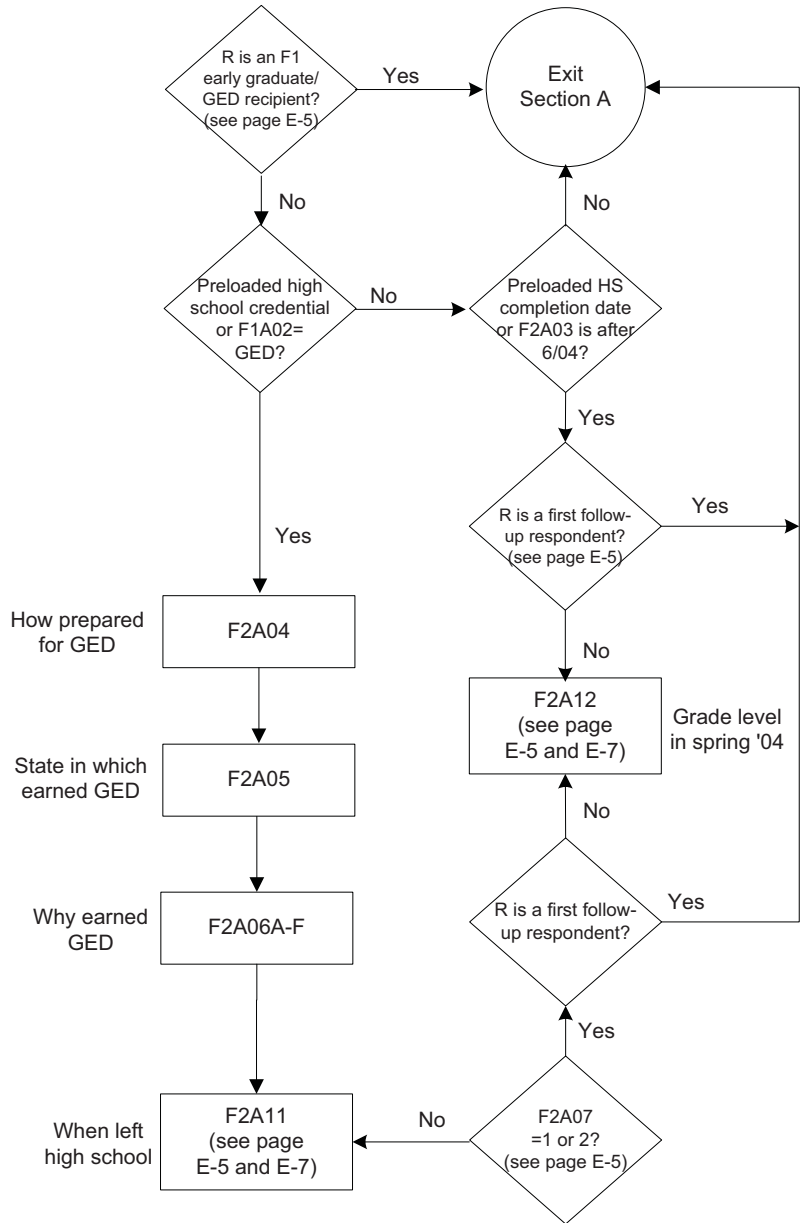
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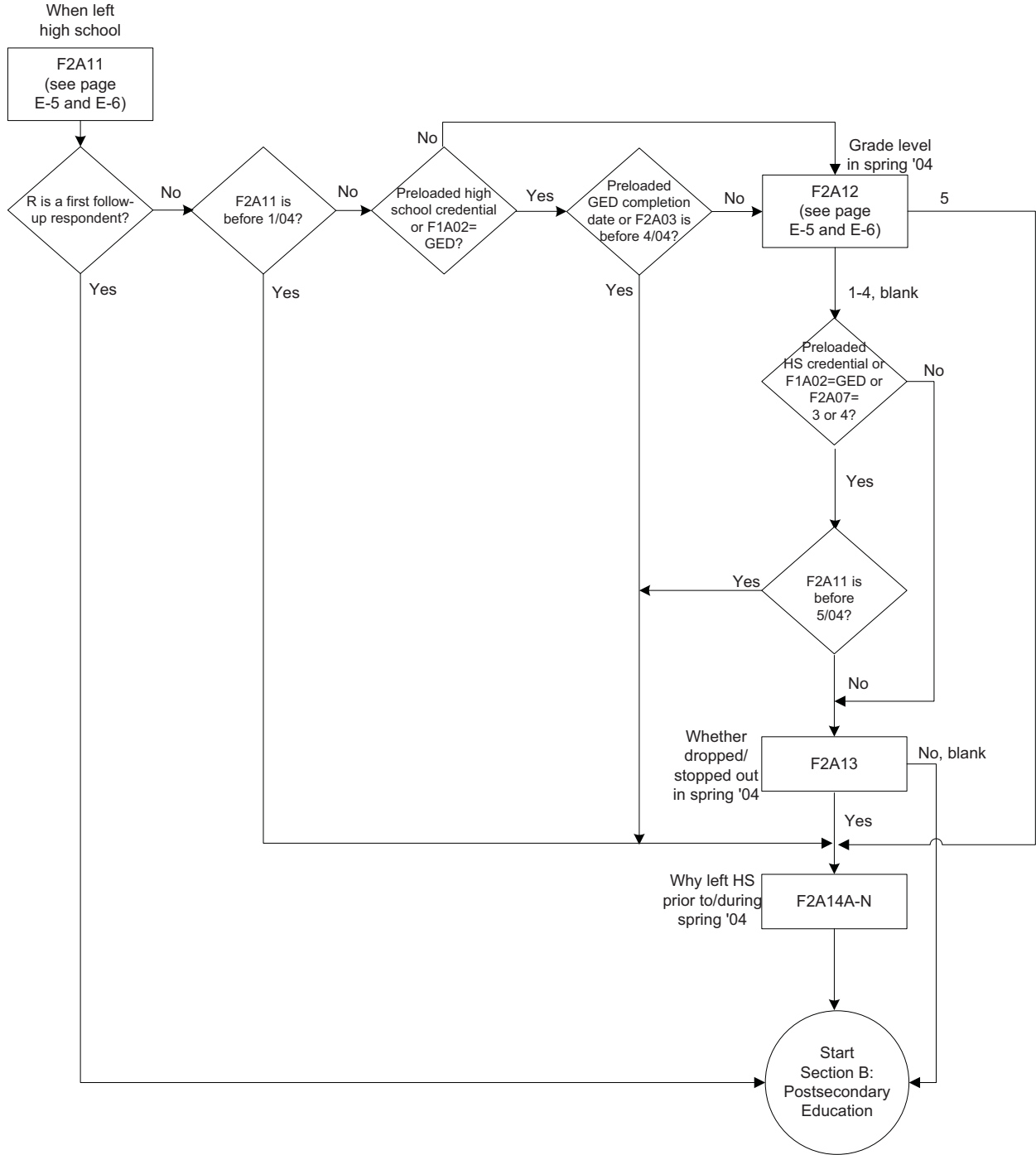
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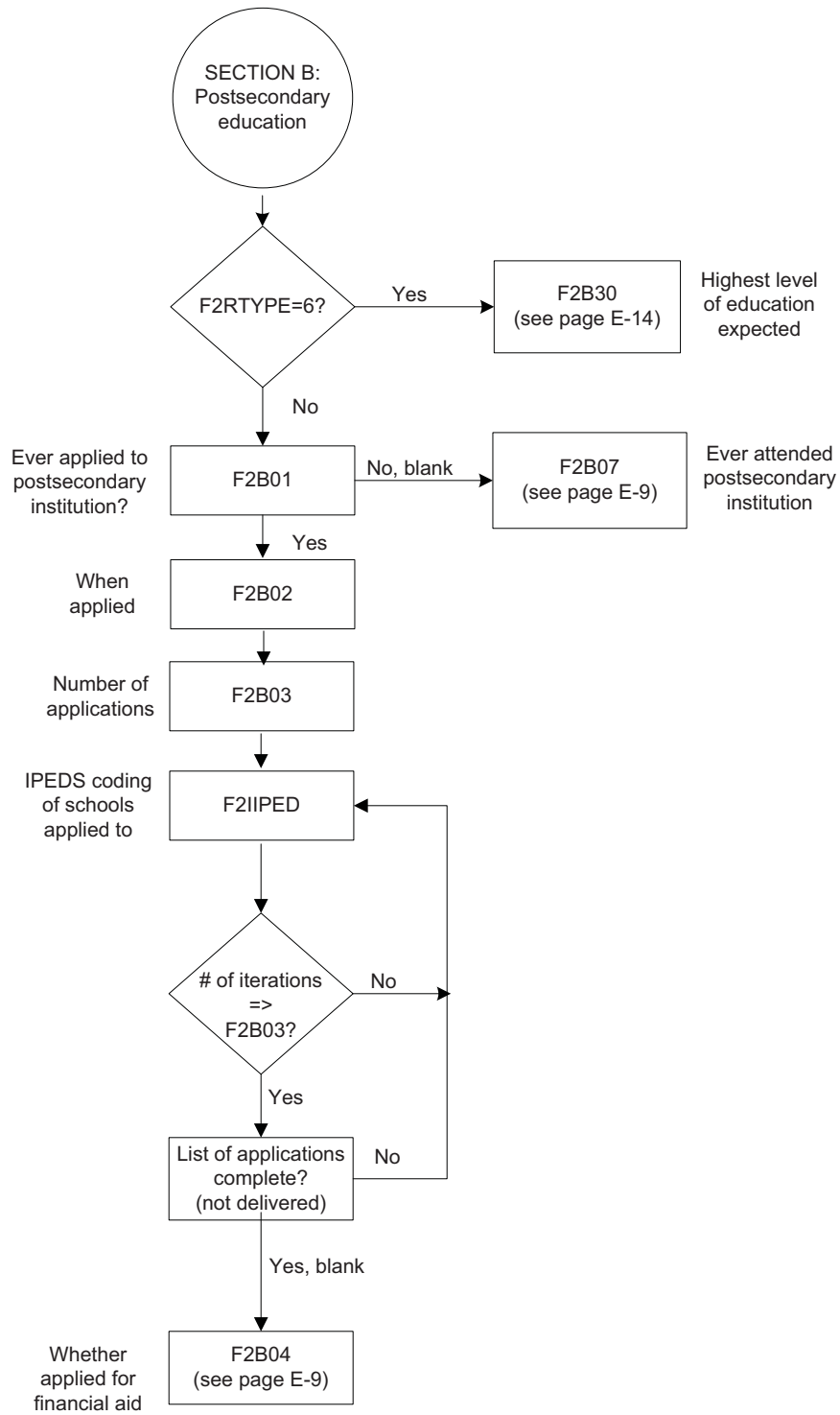


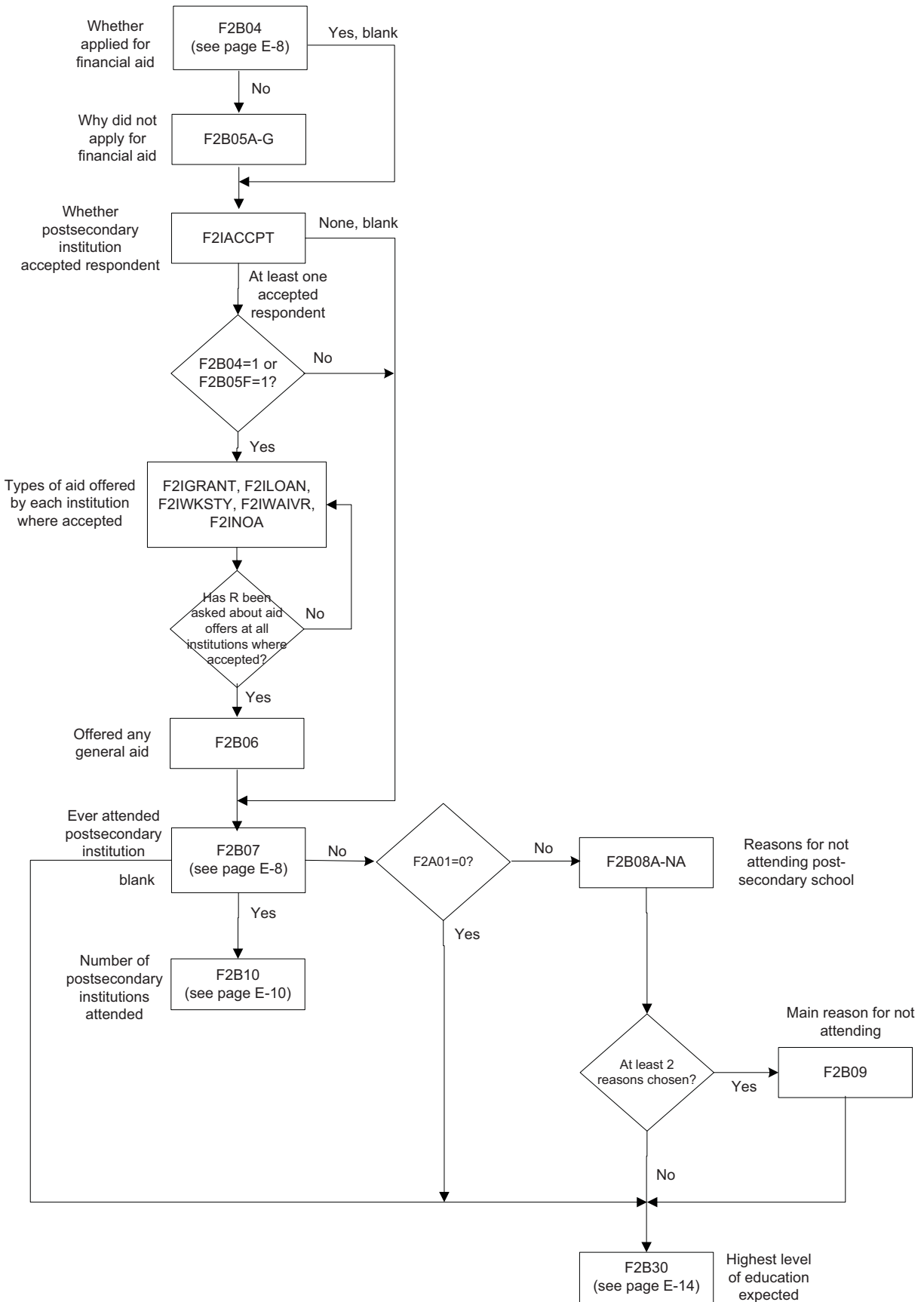


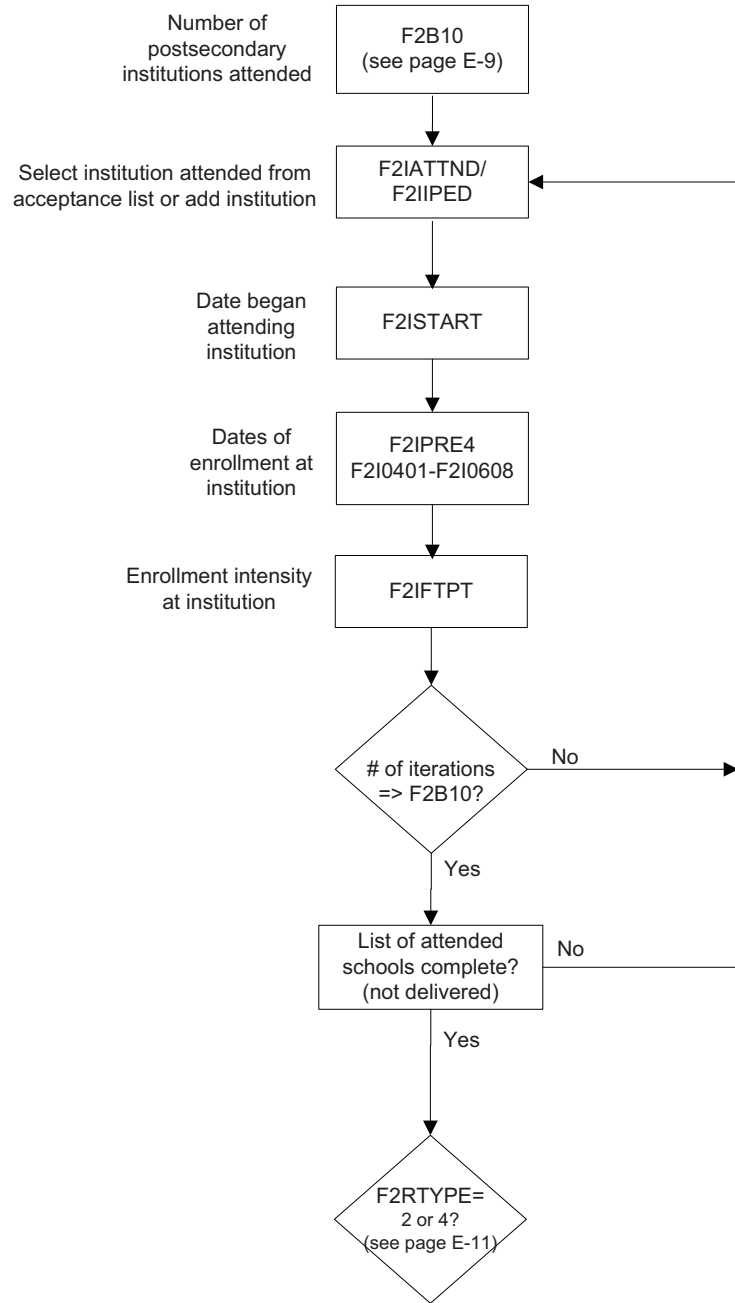


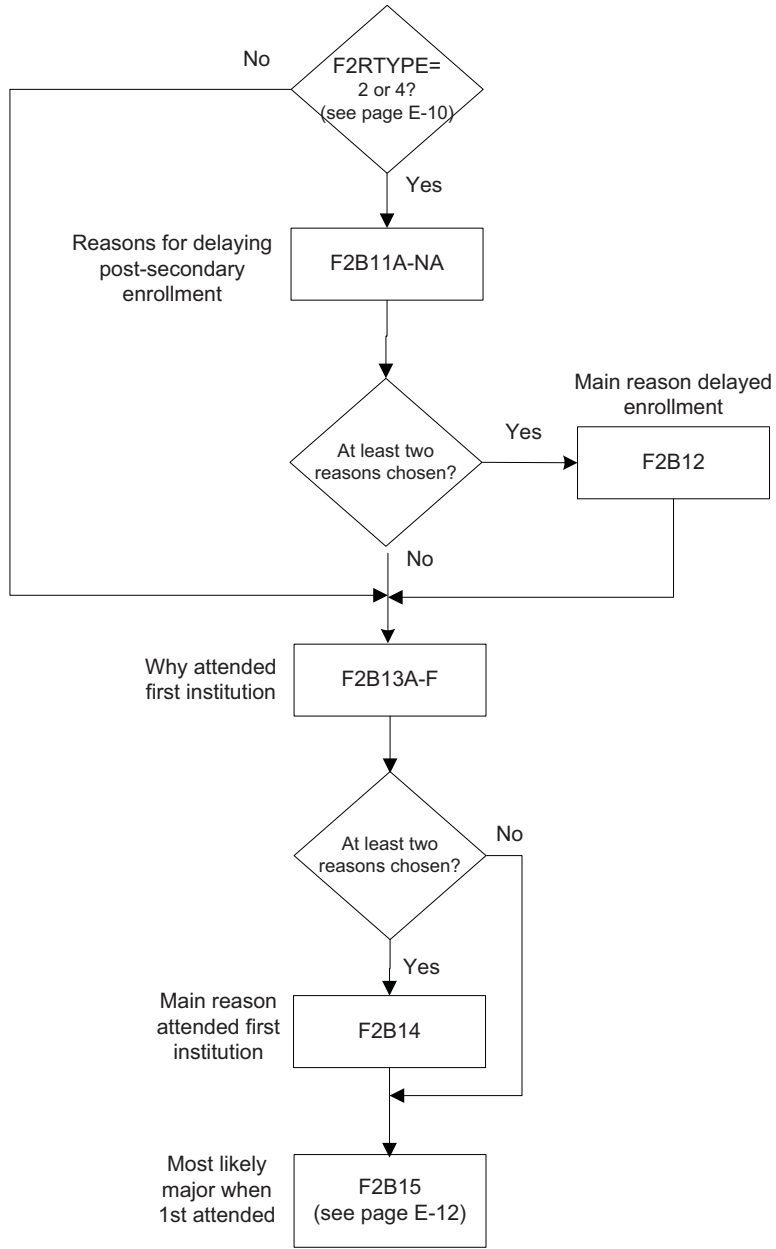


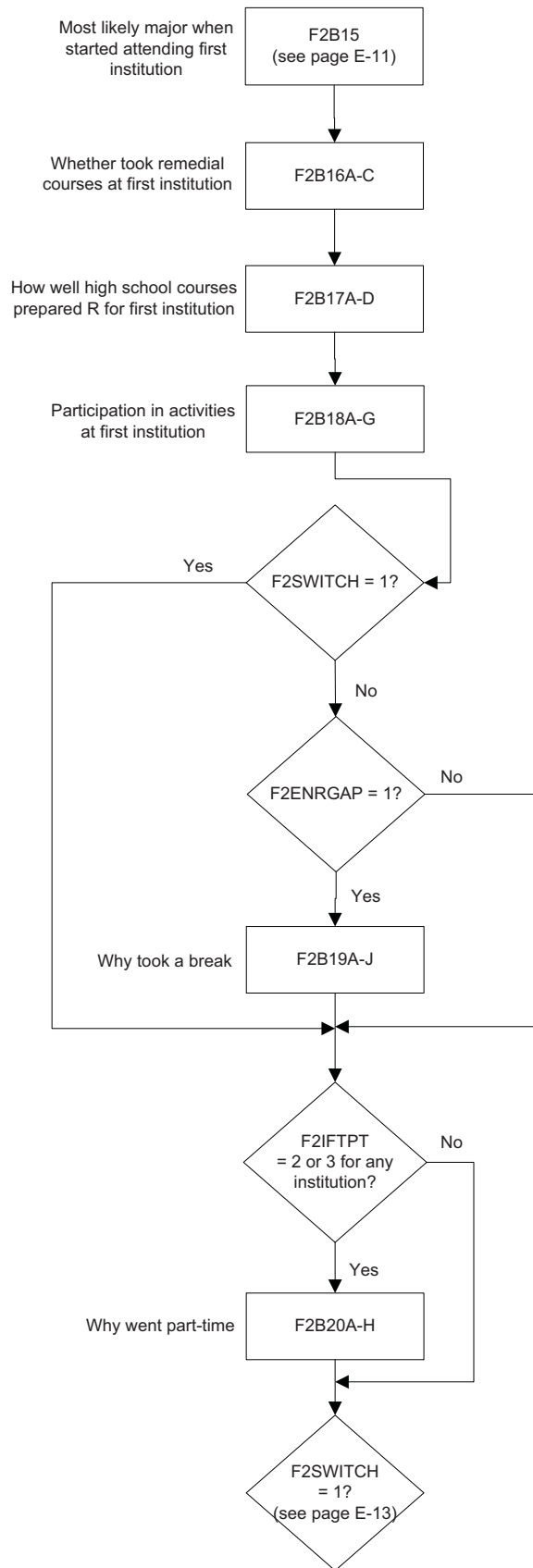




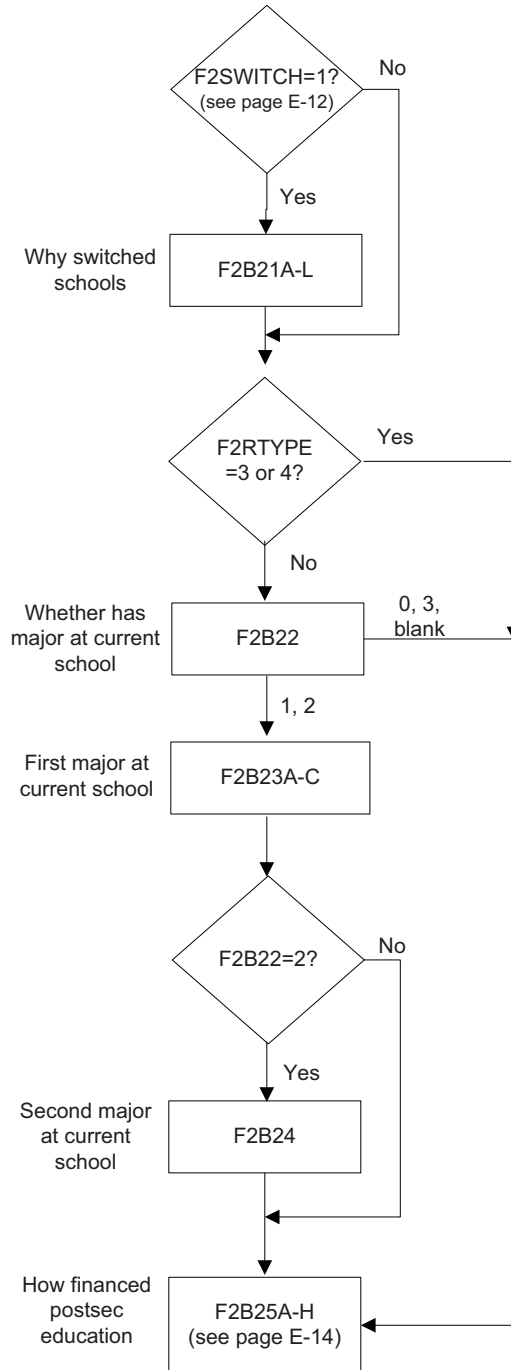


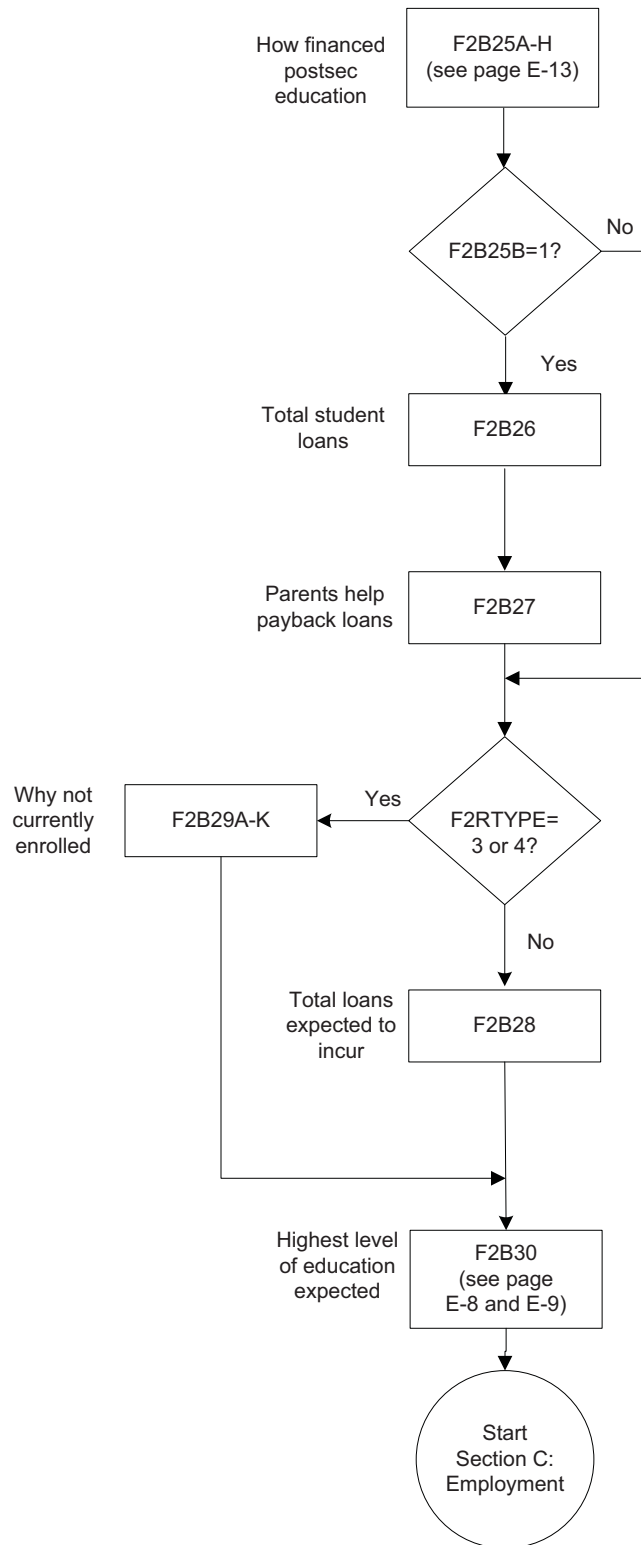


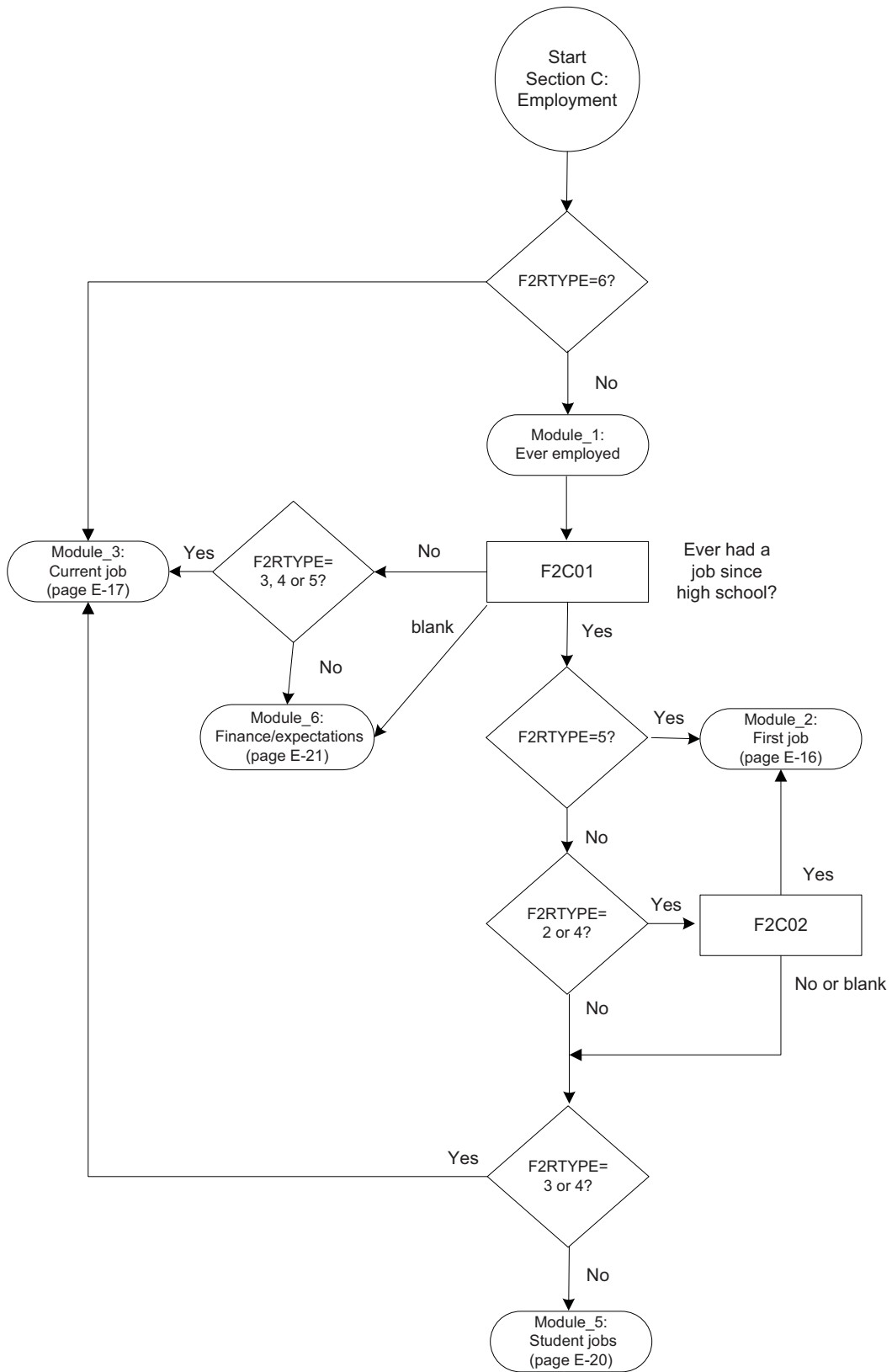


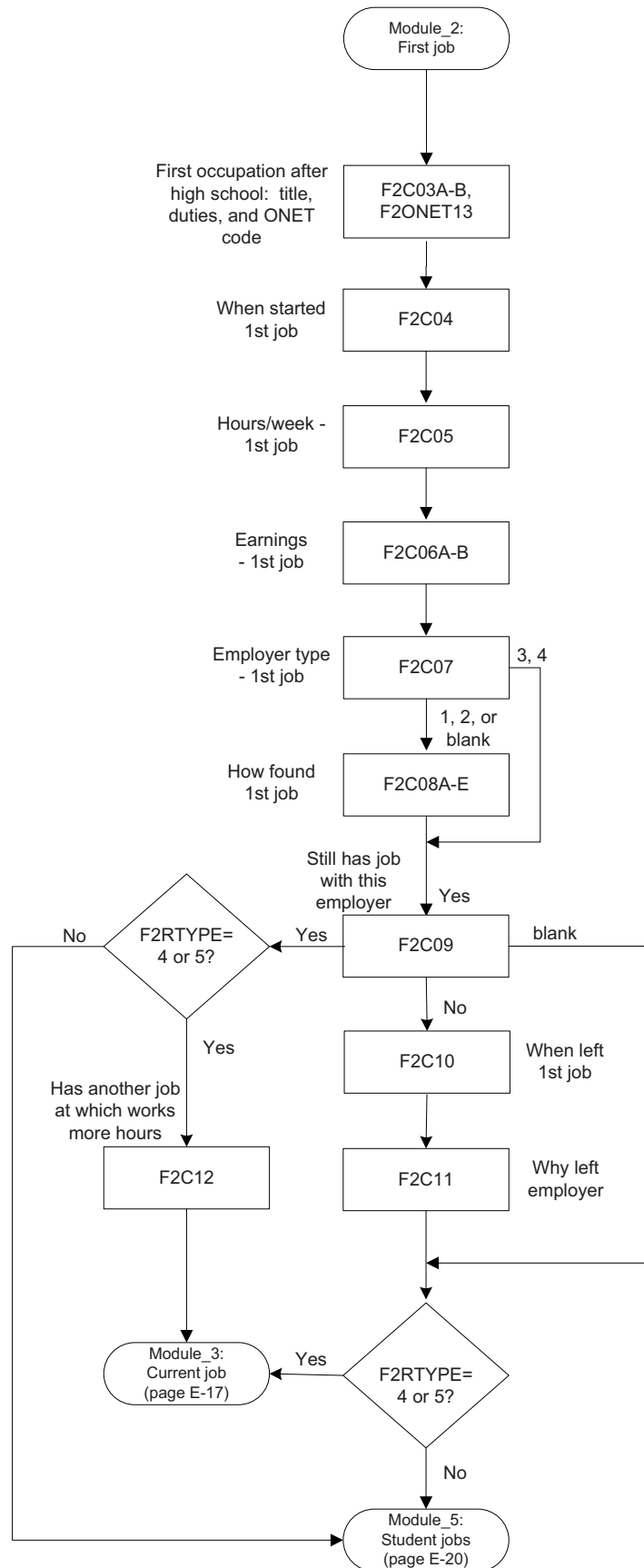


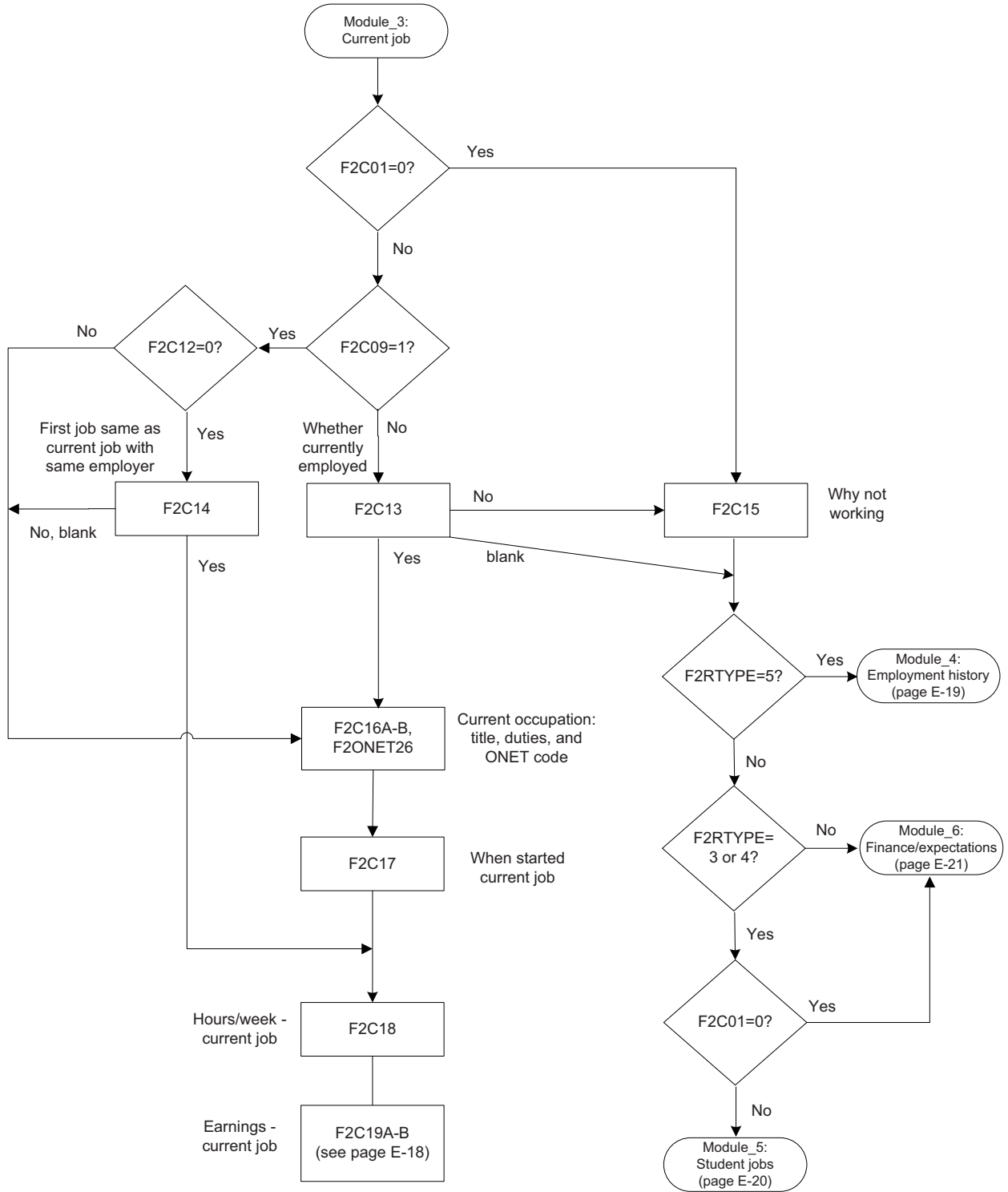


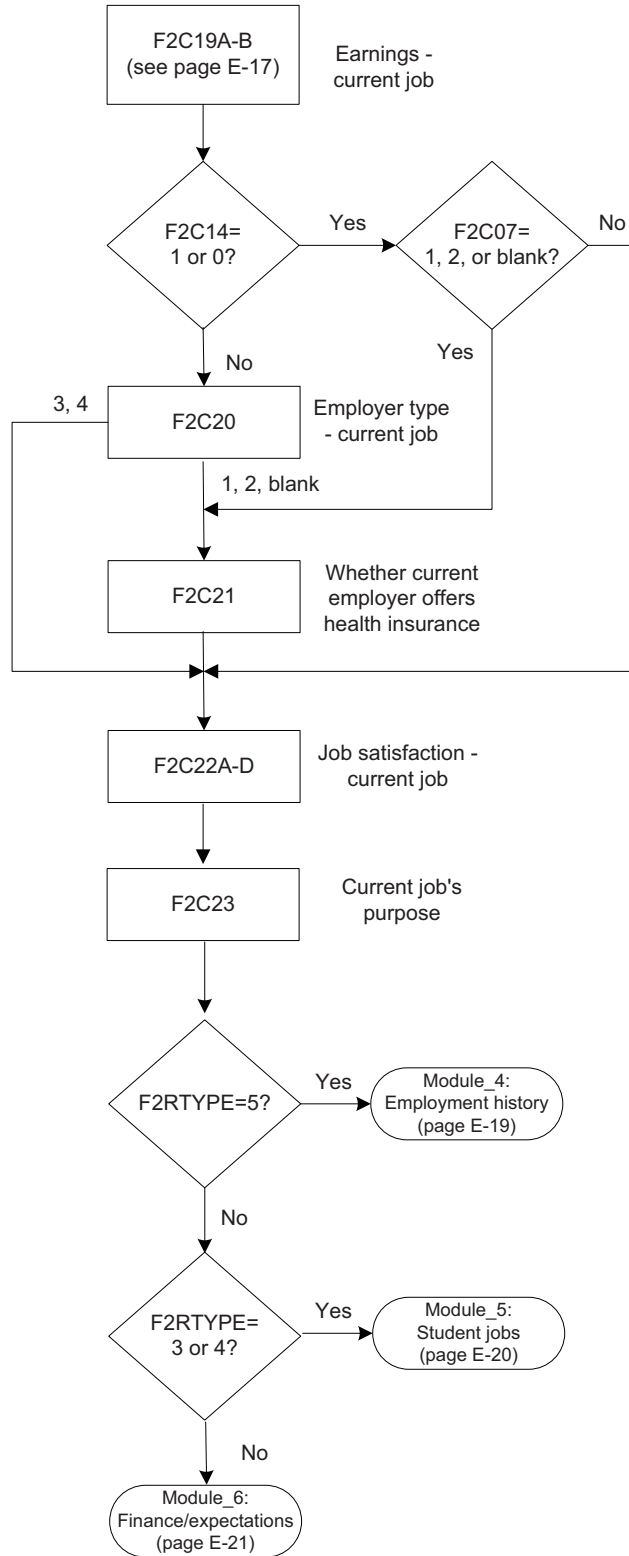


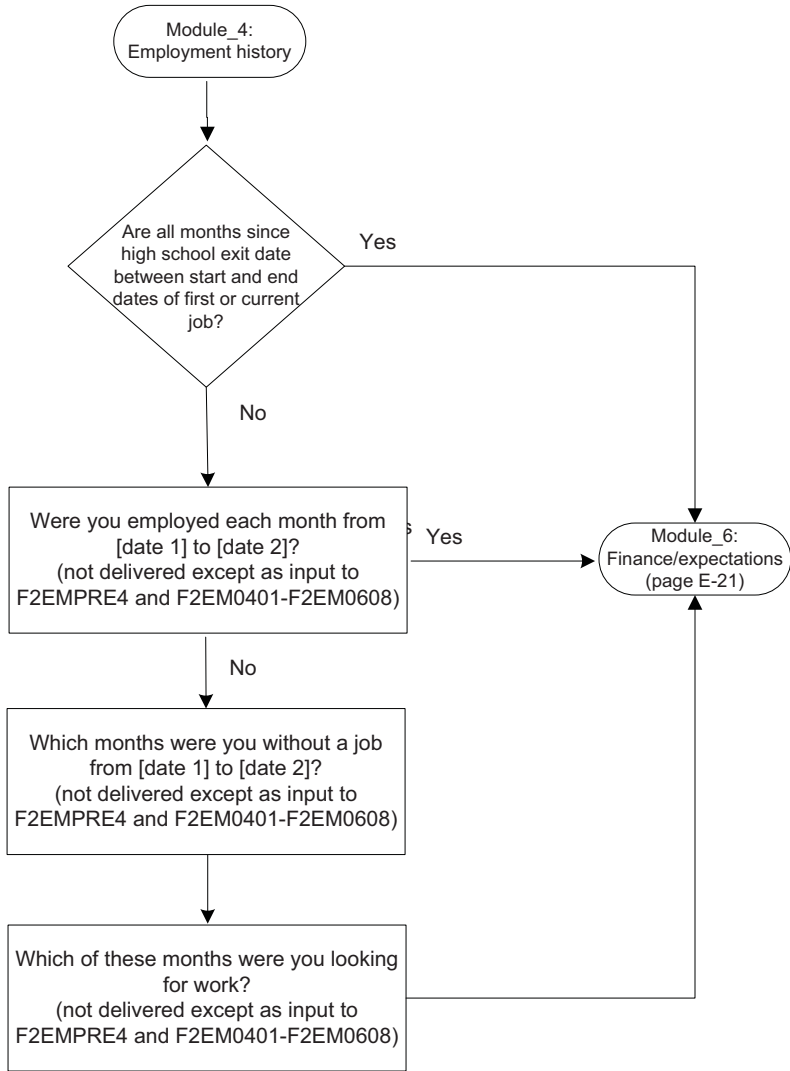


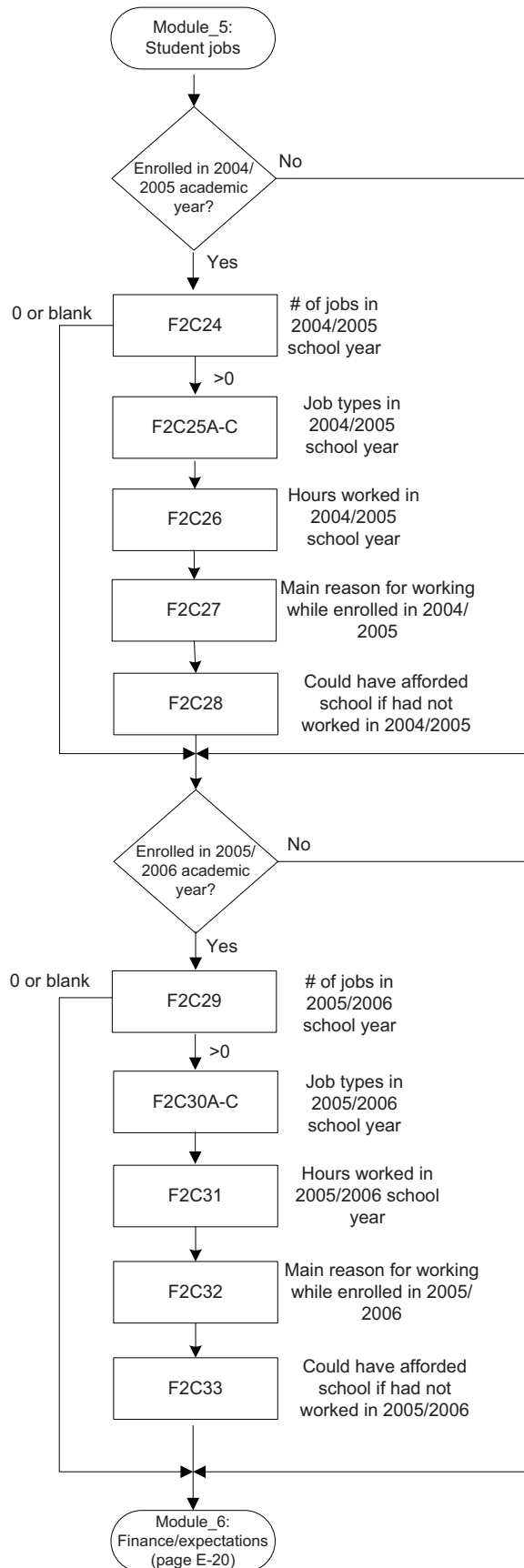




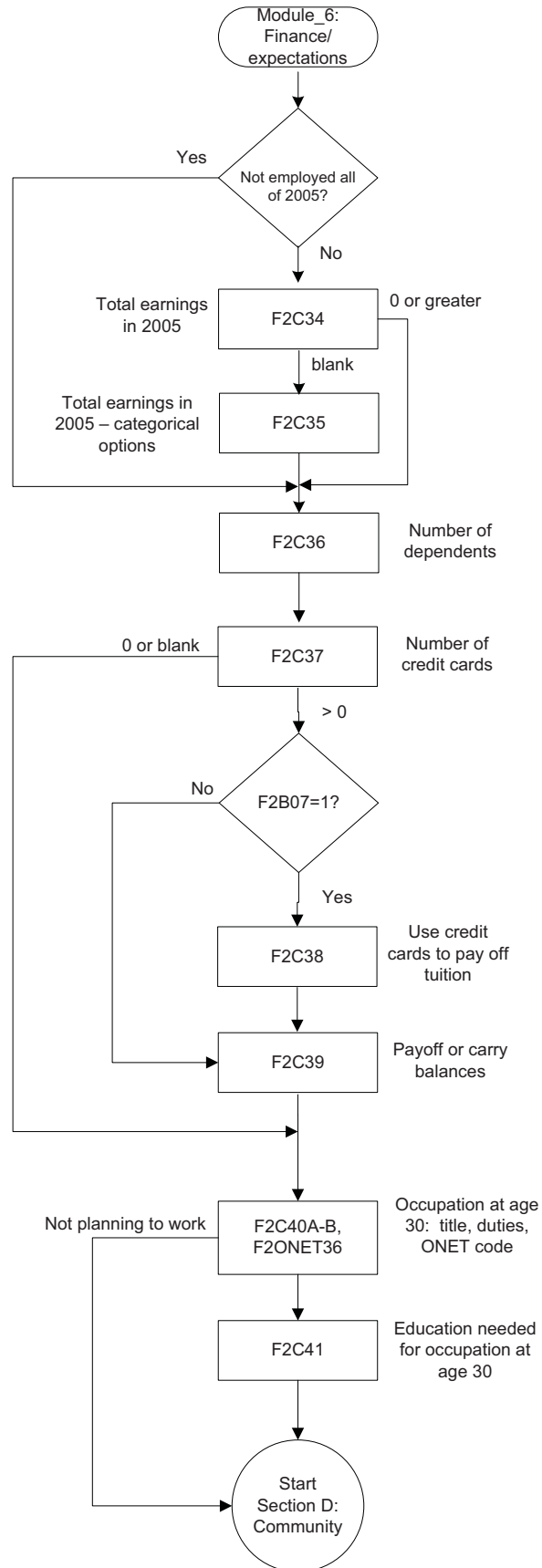


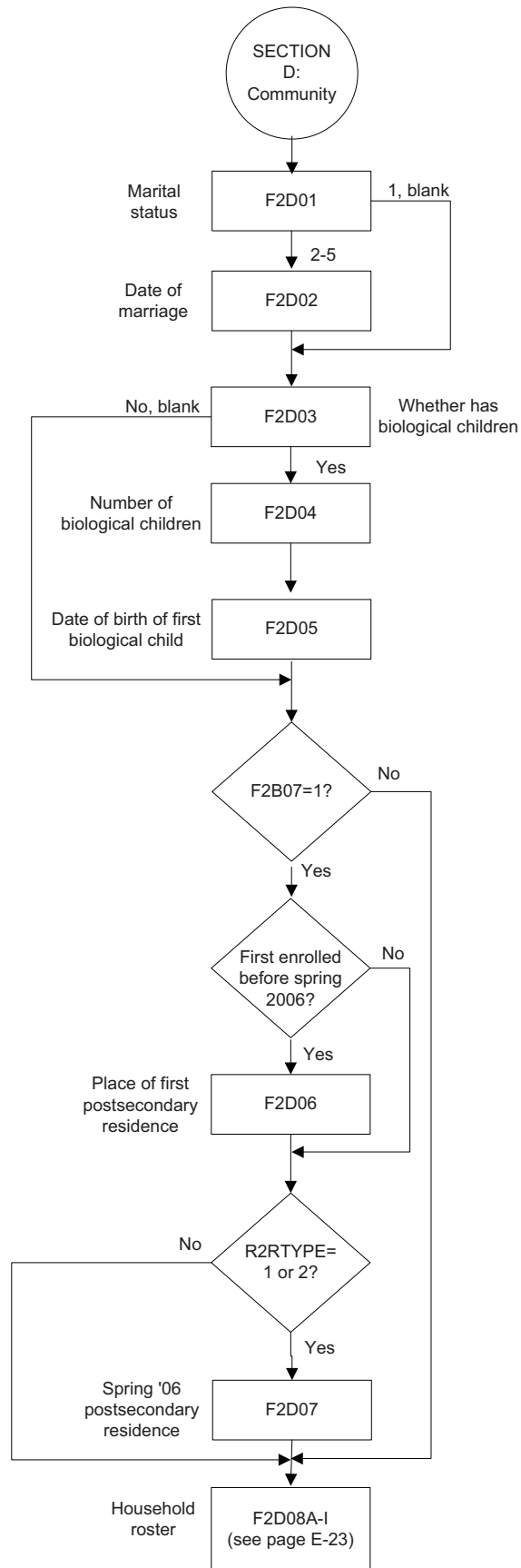


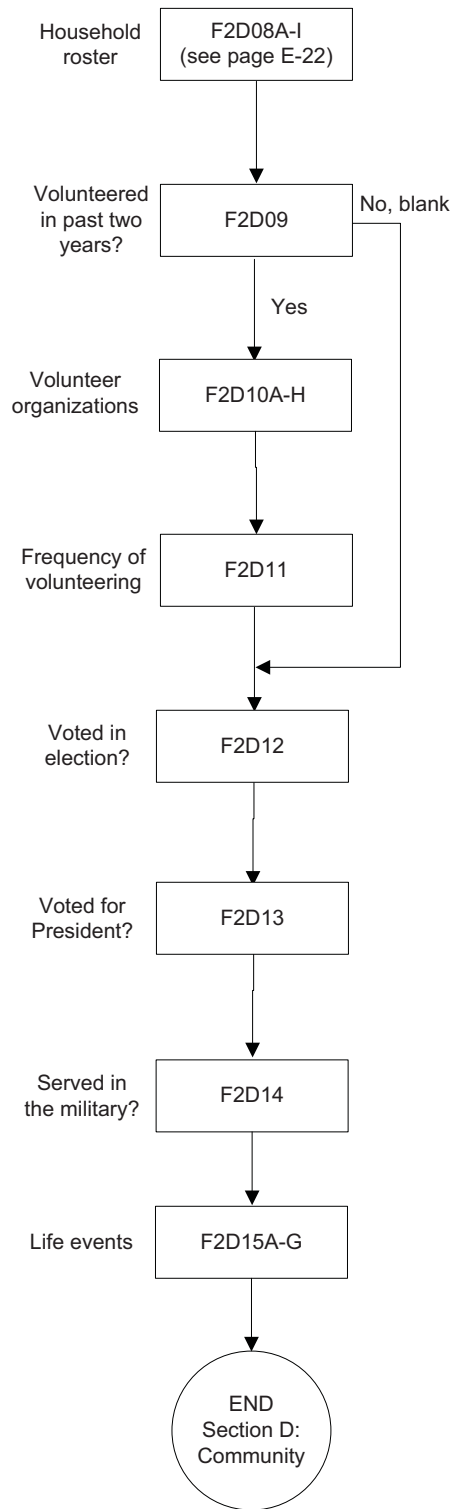














## **Facsimile**

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## Section A: High School Education

The first questions update your high school information since your last ELS:2002 interview.

-----  
**Variable Name(s): F2A01**

Have you received a high school diploma, certificate of attendance, or a GED or other equivalency certificate?

- 1 = Yes  
 0 = No

-----  
**Variable Name(s): F2A02**

What type of high school diploma or certificate did you complete? Did you receive a...

- 1 = diploma,  
 2 = certificate of attendance, or  
 3 = GED or other equivalency certificate?

-----  
**Variable Name(s): F2A03**

In what month and year did you receive your [diploma/certificate of attendance/GED or other equivalency]?

\* Month:

- 1 = January  
 2 = February  
 3 = March  
 4 = April  
 5 = May  
 6 = June  
 7 = July  
 8 = August  
 9 = September  
 10 = October  
 11 = November  
 12 = December

\* Year:

- 2002 = 2002  
 2003 = 2003  
 2004 = 2004  
 2005 = 2005  
 2006 = 2006

-----  
**Variable Name(s): F2A04**

How did you earn the GED or equivalency, or in other words, what program or school were you enrolled in, if any?

- 1 = No program, you just took the exam,  
 2 = part of a job training program,  
 3 = enrolled through adult education,  
 4 = part of a child care program or early childhood program, or  
 5 = some other program?

\* Specify:

-----  
**Variable Name(s): F2A05**

From what state did you receive your GED or equivalency?

- |                          |                           |
|--------------------------|---------------------------|
| 1 = Alabama              | 32 = New Mexico           |
| 2 = Alaska               | 33 = New York             |
| 3 = Arizona              | 34 = North Carolina       |
| 4 = Arkansas             | 35 = North Dakota         |
| 5 = California           | 36 = Ohio                 |
| 6 = Colorado             | 37 = Oklahoma             |
| 7 = Connecticut          | 38 = Oregon               |
| 8 = Delaware             | 39 = Pennsylvania         |
| 9 = District of Columbia | 40 = Rhode Island         |
| 10 = Florida             | 41 = South Carolina       |
| 11 = Georgia             | 42 = South Dakota         |
| 12 = Hawaii              | 43 = Tennessee            |
| 13 = Idaho               | 44 = Texas                |
| 14 = Illinois            | 45 = Utah                 |
| 15 = Indiana             | 46 = Vermont              |
| 16 = Iowa                | 47 = Virginia             |
| 17 = Kansas              | 48 = Washington           |
| 18 = Kentucky            | 49 = West Virginia        |
| 19 = Louisiana           | 50 = Wisconsin            |
| 20 = Maine               | 51 = Wyoming              |
| 21 = Maryland            | 52 = Puerto Rico          |
| 22 = Massachusetts       | 54 = American Samoa       |
| 23 = Michigan            | 55 = Guam                 |
| 24 = Minnesota           | 56 = Fed State Micronesia |
| 25 = Mississippi         | 57 = Marshall Islands     |
| 26 = Missouri            | 58 = Northern Mariana Isl |
| 27 = Montana             | 59 = Palau                |
| 28 = Nebraska            | 60 = Virgin Islands       |
| 29 = Nevada              | 63 = FOREIGN              |
| 30 = New Hampshire       | COUNTRY                   |
| 31 = New Jersey          |                           |

-----  
**Variable Name(s): F2A06A-F2A06F**

Why did you decide to complete your GED or equivalency? Was it...

- \* to improve, advance, or keep up to date on your current job?
- \* to train for a new job/career?
- \* to improve basic reading, writing or math skills?
- \* to meet requirements for additional study?
- \* required or encouraged by your employer?
- \* for personal, family or social reasons?

- 1 = Yes  
 0 = No

-----  
**Variable Name(s): F2A07**

Which of the following activities best describes your current high school activity?

Are you...

- 1 = currently enrolled in high school and working towards a high school diploma,
- 2 = currently enrolled in high school and working towards a certificate of attendance,
- 3 = currently working towards a GED or equivalency, or
- 4 = not currently enrolled in a high school completion program?

-----  
**Variable Name(s): F2A08**

What grade [are you in/were you in when you left high school]?

- 1 = 10th grade
- 2 = 11th grade
- 3 = 12th grade
- 4 = No grade system used in your high school

-----  
**Variable Name(s): F2A09**

Do you plan to get a GED, high school diploma, or certificate of attendance?

- 1 = Yes
- 0 = No

-----  
**Variable Name(s): F2A10**

About what month and year do you expect to [receive a high school diploma/ receive a certificate of attendance/take the examination for the GED or other high school equivalency exam/receive a high school diploma or certificate of attendance or to take the examination for the GED or other high school equivalency exam]?

\* Month:

- 1 = January
- 2 = February
- 3 = March
- 4 = April
- 5 = May
- 6 = June
- 7 = July
- 8 = August
- 9 = September
- 10 = October
- 11 = November
- 12 = December

\* Year:

- 2006 = 2006
- 2007 = 2007
- 2008 = 2008 or after

-----  
**Variable Name(s): F2A11**

In what month and year did you last attend high school?

\* Month:

- 1 = January
- 2 = February
- 3 = March
- 4 = April
- 5 = May
- 6 = June
- 7 = July
- 8 = August
- 9 = September
- 10 = October
- 11 = November
- 12 = December

\* Year:

- 2002 = 2002
- 2003 = 2003
- 2004 = 2004
- 2005 = 2005
- 2006 = 2006

-----  
**Variable Name(s): F2A12**

What grade were you in during the spring term of 2004?

- 1 = 10th grade
- 2 = 11th grade
- 3 = 12th grade
- 4 = No grade system was used in your school
- 5 = You were not in school in the spring term of 2004

-----  
**Variable Name(s): F2A13**

In the spring term of 2004, were you ever out of school for four or more weeks in a row? Do not include school breaks or an absence due to illness or injury.

- 1 = Yes
- 0 = No

-----  
**Variable Name(s): F2A14A-G**

(Screen 1 of 2)

Here are some reasons other people have given for leaving high school. Which of these would you say were your reasons when you [left school in F2A11/left school before the spring term of 2004/were out of school during the spring term of 2004]? Was it...

- \* because you got a job?
- \* because you didn't like school?
- \* because you couldn't get along with your teachers or other students?
- \* because [you were pregnant or you/you] became a [mother/father]?
- \* because you had to support your family or care for a family member?
- \* because you were suspended or expelled from school?
- \* because you did not feel safe at school?

- 1 = Yes
  - 0 = No
-



**Variable Name(s): F2A14H-N**

(Continued: Screen 2 of 2)

(Here are some reasons other people have given for leaving high school. Which of these would you say were your reasons when you [left school in F2A11/left school before the spring term of 2004/were out of school during the spring term of 2004]? Was it...)

- \* because you felt you did not belong at school?
- \* because you couldn't keep up with your schoolwork?
- \* because you were getting poor grades or failing school?
- \* because you couldn't work and go to school at the same time?
- \* because you thought you could not complete coursework requirements or pass a test required for graduation?
- \* because you thought it would be easier to get a GED?
- \* because you missed too many school days?

1 = Yes

0 = No

## Section B: Postsecondary Education

The following questions are about education after high school.

-----  
**Variable Name(s): F2B01**

[When you participated in ELS:2002 in the spring of 2004, you indicated you had applied to [preloaded postsecondary institution 1] [and [preloaded postsecondary institution 2]]. ]

[To confirm, did you apply/Have you ever applied] to [any/this school or any other/either of these school or any other] colleges, universities, vocational-technical or trade schools?

1 = Yes  
 0 = No

-----  
**Variable Name(s): F2B02**

Did you apply...

1 = while still in high school,  
 2 = sometime after high school, or  
 3 = both?

-----  
**Variable Name(s): F2B03**

[When you were in high school, how/How/When you were in high school, when you first applied, how/When you first applied, how] many colleges, universities, vocational-technical or trade schools did you apply to?

-----  
**Variable Name(s): Not delivered**

As mentioned, our information shows that you had applied to [[preloaded postsecondary institution 1]/[preloaded postsecondary institution 1] and [preloaded postsecondary institution 2]].

Is this information correct?

1 = Yes, I applied to both of these schools.  
 2 = No, I did not apply to [preloaded postsecondary institution 1] but I did apply to [preloaded postsecondary institution 2].  
 3 = No, I did not apply to [preloaded postsecondary institution 2] but I did apply to [preloaded postsecondary institution 1].  
 4 = No, I did not apply to either school.

-----  
**Variable Name(s): F2IIPED, F2ISTATE, F2ILEVEL, F2ICNTRL**

We would like to know where you applied to [when you were in high school/after high school/when you first applied].

(You have already named: [Names of postsecondary institutions already identified])

What is the name of [the school/a school/another school] you applied to? (Do not use acronyms or abbreviations of school names. For example, do not enter ASU for Arizona State University or BTI for

Berks Technical Institute. You can narrow your search by selecting the state and/or city. Then select continue.)

---

From the list below, click on the name of the school you applied to [when you were in high school/after high school/when you first applied].

If the school is not listed:

Make sure you did not use abbreviations or acronyms

Make sure you did not misspell any words

Make sure the school is not located in a different city.

You may change the city and/or state and click

"Continue" to get a new list of schools.

If you still cannot find your school, click "Unable to Find School".

---

Please provide the following information about this school:

State:

City:

School name:

Is this school a...

1 = Four-year college or university

2 = Two-year community college

3 = Vocational, technical or trade school

Is this school...

1 = Public

2 = Private, not-for-profit

3 = Private, for-profit

-----  
**Variable Name(s): Not delivered**

(You have already named: [Names of postsecondary institutions already identified])

[This is the only school/These are all the schools] you applied to [when you were in high school/ when you first applied].

Is that correct?

1 = Yes

0 = No. Need to add another school.

-----  
**Variable Name(s): F2B04**

[When you were in high school, did/Did] you or your family apply for financial aid such as grants, scholarships, fellowships, loans, or work-study to help pay for your education [at this school/at these schools]?

1 = Yes

0 = No

-----  
**Variable Name(s): F2B05A-F2B05G**

What were the reasons you and your family did not apply for financial aid?

(Please check all that apply)

- \* The aid application process was too difficult
- \* You or your family thought you would not qualify for aid
- \* You or your family could not afford to pay back a loan
- \* You or your family were able to pay for education without financial aid
- \* You or your family did not want to report financial information
- \* You were offered aid without applying (e.g., ROTC, athletic scholarship)
- \* Another reason

-----  
**Variable Name(s): F2IACCP**

[If more than one school] Which of these schools accepted you? Were you accepted at...

(Please check all that apply)

[Name of first school applied to]

[Name of second school applied to]

Etc.

None of these schools?

[If only one school] Were you accepted at [school name]?

(Please check one box)

Yes

No

-----  
**Variable Name(s): F2IGRANT, F2ILOAN, F2IWKSTY, F2IWAIVR, F2NOA**

What kinds of financial aid did [postsecondary institution(s) where accepted] offer you for the first academic year?

(Please check all that apply)

- \* Scholarship or Grant
- \* Loan
- \* Work Study job
- \* Tuition waiver or discount
- \* None of the above

-----  
**Variable Name(s): F2B06**

Apart from any aid offers from [this school/these schools], were you offered any forms of financial aid that could be used at any school? Examples would be scholarships to attend a college within your state or a grant that you received from your church or temple to attend the school of your choice.

1 = Yes

0 = No

-----  
**Variable Name(s): F2B07**

Now, we want to know about any schools you may have attended since high school, [even ones you have not already named/even if you did not apply. (Some schools do not require an application for admission. They admit all students who register for classes.)] Since you [received your high school diploma/received your high school certificate of attendance/received your GED or other equivalency/completed high school/left high school], have you attended a college, university, vocational-technical or trade school where you took courses for credit? (Please include all schools, even if you have not completed a course.)

1 = Yes

0 = No

-----  
**Variable Name(s): F2B08A-F2B08G**

(Screen 1 of 2)

Which of the following are reasons why you have not continued your education after high school? Would you say you have not continued your education...

- \* because you don't like school?
- \* because your grades are not high enough?
- \* because your college admission scores are not high enough?
- \* because you won't need more education for the career you want?
- \* because you can't afford to go on to school?
- \* because you'd rather work and make money than go to school?
- \* because you don't feel that going on to school is important?

1 = Yes

0 = No

-----  
**Variable Name(s): F2B08H-F2B08NA**

(Continued: Screen 2 of 2)

(Which of the following are reasons why you have not continued your education after high school? Would you say you have not continued your education...)

- \* because you need to help support your family?
- \* because you have a good job?
- \* because you were not accepted at the school(s) where you wanted to go?
- \* because you had a traumatic experience (such as you were in an accident, a victim of a crime, grieving a death)?
- \* because you have personal health reasons?
- \* because you were incarcerated?
- \* for another reason?

1 = Yes

0 = No

\* Specify:

-----  
**Variable Name(s): F2B09**

Which one of these is the main reason you have not continued your education after high school?  
 "Yes" responses to F2B08A-F2B08N listed here as response options

-----  
**Variable Name(s): F2B10**

How many colleges, universities, vocational-technical or trade schools have you attended since high school?

-----  
**Variable Name(s): F2IATTND**

(You have already named: [Names of postsecondary institutions already identified])

What is the [first/second/third/fourth...] school you attended since high school?

- 1 = [Name of first school where accepted]
- 2 = [Name of second school where accepted]
- 3 = Etc.
- 99 = A school not listed here

-----  
**Variable Name(s): F2IIPED, F2ISTATE, F2ILEVEL, F2ICNTRL**

(You have already named: [Names of postsecondary institutions already identified])

What is the name of the [first/second/third...] school you attended since high school?

(Do not use acronyms or abbreviations of school names. For example, do not enter ASU for Arizona State University or BTI for Berks Technical Institute. You can narrow your search by selecting the state and/or city. Then select continue.)

---

(From the list below, click on the name of the [first/second/third...] school you attended.  
 If the school is not listed:  
 Make sure you did not use abbreviations or acronyms  
 Make sure you did not misspell any words  
 Make sure the school is not located in a different city.  
 You may change the city and/or state and click "Continue" to get a new list of schools.  
 If you still cannot find your school, click "Unable to Find School".)

---

Please provide the following information about this school:  
 State:  
 City:  
 School name:  
 Is this school a...  
 1 = Four-year college or university  
 2 = Two-year community college  
 3 = Vocational, technical or trade school

Is this school...  
 1 = Public  
 2 = Private, not-for-profit  
 3 = Private, for-profit

-----  
**Variable Name(s): F2ISTART**

What month and year did you first start attending [postsecondary institution(s) attended]?

- \* Month:
- 1 = January
  - 2 = February
  - 3 = March
  - 4 = April
  - 5 = May
  - 6 = June
  - 7 = July
  - 8 = August
  - 9 = September
  - 10 = October
  - 11 = November
  - 12 = December
- \* Year:
- 1 = 2002
  - 2 = 2003
  - 3 = 2004
  - 4 = 2005
  - 5 = 2006

-----  
**Variable Name(s): F2IPRE4, F2I0401 – F2I0608**

Please indicate all of the months you have been enrolled at [postsecondary institution(s) attended] [starting with [F2ISTART]/since you left high school in [F2A11 /since you received your GED or other equivalency in F2A03].

If your enrollment covers only a portion of any month, please include that month.  
 F2ISTART – F2 interview month, 2006

-----  
**Variable Name(s): F2IFTPT**

While enrolled at [postsecondary institution(s) attended], [have you been/were you]...  
 1 = full-time or mainly full-time,  
 2 = part-time or mainly part-time, or  
 3 = an equal mix of full-time and part-time?

-----  
**Variable Name(s): Not delivered**

(You have already named: [Names of postsecondary institutions already identified])  
 [This is the only school/These are all the schools] you attended since high school.  
 Is that correct?  
 1 = Yes  
 0 = No

-----  
**Variable Name(s): F2B11A-F2B11G**

(Screen 1 of 2)

According to your dates of enrollment, you took a break from school after high school. Which of the following are reasons why you decided not to continue your education right after high school? Was it...

- \* because you could not afford schooling after high school?
- \* because you needed to earn money to pay for school?
- \* because you did not receive enough financial aid?
- \* because you were not accepted at the schools where you wanted to go?
- \* because you needed to improve your academic qualifications?
- \* because you were admitted to a school, but only on a deferred basis?
- \* because you wanted to work?

1 = Yes  
 0 = No

-----  
**Variable Name(s): F2B11H-F2B11NA**

(Continued: Screen 2 of 2)

(Which of the following are reasons why you decided not to continue your education right after high school? Was it...)

- \* because you wanted to serve in the military?
- \* because you needed to help support your family?
- \* because you wanted to travel or pursue other interests?
- \* because you had a traumatic experience (such as you were in an accident, a victim of crime, grieving a death)?
- \* because you had personal health reasons?
- \* because you were incarcerated?
- \* for another reason?

1 = Yes  
 0 = No

\* Specify:

-----  
**Variable Name(s): F2B12**

Which one of these is the main reason you decided not to continue your education right after high school? ["Yes" responses to F2B11A-F2B11NA listed here as response options]

-----  
**Variable Name(s): F2B13A-F2B13F**

The next questions are about your experience with [F2PS1].

Why did you decide to attend [F2PS1]?

(Please check all that apply)

- \* Program of study
- \* Reputation (of program, faculty, or school)
- \* Cost (affordability or other financial reasons)
- \* Location
- \* Personal or family reasons
- \* Another reason

-----  
**Variable Name(s): F2B14**

Which of the following is the main reason you decided to attend [F2PS1]?

Checked items F2B13A-F2B13NA listed here as response options

-----  
**Variable Name(s): F2B15**

When you began at [F2PS1], what field of study did you think you would most likely pursue? (Please choose one)

- 1 = Business or Marketing
- 2 = Health (for example, Medical Technology, Nursing, Pre-Med)
- 3 = Education (for example, Teaching)
- 4 = Engineering or Engineering Technology
- 5 = Computer or Information Sciences
- 6 = Natural Sciences or Mathematics (for example, Biology, Physics, or Statistics)
- 7 = Environmental Studies
- 8 = Social Sciences or Social Work (for example, Psychology, History, Political Science)
- 9 = Architecture, Design, or Urban Planning
- 10 = Fine Arts (for example, Music, Theater, Dance)
- 11 = Humanities (for example, English, Philosophy, Foreign Languages)
- 12 = Communications (for example, Journalism)
- 13 = University Transfer or General Education
- 14 = Other Vocational Programs (for example, Cosmetology, Culinary Arts, or Construction)
- 15 = Other
- 16 = Don't know/Undecided

-----  
**Variable Name(s): F2B16A-F2B16C**

At [F2PS1], [have you ever taken/did you ever take] remedial or developmental courses to improve your...

- \* Reading skills?
- \* Writing skills?
- \* Mathematics skills?

1 = Yes  
 0 = No

-----  
**Variable Name(s): F2B17A-F2B17D**

To what extent did the following high school courses prepare you for [F2PS1]? Would you say not at all, somewhat, or a great deal?

- \* High school math courses
  - \* High school science courses
  - \* High school English or writing courses
  - \* High school vocational or technical courses
- 1 = Not at all  
2 = Somewhat  
3 = A great deal  
4 = Did not take in high school

-----  
**Variable Name(s): F2B18A-F2B18G**

During the time that you [have been/were] enrolled at [F2PS1], how often [have/did] you [participated/participate] in the following activities? Choose never, sometimes, or often. How often [have/did] you...

- \* [talked/talk] with faculty about academic matters outside of class time?
  - \* [met/meet] with your advisor concerning academic plans?
  - \* [worked/work] on coursework at your school library?
  - \* [used/use] the web to access your school library for coursework?
  - \* [participated/participate] in intramural or nonvarsity sports?
  - \* [participated/participate] in varsity or intercollegiate sports?
  - \* [participated/participate] in other extracurricular activities?
- 1 = Never  
2 = Sometimes  
3 = Often

-----  
**Variable Name(s): F2B19A-F2B19K**

According to your dates of enrollment, you've been enrolled in school some terms and taken other terms off. Which of the following are reasons why you took a break from school?

- (Please check all that apply)
- \* Completed degree or certificate
  - \* Finished taking desired classes
  - \* Academic problems
  - \* Classes not available/scheduling not convenient
  - \* Dissatisfaction with program/school/campus/faculty
  - \* Financial reasons
  - \* Family responsibilities
  - \* Personal health reasons
  - \* Called for military service
  - \* Traumatic experience (accident, victim of crime, grieving a death)
  - \* Another reason

-----  
**Variable Name(s): F2B20A-F2B20H**

You indicated earlier that you attended school on a part-time basis for at least some of your time in school. Which of the following are reasons you attended school part-time rather than full-time?

- (Please check all that apply)
- \* Financial reasons
  - \* Full-time program was not available
  - \* Family responsibilities
  - \* Worked while attending school
  - \* Pursuing other interests or hobbies
  - \* Personal health reasons
  - \* Traumatic experience (accident, victim of crime, grieving a death)
  - \* Another reason
- 1 = Yes  
0 = No

-----  
**Variable Name(s): F2B21A-F2B21L**

Which of the following are reasons you left [F2PS1] and enrolled at another school?

- (Please check all that apply)
- \* Completed degree or certificate
  - \* Finished taking desired classes
  - \* Pursue Bachelor's degree at a 4-year college
  - \* Academic problems
  - \* Classes not available /scheduling not convenient
  - \* Dissatisfaction with program/school/campus/faculty
  - \* Location
  - \* Financial reasons
  - \* Family responsibilities
  - \* Personal health reasons
  - \* Traumatic experience (accident, victim of crime, grieving a death)
  - \* Another reason

-----  
**Variable Name(s): F2B22**

Now in 2006, have you declared a major yet at [F2PS2006]?

- 0 = Not in a degree program  
1 = Declared major  
2 = Declared double major  
3 = Not yet declared

-----  
**Variable Name(s): F2B23A**

What is your [first] major or field of study?

-----  
**Variable Name(s): F2B23B - F2B23C**

Please click on the entry in the list below that most closely describes your field of study: [F2B23A].

If your field is not listed, click on the "None of these" button on the bottom of the screen to see more choices.

-----  
**Variable Name(s): F2B23B - F2B23C**

Please help us to categorize [F2B23A] using the drop-down list boxes.

(Coding Directions: Please select a general area and then the specific discipline within the general area. Use the arrow at the right side of the first dropdown box to display the general areas. Click to select the desired general area, and then select the desired specific discipline within the area from the second dropdown box.)

-----  
**Variable Name(s): F2B24**

What is your second major or field of study?  
 (Please do not include a minor.)

-----  
**Variable Name(s): F2B25A-F2B25H**

How have you and your family paid for your education at [name of school attended since high school/all the schools you attended since high school]?

(Please check all that apply)

- \* Grants or scholarships
- \* Student loans
- \* Parent loans (loans taken out by your parents)
- \* College work-study
- \* Your savings or job earnings (other than from College Work-Study)
- \* Contributions from parents, guardians, or relatives
- \* Employer assistance or tuition reimbursement
- \* Other

-----  
**Variable Name(s): F2B26**

How much [have you already borrowed/did you borrow] in student loans for your education after high school? (Please do not include any money borrowed from family or friends.)

-----  
**Variable Name(s): F2B27**

Are your parents or guardians helping you or going to help you to repay your education loans?

- 1 = Yes
- 0 = No

-----  
**Variable Name(s): F2B28**

[Not including the amount you have already borrowed, how much more/How much] do you expect you will borrow in student loans for your undergraduate education? (If you do not expect to take out any student loans in the future, please enter zero. Please do not include any money you may borrow from family or friends.)

**Variable Name(s): F2B29A-F2B29K**

According to your dates of enrollment, currently, you are not enrolled in school. Which of the following are reasons you are not in school?

(Check all that apply)

- \* Completed a degree or certificate
- \* Finished taking desired classes
- \* Academic problems
- \* Classes not available/scheduling not convenient
- \* Dissatisfaction with program/school/campus/faculty
- \* Financial reasons
- \* Family responsibilities
- \* Personal health reasons
- \* Called for military service
- \* Traumatic experience (accident, victim of crime, grieving a death)
- \* Another reason

-----  
**Variable Name(s): F2B30**

As things stand now, what is the highest level of education you ever expect to complete?

- 1 = Less than high school graduation
- 2 = GED or other equivalency only
- 3 = High school graduation only
- 4 = Attend or complete a 1- or 2-year program in a community college or vocational school
- 5 = Attend college, but not complete a 4- or 5-year degree
- 6 = Graduate from college (4- or 5-year degree)
- 7 = Obtain a Master's degree or equivalent
- 8 = Obtain a Ph.D., M.D., or other advanced degree
- 9 = Don't know

## Section C: Employment

The next questions are about paid employment you have had [since you received your high school diploma/since you received your high school certificate of attendance/since you received your GED or other equivalency/since you completed high school/since you left high school] including self-employment, work done for a family business, or the armed forces. [We are also interested in school-related jobs such as paid internships, co-ops and Work Study jobs.] Do not include unpaid community service or volunteer work.

-----  
**Variable Name(s): F2C01**

Have you ever held a job for pay since [leaving high school/receiving your GED or other equivalency], not including volunteer work?

1 = Yes  
0 = No

-----  
**Variable Name(s): F2C02**

Did you hold a job for pay at any time between [leaving high school/receiving your GED or other equivalency] [in F2A03/F2A11] and first enrolling at [F2PS1] in [F2ISTART for F2PS1]?

1 = Yes  
0 = No

-----  
**Variable Name(s): F2C03A - F2C03B**

The next questions are about the first job you held after [leaving high school/you received your GED or other equivalency]. This may be a job you started while you were still in high school. If you had more than one job, please refer to the job at which you worked the most hours.

\* What was your job title?  
\* What did you do in your first job after high school?

-----  
**Variable Name(s): F2ONET16**

(Please click on the entry in the list below that most closely describes [F2C03A]/your first job after high school.

If an appropriate entry does not appear in the list, you may search again by changing the keywords in one of the textboxes above, and clicking on one of the "Search" buttons. If you are still unable to find your job by searching, click on the "None of these" button at the bottom of the screen. )

-----  
**Variable Name(s): F2ONET16**

Please find the best occupational category to describe [F2C03A /your first job after high school].

\* Please select a general category:  
\* Please select a more specific category within this area:  
\* Please select a final detailed category:

-----  
**Variable Name(s): F2C04**

What month and year did you start [this job as a(n) [F2C03A]/your first job after high school]?

1 = January  
2 = February  
3 = March  
4 = April  
5 = May  
6 = June  
7 = July  
8 = August  
9 = September  
10 = October  
11 = November  
12 = December  
2002 = 2002 or before  
2003 = 2003  
2004 = 2004  
2005 = 2005  
2006 = 2006

-----  
**Variable Name(s): F2C05**

How many hours per week on average did you work at this job [when you first started/after leaving high school [in F2A03/F2A11]/after receiving your GED or other equivalency [in F2A03]?

-----  
**Variable Name(s): F2C06A - F2C06B**

On average, how much did you earn at this job [when you first started/after leaving high school [in F2A03/F2A11]/after receiving your GED or other equivalency [in F2A03]/ after leaving high school ] (including any tips)?

1 = per hour  
2 = per day  
3 = per week  
4 = every two weeks/twice a month  
5 = per month  
6 = per year

-----  
**Variable Name(s): F2C07**

On this job, were you...

1 = working for an employer,  
2 = a member of the armed forces,  
3 = working for your family's business or farm, or  
4 = self-employed?



-----  
**Variable Name(s): F2C08A - F2C08E**

How did you find [your job as a(n) [F2C03A]/this job]?

(Please check all that apply)

- \* Responded to job advertisements in a newspaper, magazine or on the internet
- \* Sent out resume or contacted employers
- \* Networked with friends or relatives
- \* Used school assistance such as the placement office, school job fairs, or spoke with faculty/staff
- \* Found the job in another way

-----  
**Variable Name(s): F2C09**

Do you still work for [this employer/your family business or farm/yourself]?

- 1 = Yes
- 0 = No

-----  
**Variable Name(s): F2C10**

What month and year did you last work for [that employer/yourself/your family business or farm]?

- 1 = January
  - 2 = February
  - 3 = March
  - 4 = April
  - 5 = May
  - 6 = June
  - 7 = July
  - 8 = August
  - 9 = September
  - 10 = October
  - 11 = November
  - 12 = December
- 2002 = 2002 or before
  - 2003 = 2003
  - 2004 = 2004
  - 2005 = 2005
  - 2006 = 2006

-----  
**Variable Name(s): F2C11**

Why are you no longer working for [that employer/yourself/your family business or farm]?

Would you say...

- 1 = you left voluntarily or quit,
- 2 = you were laid off,
- 3 = the company went out of business or plant closed,
- 4 = you were discharged or fired,
- 5 = your temporary or seasonal job ended,
- 6 = you left on disability, or
- 7 = some other reason?

-----  
**Variable Name(s): F2C12**

Besides [your job with this employer/working for your family business or farm/working for yourself], do you currently have another job at which you work more hours per week?

- 1 = Yes
- 0 = No

-----  
**Variable Name(s): F2C13**

Are you currently working for pay?

- 1 = Yes
- 0 = No

-----  
**Variable Name(s): F2C14**

Do you still work as a(n) [F2C03A] with your first employer after high school?

- 1 = Yes
- 0 = No

-----  
**Variable Name(s): F2C15**

What is the main reason you are not currently working for pay?

- 1 = Have not found a job you want yet
- 2 = Unable to find a job
- 3 = Do not need to work
- 4 = Volunteering instead of working
- 5 = Family responsibilities
- 6 = Personal health reasons
- 7 = Traumatic experience (accident, victim of crime, grieving a death)
- 8 = Another reason

-----  
**Variable Name(s): F2C16A - F2C16B**

[For the next questions, please refer to the job at which you work the most hours.]

[The next questions are about your current job.]

[The next questions are about your current job. If you have more than one job, please refer to the job at which you work the most hours.]

- \* What do you do in your current job?
- \* What is your current job title?

-----  
**Variable Name(s): F2ONETC6**

(Please click on the entry in the list below that most closely describes

[F2C16A].

If an appropriate entry does not appear in the list, you may search again by changing the keywords in one of the textboxes above, and clicking on one of the "Search" buttons. If you are still unable to find your job by searching, click on the "None of these" button at the bottom of the screen. )

-----  
**Variable Name(s): F2ONETC6**

Please find the best occupational category to describe [F2C16A].

- \* Please select a general category:
- \* Please select a more specific category within this area:
- \* Please select a final detailed category:

-----  
**Variable Name(s): F2C17**

What month and year did you start your current job as a(n) [F2C16A]?

- 1 = January
  - 2 = February
  - 3 = March
  - 4 = April
  - 5 = May
  - 6 = June
  - 7 = July
  - 8 = August
  - 9 = September
  - 10 = October
  - 11 = November
  - 12 = December
- 2002 = 2002 or before  
 2003 = 2003  
 2004 = 2004  
 2005 = 2005  
 2006 = 2006

-----  
**Variable Name(s): F2C18**

Currently, how many hours per week on average do you work at this job?

-----  
**Variable Name(s): F2C19A - F2C19B**

On average, how much do you earn at this job (including any tips)?

- 1 = per hour
- 2 = per day
- 3 = per week
- 4 = every two weeks/twice a month
- 5 = per month
- 6 = per year

-----  
**Variable Name(s): F2C20**

On this job, are you...

- 1 = working for an employer,
- 2 = a member of the armed forces,
- 3 = working for your family's business or farm, or
- 4 = self-employed?

-----  
**Variable Name(s): F2C21**

At your current job, does your employer make health insurance available to you?

- 1 = Yes
- 0 = No

-----  
**Variable Name(s): F2C22A - F2C22D**

How satisfied are you with the following aspects of this job? Would you say very satisfied, somewhat satisfied, or dissatisfied?

- \* The job's pay and fringe benefits?
- \* Its working conditions?
- \* The opportunity for promotion and advancement?
- \* Its security and permanence?

- 1 = Very satisfied
- 2 = Somewhat satisfied

3 = Dissatisfied

-----  
**Variable Name(s): F2C23**

Which of these best describes this job?

- 1 = A career position
- 2 = A way to explore a career option
- 3 = A way to save money for school
- 4 = A way to pay the bills
- 5 = A way to earn spending money

-----  
**Variable Name(s): Not delivered – input to F2EMPRES4 and F2EM0401-F2EM0608**

[According to the information you have provided, you [left high school in/received your GED or other equivalency in] [F2A03/F2A11] and started your first job in [F2C04]].

Which months [between [F2A03/F2A11] and [F2C04]] were you looking for work?

(Check all that apply)

\*[F2A03/F2A11] - [F2C04]

-----  
**Variable Name(s): Not delivered – input to F2EMPRES4 and F2EM0401-F2EM0608**

Were you employed each month from the time you left your first employer until you started your current job[, that is from [F2C10] to [F2C17]?

- 1 = Yes
- 0 = No

-----  
**Variable Name(s): Not delivered – input to F2EMPRES4 and F2EM0401-F2EM0608**

Which months were you without a job from the time you left your first employer [in F2C10] until you started your current job [in F2C17]? (If you worked any portion of a month, do not include that month.)

(Check all that apply)

\* [F2C10] – [F2C17]

-----  
**Variable Name(s): Not delivered – input to F2EMPRES4 and F2EM0401-F2EM0608**

Which of these months were you looking for work?

(Check all that apply)

\* [Months selected in previous question]

-----  
**Variable Name(s): Not delivered – input to F2EMPRES4 and F2EM0401-F2EM0608**

Which months have you been without a job since you left your first employer, that is since [F2C10]?

(Check all that apply)

\* [F2C10] – F2 interview month, 2006

-----  
**Variable Name(s): Not delivered – input to F2EMPRES4 and F2EM0401-F2EM0608**

Which of these months were you looking for work?  
 (Check all that apply)

\* [Months selected in previous question]

-----  
**Variable Name(s): F2C24**

Now we are interested in your work experience while enrolled in school after high school. [This may include work experience you have already mentioned.]

During the 2004-2005 school year, how many jobs for pay did you have while you were enrolled? (If you did not work for pay or only worked during breaks from school, answer zero.)

-----  
**Variable Name(s): F2C25A - F2C25C**

[Was this job.../Were any of these jobs...]

\* [a paid internship or co-op job/paid internships or co-op jobs]?

\* [a Work-Study job/Work-Study jobs]?

\* related to your studies or career goals?

1 = Yes

0 = No

-----  
**Variable Name(s): F2C26**

When you were enrolled in the 2004-2005 school year, how many hours did you work in a typical week?

\* hours per week

-----  
**Variable Name(s): F2C27**

What was your main reason for working while you were enrolled during the 2004-2005 school year? Was it to...

1 = earn spending money,

2 = pay tuition, fees, or living expenses,

3 = gain job experience, or

4 = for some other reason?

-----  
**Variable Name(s): F2C28**

Could you have afforded to attend school if you had not worked while enrolled during the 2004-2005 school year?

1 = Yes

0 = No

-----  
**Variable Name(s): F2C29**

[Now we are interested in your work experience while enrolled in school after high school.] [This may include work experience you have already mentioned.]

During the 2005-2006 school year, how many jobs for pay did you have while you were enrolled? (If you did not work for pay or only worked during breaks from school, answer zero.)

-----  
**Variable Name(s): F2C30A - F2C30C**

[Was this job.../Were any of these jobs...]

\* [a paid internship or co-op job/paid internships or co-op jobs]?

\* [a Work-Study job/Work-Study jobs]?

\* related to your studies or career goals?

1 = Yes

0 = No

-----  
**Variable Name(s): F2C31**

When you were enrolled in the 2005-2006 school year, how many hours did you work in a typical week?

\* hours per week

-----  
**Variable Name(s): F2C32**

What was your main reason for working while you were enrolled during the 2005-2006 school year? Was it to...

1 = earn spending money,

2 = pay tuition, fees, or living expenses,

3 = gain job experience, or

4 = for some other reason?

-----  
**Variable Name(s): F2C33**

Could you have afforded to attend school if you had not worked while enrolled during the 2005-2006 school year?

1 = Yes

0 = No

-----  
**Variable Name(s): F2C34**

What were your total earnings from all jobs in the 2005 calendar year?

-----  
**Variable Name(s): F2C35**

Income information is very important to this study and the usefulness of its results.

Please indicate the range that best estimates your total job earnings in 2005.

0 = No income

1 = Less than \$1,000

2 = \$1,000-\$2,999

3 = \$3,000-\$5,999

4 = \$6,000-\$9,999

5 = \$10,000-\$14,999

6 = \$15,000-\$19,999

7 = \$20,000-\$24,999

8 = \$25,000-\$34,999

9 = \$35,000-\$49,999

10 = \$50,000 and above

-----  
**Variable Name(s): F2C36**

Now, we have a few questions about your current finances and future employment plans.

Do you financially contribute to anyone else's support, such as children, parents, siblings, grandparents, aunts, or other relatives, regardless of whether or not they currently live with you?

1 = Yes

0 = No

-----  
**Variable Name(s): F2C37**

How many credit cards do you have in your own name that are billed to you?

(If none, enter zero.)

-----  
**Variable Name(s): F2C38**

Have you used your credit [card/cards] to pay any portion of your tuition?

1 = Yes

0 = No

-----  
**Variable Name(s): F2C39**

Do you usually pay off your credit card [balance/balances] each month, or carry the [balance/balances] over from month to month?

1 = Pay off balances

2 = Carry balances

-----  
**Variable Name(s): F2C40A - F2C40B**

What job or occupation do you expect or plan to have when you are 30 years old?

What do you expect to do in this job?

\* Not planning to work at age 30

\* Don't know

1 = Yes

0 = No

-----  
**Variable Name(s): F2ONET36**

(Please click on the entry in the list below that most closely describes [F2C40A].

If an appropriate entry does not appear in the list, you may search again by changing the keywords in one of the textboxes above, and clicking on one of the "Search" buttons. If you are still unable to find your job by searching, click on the "None of these" button at the bottom of the screen.)

-----  
**Variable Name(s): F2ONET36**

Please find the best occupational category to describe [F2C40A].

\* Please select a general category:

\* Please select a more specific category within this area:

\* Please select a final detailed category:

-----  
**Variable Name(s): F2C41**

How much education do you think you need to get [the job you expect or plan to/ a job you might] have when you are 30 years old?

1 = Some high school

2 = High school diploma or GED

3 = Less than 2 years in a community college or vocational school

4 = Completion of a 2-year program at a community college or vocational school

5 = Some college, but not complete a 4- or 5-year degree

6 = 4- or 5-year college degree

7 = Master's degree

8 = Ph.D.

9 = Professional degree (such as J.D. or M.D.)

## Section D: Community

Now a few questions about your family, household, and community involvement.

### Variable Name(s): F2D01

Are you currently...

- 1 = single and never married,
- 2 = married,
- 3 = separated,
- 4 = divorced, or
- 5 = widowed?

### Variable Name(s): F2D02

In what month and year did your marriage begin? (If you have been married more than once, please report the date your first marriage began.)

\* Month

- 1 = January
- 2 = February
- 3 = March
- 4 = April
- 5 = May

\* Year

- 6 = June 2002 = 2002 or before
- 7 = July 2003 = 2003
- 8 = August 2004 = 2004
- 9 = September 2005 = 2005
- 10 = October 2006 = 2006
- 11 = November
- 12 = December

### Variable Name(s): F2D03

Have you had any biological children [, that is, children born to you/, that is, children for whom you are the natural father]?

- 1 = Yes
- 0 = No

### Variable Name(s): F2D04

How many biological children have you had?

### Variable Name(s): F2D05

In what month and year was your [first] biological child born?

\* Month

- 1 = January
- 2 = February
- 3 = March
- 4 = April
- 5 = May
- 6 = June
- 7 = July
- 8 = August
- 9 = September
- 10 = October
- 11 = November
- 12 = December

\* Year

- 2001 = 2001 or before
- 2002 = 2002
- 2003 = 2003
- 2004 = 2004
- 2005 = 2005
- 2006 = 2006

### Variable Name(s): F2D06

When you were first enrolled at [F2PS1] [in F2ISTART for F2PS1], did you live...

- 1 = in school-provided housing,
- 2 = with your parent(s) or guardian(s), or
- 3 = some place else off campus?

### Variable Name(s): F2D07

[During the spring term of 2006 at [F2PS2006], did you live/Now, during the spring term of 2006 at [F2PS2006] do you live]...

- 1 = in school-provided housing,
- 2 = with your parent(s) or guardian(s), or
- 3 = some place else off campus?

### Variable Name(s): F2D08A - F2D08I

[Now, how/During the spring of 2006, how/During the spring term of 2006 at F2PS2006, how] many of each of the following people [live/lived] with you?

[If you [live/lived] in a room or suite in a dormitory or a [fraternity/sorority], only list those who [share/shared] that room or suite with you.]

[If you [live/lived] by yourself, please indicate so.]

\* You [live/lived] alone.

1 = Yes

0 = No

\* Your father or male guardian.

\* Your mother or female guardian.

\* Friends or roommates (including girlfriends/boyfriends).

\* Brothers or sisters (including adoptive, step, and foster siblings).

\* Your spouse (husband or wife).

\* Your biological [child/children].

\* [Other children/Children] in your care (such as adopted or stepchildren)

\* Others not already listed

-----  
**Variable Name(s): F2D09**

The following questions are about your activities over the past two years, that is, since [current month] 2004. During the past two years, have you performed any unpaid volunteer or community service work through such organizations as youth groups, service clubs, church clubs, school groups, or social action groups?  
1 = Yes  
0 = No

-----  
**Variable Name(s): F2D10A - F2D10H**

Which of the following types of organizations have you been involved with in your unpaid volunteer or community service work during the past two years?  
\* A youth organization such as coaching Little League or helping out with scouts  
\* School or community organizations, such as Big Brother, Big Sister, or Key Club  
\* Political clubs or organizations  
\* Church or church-related groups (not including worship services)  
\* Community centers, neighborhood improvement, or social action associations or groups  
\* Organized volunteer group in a hospital or nursing home  
\* Education organizations  
\* A conservation, recycling, or environmental group such as Sierra Club or the Nature Conservancy  
1 = Yes  
0 = No

-----  
**Variable Name(s): F2D11**

During the past two years, how often did you spend time volunteering or performing community service?  
1 = Less than once a month  
2 = At least once a month, but not weekly  
3 = At least once a week

-----  
**Variable Name(s): F2D12**

During the past two years, have you voted in a local or state election?  
1 = Yes  
0 = No

-----  
**Variable Name(s): F2D13**

Did you vote in the 2004 Presidential election?  
1 = Yes  
0 = No

-----  
**Variable Name(s): F2D14**

Now, we have some questions about any military service as well as significant life events.  
[Since leaving high school, have you/Have you ever] served in the regular Armed Forces, the Coast Guard, the National Guard or the Reserves?  
1 = Yes  
0 = No

-----  
**Variable Name(s): F2D15A - F2D15G**

In the past two years, have any of the following happened to you?  
\* Your parents or guardians got divorced or separated  
\* One of your parents or guardians lost his or her job  
\* One of your parents or guardians died  
\* A close relative or friend died  
\* You became seriously ill or disabled  
\* A family member became seriously ill or disabled  
\* You were the victim of a violent crime  
1 = Yes  
0 = No

# **Appendix F**

## **Occupational Coding Crosswalk**

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## Occupational Crosswalk: O\*NET and ELS:2002 Classifications

### F.1 Overview

The coding system within the Education Longitudinal Study of 2002 (ELS:2002) second follow-up survey instrument used O\*NET. O\*NET OnLine was developed for the U.S. Department of Labor by the National Center for O\*NET Development. For more information about the O\*NET project, please visit the O\*NET Resource Center at <http://www.onetcenter.org/>. The classification structure of O\*NET provides three levels: general, midlevel, and specific. Twenty-three categories make up the general level, which expand to 96 midlevel categories, which expand to 821 specific-level categories. Specific-level categories subsequently roll up to mid- and general-level categories.

Given that occupation was coded differently in the present interview than in the base-year and first follow-up rounds of ELS:2002, an occupational crosswalk was constructed to map the new coding scheme to the original taxonomy. The provided crosswalk maps all 821 specific-level O\*NET categories to the 16 occupational categories used in the base year and first follow-up. Such a crosswalk enables users to examine either set of coded data, depending on their analysis needs. Details regarding the general O\*NET level, the ELS:2002 scheme, and how to use the occupational crosswalk are provided.

#### F.1.1 General O\*NET Level

The general level of coding provides the foundation for further, more detailed classification within the O\*NET structure. Given the more manageable number of occupational categories, it may also be a preferred analysis level. The 23 general-level O\*NET classifications are provided below, in numerical order. For each category, the coded value is given first, followed by the category name, which is followed by select occupational examples as classified by O\*NET.

- 11 – Management (such as sales manager, education administrator, legislator)
- 13 – Business and Financial Operations (such as accountant, financial analyst, loan officer)
- 15 – Computer and Mathematical (such as computer programmer, computer support specialist, statistician)
- 17 – Architecture and Engineering (such as architect, engineer other than software, surveying technician, drafter)
- 19 – Life, Physical, and Social Science (such as biologist, psychologist, survey researcher, research assistant)
- 21 – Community and Social Services (such as social worker, marriage counselor, clergy)
- 23 – Legal (such as lawyer, judge, law clerk)
- 25 – Education, Training, and Library (such as college professor, elementary school teacher, librarian, teacher assistant)
- 27 – Arts, Design, Entertainment, Sports, and Media (such as artist, interior designer, actor, athlete, photographer, writer)
- 29 – Healthcare Practitioners and Technical (such as physician, surgeon, registered nurse, pharmacy technician)
- 31 – Healthcare Support (such as nursing aide, medical assistant)

- 33 – Protective Service (such as police officer, fire fighter, security guard)
- 35 – Food Preparation and Serving Related (such as cook, waiter, dishwasher)
- 37 – Building and Grounds Cleaning and Maintenance (such as janitor, housekeeper, landscaper)
- 39 – Personal Care and Service (such as hair stylist, child care worker, flight attendant)
- 41 – Sales and Related (such as cashier, retail salesperson, real estate agent, insurance agent)
- 43 – Office and Administrative Support (such as bank teller, receptionist, mail carrier, office clerk)
- 45 – Farming, Fishing, and Forestry (such as farm worker, trapper, logging worker)
- 47 – Construction and Extraction (such as carpet installer, electrician, construction laborer, oil drill operator)
- 49 – Installation, Maintenance, and Repair (such as auto mechanic, heating/air conditioning installer, machinery maintenance worker)
- 51 – Production (such as assembler, meat cutter, machine operator, welder)
- 53 – Transportation and Material Moving (such as pilot, truck driver, service station attendant, stocker)
- 55 – Military Specific (any occupation performed in the military)

### **F.1.2 ELS:2002 Coding Scheme**

The hierarchy of occupational categories used in the base year and first follow-up of ELS:2002 is provided below, from lowest to highest rank. For each category, the coded value is given first, followed by the category name, which is followed by occupational examples as they originally appeared on the questionnaires. Two categories are not shown below due to being unranked: these are homemaker (4) and military (7).

- 5 – Laborer (such as construction worker, car washer, sanitary worker, farm laborer)
- 8 – Operative (such as meat cutter, assembly worker, machine operator, welder, taxicab, bus or truck driver)
- 15 – Service (such as barber, beautician, practical nurse, private household worker, janitor, waiter)
- 2 – Craftsperson (such as baker, automobile mechanic, machinist, painter, plumber, telephone installer, carpenter)
- 3 – Farmer (such as farmer, farm manager)
- 12 – Protective Services (such as detective, police officer or guard, sheriff, fire fighter)
- 11 – Proprietor, Owner (such as owner of small business, contractor, restaurant owner)
- 12 – Sales (such as salesperson, advertising or insurance agent, real estate broker)
- 1 – Clerical (such as bank teller, bookkeeper, secretary, typist, mail carrier, ticket agent)
- 6 – Manager, Administrator (such as sales manager, office manager, school administrator, buyer, restaurant manager, government official)
- 16 – Technical (such as draftsman, medical or dental technician, computer programmer)
- 14 – School Teacher (such as elementary or high school teacher)
- 9 – Professional 1 (such as accountant, artist, registered nurse, engineer, librarian, writer, social worker, actor, actress, athlete, politician, but not including school teacher) (note that Professional 1 does not require an advanced degree)

10 – Professional 2 (such as clergyman, dentist, physician, lawyer, scientist, college professor) (note that Professional 2 requires an advanced degree)

### F.1.3 Using the Occupational Crosswalk

O\*NET codes constitute a total of six digits at the specific level, and were recorded as such in the ELS:2002 Second Follow-up instrument. The first two digits represent the nested general level code, while the first three digits represent the nested midlevel code. As mentioned, specific level codes can roll up to the broader categorizations by simply dropping the last three digits (if midlevel desired) or last four digits (if general level desired).

The O\*NET to ELS:2002 occupational crosswalk maps every level of O\*NET classification to its appropriate ELS:2002 counterpart. Each row represents a single mapped occupation, giving a total of 821 possible mappings. All O\*NET category names, or occupational descriptors, come directly from O\*NET. The crosswalk contains eight columns, which provide the following information:

- General O\*NET Code, which gives the 2-digit O\*NET code;
- General O\*NET Category, which gives the general-level O\*NET category name;
- Midlevel O\*NET Code, which gives the 3-digit O\*NET code;
- Midlevel O\*NET Category, which gives the midlevel O\*NET category name;
- Specific O\*NET Code, which gives the 6-digit O\*NET code (instrument-recorded);
- Specific O\*NET Category, which gives the specific-level O\*NET category name;
- ELS Code, which gives the mapped ELS:2002 code (1 through 16); and
- ELS Category, which gives the mapped ELS:2002 category name.

Some O\*NET categories, in particular those that encapsulate “All Other,” correspond to more than one ELS:2002 category. In these instances, the most applicable code is presented first in the ELS Code column, followed by other possible codes in parentheses. The ELS Category column, however, reflects the most applicable category name only.

**Table F-1. Occupational coding crosswalk: 2006**

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
11	Management Occupations	111	Top Executives	111011	Chief Executives	6	Manager, Administrator
11	Management Occupations	111	Top Executives	111021	General and Operations Managers	6 (also 11)	Manager, Administrator
11	Management Occupations	111	Top Executives	111031	Legislators	6	Manager, Administrator
11	Management Occupations	112	Advertising, Marketing, Promotions, Public Relations, and Sales Managers	112011	Advertising and Promotions Managers	6	Manager, Administrator
11	Management Occupations	112	Advertising, Marketing, Promotions, Public Relations, and Sales Managers	112021	Marketing Managers	6	Manager, Administrator
11	Management Occupations	112	Advertising, Marketing, Promotions, Public Relations, and Sales Managers	112022	Sales Managers	6	Manager, Administrator
11	Management Occupations	112	Advertising, Marketing, Promotions, Public Relations, and Sales Managers	112031	Public Relations Managers	6	Manager, Administrator
11	Management Occupations	113	Operations Specialties Managers	113011	Administrative Services Managers	6	Manager, Administrator
11	Management Occupations	113	Operations Specialties Managers	113021	Computer and Information Systems Managers	6	Manager, Administrator
11	Management Occupations	113	Operations Specialties Managers	113031	Financial Managers	6	Manager, Administrator
11	Management Occupations	113	Operations Specialties Managers	113041	Compensation and Benefits Managers	6	Manager, Administrator
11	Management Occupations	113	Operations Specialties Managers	113042	Training and Development Managers	6	Manager, Administrator
11	Management Occupations	113	Operations Specialties Managers	113049	Human Resources Managers, All Other	6	Manager, Administrator
11	Management Occupations	113	Operations Specialties Managers	113051	Industrial Production Managers	6	Manager, Administrator
11	Management Occupations	113	Operations Specialties Managers	113061	Purchasing Managers	6	Manager, Administrator
11	Management Occupations	113	Operations Specialties Managers	113071	Transportation, Storage, and Distribution Managers	6	Manager, Administrator
11	Management Occupations	119	Other Management Occupations	119011	Farm, Ranch, and Other Agricultural Managers	3	Farmer, Farm Manager
11	Management Occupations	119	Other Management Occupations	119012	Farmers and Ranchers	3	Farmer, Farm Manager
11	Management Occupations	119	Other Management Occupations	119021	Construction Managers	6	Manager, Administrator
11	Management Occupations	119	Other Management Occupations	119031	Education Administrators, Preschool and Child Care Center/Program	6	Manager, Administrator
11	Management Occupations	119	Other Management Occupations	119032	Education Administrators, Elementary and Secondary School	6	Manager, Administrator
11	Management Occupations	119	Other Management Occupations	119033	Education Administrators, Postsecondary	6	Manager, Administrator

See notes at end of table.

Table F-1. Occupational coding crosswalk: 2006—Continued

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
11	Management Occupations	119	Other Management Occupations	119039	Education Administrators, All Other	6	Manager, Administrator
11	Management Occupations	119	Other Management Occupations	119041	Engineering Managers	6	Manager, Administrator
11	Management Occupations	119	Other Management Occupations	119051	Food Service Managers	6	Manager, Administrator
11	Management Occupations	119	Other Management Occupations	119061	Funeral Directors	6	Manager, Administrator
11	Management Occupations	119	Other Management Occupations	119071	Gaming Managers	6	Manager, Administrator
11	Management Occupations	119	Other Management Occupations	119081	Lodging Managers	6	Manager, Administrator
11	Management Occupations	119	Other Management Occupations	119111	Medical and Health Services Managers	6	Manager, Administrator
11	Management Occupations	119	Other Management Occupations	119121	Natural Sciences Managers	6	Manager, Administrator
11	Management Occupations	119	Other Management Occupations	119131	Postmasters and Mail Superintendents	6	Manager, Administrator
11	Management Occupations	119	Other Management Occupations	119141	Property, Real Estate, and Community Association Managers	6	Manager, Administrator
11	Management Occupations	119	Other Management Occupations	119151	Social and Community Service Managers	6	Manager, Administrator
11	Management Occupations	119	Other Management Occupations	119199	Managers, All Other	6	Manager, Administrator
13	Business and Financial Operations Occupations	131	Business Operations Specialists	131011	Agents and Business Managers of Artists, Performers, and Athletes	13	Sales
13	Business and Financial Operations Occupations	131	Business Operations Specialists	131021	Purchasing Agents and Buyers, Farm Products	6	Manager, Administrator
13	Business and Financial Operations Occupations	131	Business Operations Specialists	131022	Wholesale and Retail Buyers, Except Farm Products	6	Manager, Administrator
13	Business and Financial Operations Occupations	131	Business Operations Specialists	131023	Purchasing Agents, Except Wholesale, Retail, and Farm Products	13	Sales
13	Business and Financial Operations Occupations	131	Business Operations Specialists	131031	Claims Adjusters, Examiners, and Investigators	1	Clerical
13	Business and Financial Operations Occupations	131	Business Operations Specialists	131032	Insurance Appraisers, Auto Damage	1	Clerical
13	Business and Financial Operations Occupations	131	Business Operations Specialists	131041	Compliance Officers, Except Agriculture, Construction, Health and Safety, and Transportation	1	Clerical
13	Business and Financial Operations Occupations	131	Business Operations Specialists	131051	Cost Estimators	1	Clerical
13	Business and Financial Operations Occupations	131	Business Operations Specialists	131061	Emergency Management Specialists	9	Professional A
13	Business and Financial Operations Occupations	131	Business Operations Specialists	131071	Employment, Recruitment, and Placement Specialists	9	Professional A
13	Business and Financial Operations Occupations	131	Business Operations Specialists	131072	Compensation, Benefits, and Job Analysis Specialists	9	Professional A

See notes at end of table.

**Table F-1. Occupational coding crosswalk: 2006—Continued**

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
13	Business and Financial Operations Occupations	131	Business Operations Specialists	131073	Training and Development Specialists	9	Professional A
13	Business and Financial Operations Occupations	131	Business Operations Specialists	131079	Human Resources, Training, and Labor Relations Specialists, All Other	9	Professional A
13	Business and Financial Operations Occupations	131	Business Operations Specialists	131081	Logisticians	9	Professional A
13	Business and Financial Operations Occupations	131	Business Operations Specialists	131111	Management Analysts	9	Professional A
13	Business and Financial Operations Occupations	131	Business Operations Specialists	131121	Meeting and Convention Planners	9	Professional A
13	Business and Financial Operations Occupations	131	Business Operations Specialists	131199	Business Operations Specialists, All Other	9	Professional A
13	Business and Financial Operations Occupations	132	Financial Specialists	132011	Accountants and Auditors	9	Professional A
13	Business and Financial Operations Occupations	132	Financial Specialists	132021	Appraisers and Assessors of Real Estate	9	Professional A
13	Business and Financial Operations Occupations	132	Financial Specialists	132031	Budget Analysts	9	Professional A
13	Business and Financial Operations Occupations	132	Financial Specialists	132041	Credit Analysts	9	Professional A
13	Business and Financial Operations Occupations	132	Financial Specialists	132051	Financial Analysts	9	Professional A
13	Business and Financial Operations Occupations	132	Financial Specialists	132052	Personal Financial Advisors	9	Professional A
13	Business and Financial Operations Occupations	132	Financial Specialists	132053	Insurance Underwriters	1	Clerical
13	Business and Financial Operations Occupations	132	Financial Specialists	132061	Financial Examiners	1	Clerical
13	Business and Financial Operations Occupations	132	Financial Specialists	132071	Loan Counselors	1	Clerical
13	Business and Financial Operations Occupations	132	Financial Specialists	132072	Loan Officers	1	Clerical
13	Business and Financial Operations Occupations	132	Financial Specialists	132081	Tax Examiners, Collectors, and Revenue Agents	1	Clerical
13	Business and Financial Operations Occupations	132	Financial Specialists	132082	Tax Preparers	1	Clerical
13	Business and Financial Operations Occupations	132	Financial Specialists	132099	Financial Specialists, All Other	9 (also 1)	Professional A

See notes at end of table.

Table F-1. Occupational coding crosswalk: 2006—Continued

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
15	Computer and Mathematical Occupations	151	Computer Specialists	151011	Computer and Information Scientists, Research	9	Professional A
15	Computer and Mathematical Occupations	151	Computer Specialists	151021	Computer Programmers	16	Technical
15	Computer and Mathematical Occupations	151	Computer Specialists	151031	Computer Software Engineers, Applications	9	Professional A
15	Computer and Mathematical Occupations	151	Computer Specialists	151032	Computer Software Engineers, Systems Software	9	Professional A
15	Computer and Mathematical Occupations	151	Computer Specialists	151041	Computer Support Specialists	16	Technical
15	Computer and Mathematical Occupations	151	Computer Specialists	151051	Computer Systems Analysts	16	Technical
15	Computer and Mathematical Occupations	151	Computer Specialists	151061	Database Administrators	16	Technical
15	Computer and Mathematical Occupations	151	Computer Specialists	151071	Network and Computer Systems Administrators	16	Technical
15	Computer and Mathematical Occupations	151	Computer Specialists	151081	Network Systems and Data Communications Analysts	16	Technical
15	Computer and Mathematical Occupations	151	Computer Specialists	151099	Computer Specialists, All Other	16	Technical
15	Computer and Mathematical Occupations	152	Mathematical Science Occupations	152011	Actuaries	9	Professional A
15	Computer and Mathematical Occupations	152	Mathematical Science Occupations	152021	Mathematicians	10	Professional B
15	Computer and Mathematical Occupations	152	Mathematical Science Occupations	152031	Operations Research Analysts	9	Professional A
15	Computer and Mathematical Occupations	152	Mathematical Science Occupations	152041	Statisticians	10	Professional B
15	Computer and Mathematical Occupations	152	Mathematical Science Occupations	152091	Mathematical Technicians	16	Technical
15	Computer and Mathematical Occupations	152	Mathematical Science Occupations	152099	Mathematical Scientists, All Other	10 (also 9, 16)	Professional B
17	Architecture and Engineering Occupations	171	Architects, Surveyors, and Cartographers	171011	Architects, Except Landscape and Naval	9	Professional A
17	Architecture and Engineering Occupations	171	Architects, Surveyors, and Cartographers	171012	Landscape Architects	9	Professional A
17	Architecture and Engineering Occupations	171	Architects, Surveyors, and Cartographers	171021	Cartographers and Photogrammetrists	9	Professional A

See notes at end of table.

**Table F-1. Occupational coding crosswalk: 2006—Continued**

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
17	Architecture and Engineering Occupations	171	Architects, Surveyors, and Cartographers	171022	Surveyors	9	Professional A
17	Architecture and Engineering Occupations	172	Engineers	172011	Aerospace Engineers	9	Professional A
17	Architecture and Engineering Occupations	172	Engineers	172021	Agricultural Engineers	9	Professional A
17	Architecture and Engineering Occupations	172	Engineers	172031	Biomedical Engineers	9	Professional A
17	Architecture and Engineering Occupations	172	Engineers	172041	Chemical Engineers	9	Professional A
17	Architecture and Engineering Occupations	172	Engineers	172051	Civil Engineers	9	Professional A
17	Architecture and Engineering Occupations	172	Engineers	172061	Computer Hardware Engineers	9	Professional A
17	Architecture and Engineering Occupations	172	Engineers	172071	Electrical Engineers	9	Professional A
17	Architecture and Engineering Occupations	172	Engineers	172072	Electronics Engineers, Except Computer	9	Professional A
17	Architecture and Engineering Occupations	172	Engineers	172081	Environmental Engineers	9	Professional A
17	Architecture and Engineering Occupations	172	Engineers	172111	Health and Safety Engineers, Except Mining Safety Engineers and Inspectors	9	Professional A
17	Architecture and Engineering Occupations	172	Engineers	172112	Industrial Engineers	9	Professional A
17	Architecture and Engineering Occupations	172	Engineers	172121	Marine Engineers and Naval Architects	9	Professional A
17	Architecture and Engineering Occupations	172	Engineers	172131	Materials Engineers	9	Professional A
17	Architecture and Engineering Occupations	172	Engineers	172141	Mechanical Engineers	9	Professional A
17	Architecture and Engineering Occupations	172	Engineers	172151	Mining and Geological Engineers, Including Mining Safety Engineers	9	Professional A
17	Architecture and Engineering Occupations	172	Engineers	172161	Nuclear Engineers	9	Professional A
17	Architecture and Engineering Occupations	172	Engineers	172171	Petroleum Engineers	9	Professional A
17	Architecture and Engineering Occupations	172	Engineers	172199	Engineers, All Other	9	Professional A

See notes at end of table.



Table F-1. Occupational coding crosswalk: 2006—Continued

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
17	Architecture and Engineering Occupations	173	Drafters, Engineering, and Mapping Technicians	173011	Architectural and Civil Drafters	16	Technical
17	Architecture and Engineering Occupations	173	Drafters, Engineering, and Mapping Technicians	173012	Electrical and Electronics Drafters	16	Technical
17	Architecture and Engineering Occupations	173	Drafters, Engineering, and Mapping Technicians	173013	Mechanical Drafters	16	Technical
17	Architecture and Engineering Occupations	173	Drafters, Engineering, and Mapping Technicians	173019	Drafters, All Other	16	Technical
17	Architecture and Engineering Occupations	173	Drafters, Engineering, and Mapping Technicians	173021	Aerospace Engineering and Operations Technicians	16	Technical
17	Architecture and Engineering Occupations	173	Drafters, Engineering, and Mapping Technicians	173022	Civil Engineering Technicians	16	Technical
17	Architecture and Engineering Occupations	173	Drafters, Engineering, and Mapping Technicians	173023	Electrical and Electronic Engineering Technicians	16	Technical
17	Architecture and Engineering Occupations	173	Drafters, Engineering, and Mapping Technicians	173024	Electro-Mechanical Technicians	16	Technical
17	Architecture and Engineering Occupations	173	Drafters, Engineering, and Mapping Technicians	173025	Environmental Engineering Technicians	16	Technical
17	Architecture and Engineering Occupations	173	Drafters, Engineering, and Mapping Technicians	173026	Industrial Engineering Technicians	16	Technical
17	Architecture and Engineering Occupations	173	Drafters, Engineering, and Mapping Technicians	173027	Mechanical Engineering Technicians	16	Technical
17	Architecture and Engineering Occupations	173	Drafters, Engineering, and Mapping Technicians	173029	Engineering Technicians, Except Drafters, All Other	16	Technical
17	Architecture and Engineering Occupations	173	Drafters, Engineering, and Mapping Technicians	173031	Surveying and Mapping Technicians	16	Technical
19	Life, Physical, and Social Science Occupations	191	Life Scientists	191011	Animal Scientists	10	Professional B
19	Life, Physical, and Social Science Occupations	191	Life Scientists	191012	Food Scientists and Technologists	10	Professional B
19	Life, Physical, and Social Science Occupations	191	Life Scientists	191013	Soil and Plant Scientists	10	Professional B
19	Life, Physical, and Social Science Occupations	191	Life Scientists	191021	Biochemists and Biophysicists	10	Professional B
19	Life, Physical, and Social Science Occupations	191	Life Scientists	191022	Microbiologists	10	Professional B
19	Life, Physical, and Social Science Occupations	191	Life Scientists	191023	Zoologists and Wildlife Biologists	10	Professional B

See notes at end of table.

Table F-1. Occupational coding crosswalk: 2006—Continued

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
19	Life, Physical, and Social Science Occupations	191	Life Scientists	191029	Biological Scientists, All Other	10	Professional B
19	Life, Physical, and Social Science Occupations	191	Life Scientists	191031	Conservation Scientists	10	Professional B
19	Life, Physical, and Social Science Occupations	191	Life Scientists	191032	Foresters	9	Professional A
19	Life, Physical, and Social Science Occupations	191	Life Scientists	191041	Epidemiologists	10	Professional B
19	Life, Physical, and Social Science Occupations	191	Life Scientists	191042	Medical Scientists, Except Epidemiologists	10	Professional B
19	Life, Physical, and Social Science Occupations	191	Life Scientists	191099	Life Scientists, All Other	10	Professional B
19	Life, Physical, and Social Science Occupations	192	Physical Scientists	192011	Astronomers	10	Professional B
19	Life, Physical, and Social Science Occupations	192	Physical Scientists	192012	Physicists	10	Professional B
19	Life, Physical, and Social Science Occupations	192	Physical Scientists	192021	Atmospheric and Space Scientists	10	Professional B
19	Life, Physical, and Social Science Occupations	192	Physical Scientists	192031	Chemists	10	Professional B
19	Life, Physical, and Social Science Occupations	192	Physical Scientists	192032	Materials Scientists	10	Professional B
19	Life, Physical, and Social Science Occupations	192	Physical Scientists	192041	Environmental Scientists and Specialists, Including Health	10	Professional B
19	Life, Physical, and Social Science Occupations	192	Physical Scientists	192042	Geoscientists, Except Hydrologists and Geographers	10	Professional B
19	Life, Physical, and Social Science Occupations	192	Physical Scientists	192043	Hydrologists	10	Professional B
19	Life, Physical, and Social Science Occupations	192	Physical Scientists	192099	Physical Scientists, All Other	10	Professional B
19	Life, Physical, and Social Science Occupations	193	Social Scientists and Related Workers	193011	Economists	10	Professional B
19	Life, Physical, and Social Science Occupations	193	Social Scientists and Related Workers	193021	Market Research Analysts	9	Professional A
19	Life, Physical, and Social Science Occupations	193	Social Scientists and Related Workers	193022	Survey Researchers	9	Professional A
19	Life, Physical, and Social Science Occupations	193	Social Scientists and Related Workers	193031	Clinical, Counseling, and School Psychologists	10	Professional B

See notes at end of table.

**Table F-1. Occupational coding crosswalk: 2006—Continued**

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
19	Life, Physical, and Social Science Occupations	193	Social Scientists and Related Workers	193032	Industrial-Organizational Psychologists	10	Professional B
19	Life, Physical, and Social Science Occupations	193	Social Scientists and Related Workers	193039	Psychologists, All Other	10	Professional B
19	Life, Physical, and Social Science Occupations	193	Social Scientists and Related Workers	193041	Sociologists	10	Professional B
19	Life, Physical, and Social Science Occupations	193	Social Scientists and Related Workers	193051	Urban and Regional Planners	9	Professional A
19	Life, Physical, and Social Science Occupations	193	Social Scientists and Related Workers	193091	Anthropologists and Archeologists	10	Professional B
19	Life, Physical, and Social Science Occupations	193	Social Scientists and Related Workers	193092	Geographers	10	Professional B
19	Life, Physical, and Social Science Occupations	193	Social Scientists and Related Workers	193093	Historians	10	Professional B
19	Life, Physical, and Social Science Occupations	193	Social Scientists and Related Workers	193094	Political Scientists	10	Professional B
19	Life, Physical, and Social Science Occupations	193	Social Scientists and Related Workers	193099	Social Scientists and Related Workers, All Other	10 (also 9)	Professional B
19	Life, Physical, and Social Science Occupations	194	Life, Physical, and Social Science Technicians	194011	Agricultural and Food Science Technicians	16	Technical
19	Life, Physical, and Social Science Occupations	194	Life, Physical, and Social Science Technicians	194021	Biological Technicians	16	Technical
19	Life, Physical, and Social Science Occupations	194	Life, Physical, and Social Science Technicians	194031	Chemical Technicians	16	Technical
19	Life, Physical, and Social Science Occupations	194	Life, Physical, and Social Science Technicians	194041	Geological and Petroleum Technicians	16	Technical
19	Life, Physical, and Social Science Occupations	194	Life, Physical, and Social Science Technicians	194051	Nuclear Technicians	16	Technical
19	Life, Physical, and Social Science Occupations	194	Life, Physical, and Social Science Technicians	194061	Social Science Research Assistants	16	Technical
19	Life, Physical, and Social Science Occupations	194	Life, Physical, and Social Science Technicians	194091	Environmental Science and Protection Technicians, Including Health	16	Technical
19	Life, Physical, and Social Science Occupations	194	Life, Physical, and Social Science Technicians	194092	Forensic Science Technicians	16	Technical
19	Life, Physical, and Social Science Occupations	194	Life, Physical, and Social Science Technicians	194093	Forest and Conservation Technicians	16	Technical

See notes at end of table.

**Table F-1. Occupational coding crosswalk: 2006—Continued**

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
19	Life, Physical, and Social Science Occupations	194	Life, Physical, and Social Science Technicians	194099	Life, Physical, and Social Science Technicians, All Other	16	Technical
21	Community and Social Services Occupations	211	Counselors, Social Workers, and Other Community and Social Service Specialists	211011	Substance Abuse and Behavioral Disorder Counselors	9	Professional A
21	Community and Social Services Occupations	211	Counselors, Social Workers, and Other Community and Social Service Specialists	211012	Educational, Vocational, and School Counselors	9	Professional A
21	Community and Social Services Occupations	211	Counselors, Social Workers, and Other Community and Social Service Specialists	211013	Marriage and Family Therapists	9	Professional A
21	Community and Social Services Occupations	211	Counselors, Social Workers, and Other Community and Social Service Specialists	211014	Mental Health Counselors	9	Professional A
21	Community and Social Services Occupations	211	Counselors, Social Workers, and Other Community and Social Service Specialists	211015	Rehabilitation Counselors	9	Professional A
21	Community and Social Services Occupations	211	Counselors, Social Workers, and Other Community and Social Service Specialists	211019	Counselors, All Other	9	Professional A
21	Community and Social Services Occupations	211	Counselors, Social Workers, and Other Community and Social Service Specialists	211021	Child, Family, and School Social Workers	9	Professional A
21	Community and Social Services Occupations	211	Counselors, Social Workers, and Other Community and Social Service Specialists	211022	Medical and Public Health Social Workers	9	Professional A
21	Community and Social Services Occupations	211	Counselors, Social Workers, and Other Community and Social Service Specialists	211023	Mental Health and Substance Abuse Social Workers	9	Professional A
21	Community and Social Services Occupations	211	Counselors, Social Workers, and Other Community and Social Service Specialists	211029	Social Workers, All Other	9	Professional A
21	Community and Social Services Occupations	211	Counselors, Social Workers, and Other Community and Social Service Specialists	211091	Health Educators	9	Professional A
21	Community and Social Services Occupations	211	Counselors, Social Workers, and Other Community and Social Service Specialists	211092	Probation Officers and Correctional Treatment Specialists	9	Professional A

See notes at end of table.

Table F-1. Occupational coding crosswalk: 2006—Continued

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
21	Community and Social Services Occupations	211	Counselors, Social Workers, and Other Community and Social Service Specialists	211093	Social and Human Service Assistants	15	Service
21	Community and Social Services Occupations	211	Counselors, Social Workers, and Other Community and Social Service Specialists	211099	Community and Social Service Specialists, All Other	9 (also 15)	Professional A
21	Community and Social Services Occupations	212	Religious Workers	212011	Clergy	10	Professional B
21	Community and Social Services Occupations	212	Religious Workers	212021	Directors, Religious Activities and Education	10	Professional B
21	Community and Social Services Occupations	212	Religious Workers	212099	Religious Workers, All Other	10	Professional B
23	Legal Occupations	231	Lawyers, Judges, and Related Workers	231011	Lawyers	10	Professional B
23	Legal Occupations	231	Lawyers, Judges, and Related Workers	231021	Administrative Law Judges, Adjudicators, and Hearing Officers	9	Professional A
23	Legal Occupations	231	Lawyers, Judges, and Related Workers	231022	Arbitrators, Mediators, and Conciliators	9	Professional A
23	Legal Occupations	231	Lawyers, Judges, and Related Workers	231023	Judges, Magistrate Judges, and Magistrates	10	Professional B
23	Legal Occupations	232	Legal Support Workers	232011	Paralegals and Legal Assistants	9	Professional A
23	Legal Occupations	232	Legal Support Workers	232091	Court Reporters	9	Professional A
23	Legal Occupations	232	Legal Support Workers	232092	Law Clerks	1	Clerical
23	Legal Occupations	232	Legal Support Workers	232093	Title Examiners, Abstractors, and Searchers	1	Clerical
23	Legal Occupations	232	Legal Support Workers	232099	Legal Support Workers, All Other	1	Clerical
25	Education, Training, and Library Occupations	251	Postsecondary Teachers	251011	Business Teachers, Postsecondary	10	Professional B
25	Education, Training, and Library Occupations	251	Postsecondary Teachers	251021	Computer Science Teachers, Postsecondary	10	Professional B
25	Education, Training, and Library Occupations	251	Postsecondary Teachers	251022	Mathematical Science Teachers, Postsecondary	10	Professional B
25	Education, Training, and Library Occupations	251	Postsecondary Teachers	251031	Architecture Teachers, Postsecondary	10	Professional B
25	Education, Training, and Library Occupations	251	Postsecondary Teachers	251032	Engineering Teachers, Postsecondary	10	Professional B

See notes at end of table.

**Table F-1. Occupational coding crosswalk: 2006—Continued**

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
25	Education, Training, and Library Occupations	251	Postsecondary Teachers	251041	Agricultural Sciences Teachers, Postsecondary	10	Professional B
25	Education, Training, and Library Occupations	251	Postsecondary Teachers	251042	Biological Science Teachers, Postsecondary	10	Professional B
25	Education, Training, and Library Occupations	251	Postsecondary Teachers	251043	Forestry and Conservation Science Teachers, Postsecondary	10	Professional B
25	Education, Training, and Library Occupations	251	Postsecondary Teachers	251051	Atmospheric, Earth, Marine, and Space Sciences Teachers, Postsecondary	10	Professional B
25	Education, Training, and Library Occupations	251	Postsecondary Teachers	251052	Chemistry Teachers, Postsecondary	10	Professional B
25	Education, Training, and Library Occupations	251	Postsecondary Teachers	251053	Environmental Science Teachers, Postsecondary	10	Professional B
25	Education, Training, and Library Occupations	251	Postsecondary Teachers	251054	Physics Teachers, Postsecondary	10	Professional B
25	Education, Training, and Library Occupations	251	Postsecondary Teachers	251061	Anthropology and Archeology Teachers, Postsecondary	10	Professional B
25	Education, Training, and Library Occupations	251	Postsecondary Teachers	251062	Area, Ethnic, and Cultural Studies Teachers, Postsecondary	10	Professional B
25	Education, Training, and Library Occupations	251	Postsecondary Teachers	251063	Economics Teachers, Postsecondary	10	Professional B
25	Education, Training, and Library Occupations	251	Postsecondary Teachers	251064	Geography Teachers, Postsecondary	10	Professional B
25	Education, Training, and Library Occupations	251	Postsecondary Teachers	251065	Political Science Teachers, Postsecondary	10	Professional B
25	Education, Training, and Library Occupations	251	Postsecondary Teachers	251066	Psychology Teachers, Postsecondary	10	Professional B
25	Education, Training, and Library Occupations	251	Postsecondary Teachers	251067	Sociology Teachers, Postsecondary	10	Professional B
25	Education, Training, and Library Occupations	251	Postsecondary Teachers	251069	Social Sciences Teachers, Postsecondary, All Other	10	Professional B
25	Education, Training, and Library Occupations	251	Postsecondary Teachers	251071	Health Specialties Teachers, Postsecondary	10	Professional B
25	Education, Training, and Library Occupations	251	Postsecondary Teachers	251072	Nursing Instructors and Teachers, Postsecondary	10	Professional B
25	Education, Training, and Library Occupations	251	Postsecondary Teachers	251081	Education Teachers, Postsecondary	10	Professional B
25	Education, Training, and Library Occupations	251	Postsecondary Teachers	251082	Library Science Teachers, Postsecondary	10	Professional B

See notes at end of table.

**Table F-1. Occupational coding crosswalk: 2006—Continued**

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
25	Education, Training, and Library Occupations	251	Postsecondary Teachers	251111	Criminal Justice and Law Enforcement Teachers, Postsecondary	10	Professional B
25	Education, Training, and Library Occupations	251	Postsecondary Teachers	251112	Law Teachers, Postsecondary	10	Professional B
25	Education, Training, and Library Occupations	251	Postsecondary Teachers	251113	Social Work Teachers, Postsecondary	10	Professional B
25	Education, Training, and Library Occupations	251	Postsecondary Teachers	251121	Art, Drama, and Music Teachers, Postsecondary	10	Professional B
25	Education, Training, and Library Occupations	251	Postsecondary Teachers	251122	Communications Teachers, Postsecondary	10	Professional B
25	Education, Training, and Library Occupations	251	Postsecondary Teachers	251123	English Language and Literature Teachers, Postsecondary	10	Professional B
25	Education, Training, and Library Occupations	251	Postsecondary Teachers	251124	Foreign Language and Literature Teachers, Postsecondary	10	Professional B
25	Education, Training, and Library Occupations	251	Postsecondary Teachers	251125	History Teachers, Postsecondary	10	Professional B
25	Education, Training, and Library Occupations	251	Postsecondary Teachers	251126	Philosophy and Religion Teachers, Postsecondary	10	Professional B
25	Education, Training, and Library Occupations	251	Postsecondary Teachers	251191	Graduate Teaching Assistants	15	Service
25	Education, Training, and Library Occupations	251	Postsecondary Teachers	251192	Home Economics Teachers, Postsecondary	10	Professional B
25	Education, Training, and Library Occupations	251	Postsecondary Teachers	251193	Recreation and Fitness Studies Teachers, Postsecondary	10	Professional B
25	Education, Training, and Library Occupations	251	Postsecondary Teachers	251194	Vocational Education Teachers, Postsecondary	10	Professional B
25	Education, Training, and Library Occupations	251	Postsecondary Teachers	251199	Postsecondary Teachers, All Other	10	Professional B
25	Education, Training, and Library Occupations	252	Primary, Secondary, and Special Education School Teachers	252011	Preschool Teachers, Except Special Education	14	School Teacher
25	Education, Training, and Library Occupations	252	Primary, Secondary, and Special Education School Teachers	252012	Kindergarten Teachers, Except Special Education	14	School Teacher
25	Education, Training, and Library Occupations	252	Primary, Secondary, and Special Education School Teachers	252021	Elementary School Teachers, Except Special Education	14	School Teacher
25	Education, Training, and Library Occupations	252	Primary, Secondary, and Special Education School Teachers	252022	Middle School Teachers, Except Special and Vocational Education	14	School Teacher
25	Education, Training, and Library Occupations	252	Primary, Secondary, and Special Education School Teachers	252023	Vocational Education Teachers, Middle School	14	School Teacher

See notes at end of table.

**Table F-1. Occupational coding crosswalk: 2006—Continued**

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
25	Education, Training, and Library Occupations	252	Primary, Secondary, and Special Education School Teachers	252031	Secondary School Teachers, Except Special and Vocational Education	14	School Teacher
25	Education, Training, and Library Occupations	252	Primary, Secondary, and Special Education School Teachers	252032	Vocational Education Teachers, Secondary School	14	School Teacher
25	Education, Training, and Library Occupations	252	Primary, Secondary, and Special Education School Teachers	252041	Special Education Teachers, Preschool, Kindergarten, and Elementary School	14	School Teacher
25	Education, Training, and Library Occupations	252	Primary, Secondary, and Special Education School Teachers	252042	Special Education Teachers, Middle School	14	School Teacher
25	Education, Training, and Library Occupations	252	Primary, Secondary, and Special Education School Teachers	252043	Special Education Teachers, Secondary School	14	School Teacher
25	Education, Training, and Library Occupations	253	Other Teachers and Instructors	253011	Adult Literacy, Remedial Education, and GED Teachers and Instructors	9	Professional A
25	Education, Training, and Library Occupations	253	Other Teachers and Instructors	253021	Self-Enrichment Education Teachers	9	Professional A
25	Education, Training, and Library Occupations	253	Other Teachers and Instructors	253099	Teachers and Instructors, All Other	9	Professional A
25	Education, Training, and Library Occupations	254	Librarians, Curators, and Archivists	254011	Archivists	9	Professional A
25	Education, Training, and Library Occupations	254	Librarians, Curators, and Archivists	254012	Curators	9	Professional A
25	Education, Training, and Library Occupations	254	Librarians, Curators, and Archivists	254013	Museum Technicians and Conservators	16	Technical
25	Education, Training, and Library Occupations	254	Librarians, Curators, and Archivists	254021	Librarians	9	Professional A
25	Education, Training, and Library Occupations	254	Librarians, Curators, and Archivists	254031	Library Technicians	16	Technical
25	Education, Training, and Library Occupations	259	Other Education, Training, and Library Occupations	259011	Audio-Visual Collections Specialists	16	Technical
25	Education, Training, and Library Occupations	259	Other Education, Training, and Library Occupations	259021	Farm and Home Management Advisors	9	Professional A
25	Education, Training, and Library Occupations	259	Other Education, Training, and Library Occupations	259031	Instructional Coordinators	9	Professional A
25	Education, Training, and Library Occupations	259	Other Education, Training, and Library Occupations	259041	Teacher Assistants	15	Service
25	Education, Training, and Library Occupations	259	Other Education, Training, and Library Occupations	259099	Education, Training, and Library Workers, All Other	9 (also 16, 15)	Professional A

See notes at end of table.



Table F-1. Occupational coding crosswalk: 2006—Continued

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
27	Arts, Design, Entertainment, Sports, and Media Occupations	271	Art and Design Workers	271011	Art Directors	6	Manager, Administrator
27	Arts, Design, Entertainment, Sports, and Media Occupations	271	Art and Design Workers	271012	Craft Artists	9	Professional A
27	Arts, Design, Entertainment, Sports, and Media Occupations	271	Art and Design Workers	271013	Fine Artists, Including Painters, Sculptors, and Illustrators	9	Professional A
27	Arts, Design, Entertainment, Sports, and Media Occupations	271	Art and Design Workers	271014	Multi-Media Artists and Animators	9	Professional A
27	Arts, Design, Entertainment, Sports, and Media Occupations	271	Art and Design Workers	271019	Artists and Related Workers, All Other	9	Professional A
27	Arts, Design, Entertainment, Sports, and Media Occupations	271	Art and Design Workers	271021	Commercial and Industrial Designers	9	Professional A
27	Arts, Design, Entertainment, Sports, and Media Occupations	271	Art and Design Workers	271022	Fashion Designers	9	Professional A
27	Arts, Design, Entertainment, Sports, and Media Occupations	271	Art and Design Workers	271023	Floral Designers	9	Professional A
27	Arts, Design, Entertainment, Sports, and Media Occupations	271	Art and Design Workers	271024	Graphic Designers	16	Technical
27	Arts, Design, Entertainment, Sports, and Media Occupations	271	Art and Design Workers	271025	Interior Designers	9	Professional A
27	Arts, Design, Entertainment, Sports, and Media Occupations	271	Art and Design Workers	271026	Merchandise Displayers and Window Trimmers	15	Service
27	Arts, Design, Entertainment, Sports, and Media Occupations	271	Art and Design Workers	271027	Set and Exhibit Designers	9	Professional A
27	Arts, Design, Entertainment, Sports, and Media Occupations	271	Art and Design Workers	271029	Designers, All Other	9 (also 6, 16, 15)	Professional A

See notes at end of table.

**Table F-1. Occupational coding crosswalk: 2006—Continued**

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
27	Arts, Design, Entertainment, Sports, and Media Occupations	272	Entertainers and Performers, Sports and Related Workers	272011	Actors	9	Professional A
27	Arts, Design, Entertainment, Sports, and Media Occupations	272	Entertainers and Performers, Sports and Related Workers	272012	Producers and Directors	9	Professional A
27	Arts, Design, Entertainment, Sports, and Media Occupations	272	Entertainers and Performers, Sports and Related Workers	272021	Athletes and Sports Competitors	9	Professional A
27	Arts, Design, Entertainment, Sports, and Media Occupations	272	Entertainers and Performers, Sports and Related Workers	272022	Coaches and Scouts	9	Professional A
27	Arts, Design, Entertainment, Sports, and Media Occupations	272	Entertainers and Performers, Sports and Related Workers	272023	Umpires, Referees, and Other Sports Officials	15	Service
27	Arts, Design, Entertainment, Sports, and Media Occupations	272	Entertainers and Performers, Sports and Related Workers	272031	Dancers	9	Professional A
27	Arts, Design, Entertainment, Sports, and Media Occupations	272	Entertainers and Performers, Sports and Related Workers	272032	Choreographers	9	Professional A
27	Arts, Design, Entertainment, Sports, and Media Occupations	272	Entertainers and Performers, Sports and Related Workers	272041	Music Directors and Composers	9	Professional A
27	Arts, Design, Entertainment, Sports, and Media Occupations	272	Entertainers and Performers, Sports and Related Workers	272042	Musicians and Singers	9	Professional A
27	Arts, Design, Entertainment, Sports, and Media Occupations	272	Entertainers and Performers, Sports and Related Workers	272099	Entertainers and Performers, Sports and Related Workers, All Other	9 (also 15)	Professional A
27	Arts, Design, Entertainment, Sports, and Media Occupations	273	Media and Communication Workers	273011	Radio and Television Announcers	9	Professional A
27	Arts, Design, Entertainment, Sports, and Media Occupations	273	Media and Communication Workers	273012	Public Address System and Other Announcers	9	Professional A
27	Arts, Design, Entertainment, Sports, and Media Occupations	273	Media and Communication Workers	273021	Broadcast News Analysts	9	Professional A

See notes at end of table.

Table F-1. Occupational coding crosswalk: 2006—Continued

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
27	Arts, Design, Entertainment, Sports, and Media Occupations	273	Media and Communication Workers	273022	Reporters and Correspondents	9	Professional A
27	Arts, Design, Entertainment, Sports, and Media Occupations	273	Media and Communication Workers	273031	Public Relations Specialists	9	Professional A
27	Arts, Design, Entertainment, Sports, and Media Occupations	273	Media and Communication Workers	273041	Editors	9	Professional A
27	Arts, Design, Entertainment, Sports, and Media Occupations	273	Media and Communication Workers	273042	Technical Writers	9	Professional A
27	Arts, Design, Entertainment, Sports, and Media Occupations	273	Media and Communication Workers	273043	Writers and Authors	9	Professional A
27	Arts, Design, Entertainment, Sports, and Media Occupations	273	Media and Communication Workers	273091	Interpreters and Translators	9	Professional A
27	Arts, Design, Entertainment, Sports, and Media Occupations	273	Media and Communication Workers	273099	Media and Communication Workers, All Other	9	Professional A
27	Arts, Design, Entertainment, Sports, and Media Occupations	274	Media and Communication Equipment Workers	274011	Audio and Video Equipment Technicians	16	Technical
27	Arts, Design, Entertainment, Sports, and Media Occupations	274	Media and Communication Equipment Workers	274012	Broadcast Technicians	16	Technical
27	Arts, Design, Entertainment, Sports, and Media Occupations	274	Media and Communication Equipment Workers	274013	Radio Operators	16	Technical
27	Arts, Design, Entertainment, Sports, and Media Occupations	274	Media and Communication Equipment Workers	274014	Sound Engineering Technicians	16	Technical
27	Arts, Design, Entertainment, Sports, and Media Occupations	274	Media and Communication Equipment Workers	274021	Photographers	9	Professional A
27	Arts, Design, Entertainment, Sports, and Media Occupations	274	Media and Communication Equipment Workers	274031	Camera Operators, Television, Video, and Motion Picture	16	Technical

See notes at end of table.

**Table F-1. Occupational coding crosswalk: 2006—Continued**

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
27	Arts, Design, Entertainment, Sports, and Media Occupations	274	Media and Communication Equipment Workers	274032	Film and Video Editors	9	Professional A
27	Arts, Design, Entertainment, Sports, and Media Occupations	274	Media and Communication Equipment Workers	274099	Media and Communication Equipment Workers, All Other	16 (also 9)	Technical
29	Healthcare Practitioners and Technical Occupations	291	Health Diagnosing and Treating Practitioners	291011	Chiropractors	9	Professional A
29	Healthcare Practitioners and Technical Occupations	291	Health Diagnosing and Treating Practitioners	291021	Dentists, General	10	Professional B
29	Healthcare Practitioners and Technical Occupations	291	Health Diagnosing and Treating Practitioners	291022	Oral and Maxillofacial Surgeons	10	Professional B
29	Healthcare Practitioners and Technical Occupations	291	Health Diagnosing and Treating Practitioners	291023	Orthodontists	10	Professional B
29	Healthcare Practitioners and Technical Occupations	291	Health Diagnosing and Treating Practitioners	291024	Prosthodontists	10	Professional B
29	Healthcare Practitioners and Technical Occupations	291	Health Diagnosing and Treating Practitioners	291029	Dentists, All Other Specialists	10	Professional B
29	Healthcare Practitioners and Technical Occupations	291	Health Diagnosing and Treating Practitioners	291031	Dietitians and Nutritionists	9	Professional A
29	Healthcare Practitioners and Technical Occupations	291	Health Diagnosing and Treating Practitioners	291041	Optometrists	10	Professional B
29	Healthcare Practitioners and Technical Occupations	291	Health Diagnosing and Treating Practitioners	291051	Pharmacists	9	Professional A
29	Healthcare Practitioners and Technical Occupations	291	Health Diagnosing and Treating Practitioners	291061	Anesthesiologists	10	Professional B
29	Healthcare Practitioners and Technical Occupations	291	Health Diagnosing and Treating Practitioners	291062	Family and General Practitioners	10	Professional B
29	Healthcare Practitioners and Technical Occupations	291	Health Diagnosing and Treating Practitioners	291063	Internists, General	10	Professional B
29	Healthcare Practitioners and Technical Occupations	291	Health Diagnosing and Treating Practitioners	291064	Obstetricians and Gynecologists	10	Professional B
29	Healthcare Practitioners and Technical Occupations	291	Health Diagnosing and Treating Practitioners	291065	Pediatricians, General	10	Professional B
29	Healthcare Practitioners and Technical Occupations	291	Health Diagnosing and Treating Practitioners	291066	Psychiatrists	10	Professional B
29	Healthcare Practitioners and Technical Occupations	291	Health Diagnosing and Treating Practitioners	291067	Surgeons	10	Professional B

See notes at end of table.

Table F-1. Occupational coding crosswalk: 2006—Continued

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
29	Healthcare Practitioners and Technical Occupations	291	Health Diagnosing and Treating Practitioners	291069	Physicians and Surgeons, All Other	10	Professional B
29	Healthcare Practitioners and Technical Occupations	291	Health Diagnosing and Treating Practitioners	291071	Physician Assistants	9	Professional A
29	Healthcare Practitioners and Technical Occupations	291	Health Diagnosing and Treating Practitioners	291081	Podiatrists	10	Professional B
29	Healthcare Practitioners and Technical Occupations	291	Health Diagnosing and Treating Practitioners	291111	Registered Nurses	9	Professional A
29	Healthcare Practitioners and Technical Occupations	291	Health Diagnosing and Treating Practitioners	291121	Audiologists	9	Professional A
29	Healthcare Practitioners and Technical Occupations	291	Health Diagnosing and Treating Practitioners	291122	Occupational Therapists	9	Professional A
29	Healthcare Practitioners and Technical Occupations	291	Health Diagnosing and Treating Practitioners	291123	Physical Therapists	9	Professional A
29	Healthcare Practitioners and Technical Occupations	291	Health Diagnosing and Treating Practitioners	291124	Radiation Therapists	9	Professional A
29	Healthcare Practitioners and Technical Occupations	291	Health Diagnosing and Treating Practitioners	291125	Recreational Therapists	9	Professional A
29	Healthcare Practitioners and Technical Occupations	291	Health Diagnosing and Treating Practitioners	291126	Respiratory Therapists	9	Professional A
29	Healthcare Practitioners and Technical Occupations	291	Health Diagnosing and Treating Practitioners	291127	Speech-Language Pathologists	9	Professional A
29	Healthcare Practitioners and Technical Occupations	291	Health Diagnosing and Treating Practitioners	291129	Therapists, All Other	9	Professional A
29	Healthcare Practitioners and Technical Occupations	291	Health Diagnosing and Treating Practitioners	291131	Veterinarians	10	Professional B
29	Healthcare Practitioners and Technical Occupations	291	Health Diagnosing and Treating Practitioners	291199	Health Diagnosing and Treating Practitioners, All Other	10 (also 9)	Professional B
29	Healthcare Practitioners and Technical Occupations	292	Health Technologists and Technicians	292011	Medical and Clinical Laboratory Technologists	16	Technical
29	Healthcare Practitioners and Technical Occupations	292	Health Technologists and Technicians	292012	Medical and Clinical Laboratory Technicians	16	Technical
29	Healthcare Practitioners and Technical Occupations	292	Health Technologists and Technicians	292021	Dental Hygienists	16	Technical
29	Healthcare Practitioners and Technical Occupations	292	Health Technologists and Technicians	292031	Cardiovascular Technologists and Technicians	16	Technical
29	Healthcare Practitioners and Technical Occupations	292	Health Technologists and Technicians	292032	Diagnostic Medical Sonographers	16	Technical

See notes at end of table.

**Table F-1. Occupational coding crosswalk: 2006—Continued**

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
29	Healthcare Practitioners and Technical Occupations	292	Health Technologists and Technicians	292033	Nuclear Medicine Technologists	16	Technical
29	Healthcare Practitioners and Technical Occupations	292	Health Technologists and Technicians	292034	Radiologic Technologists and Technicians	16	Technical
29	Healthcare Practitioners and Technical Occupations	292	Health Technologists and Technicians	292041	Emergency Medical Technicians and Paramedics	16	Technical
29	Healthcare Practitioners and Technical Occupations	292	Health Technologists and Technicians	292051	Dietetic Technicians	16	Technical
29	Healthcare Practitioners and Technical Occupations	292	Health Technologists and Technicians	292052	Pharmacy Technicians	16	Technical
29	Healthcare Practitioners and Technical Occupations	292	Health Technologists and Technicians	292053	Psychiatric Technicians	16	Technical
29	Healthcare Practitioners and Technical Occupations	292	Health Technologists and Technicians	292054	Respiratory Therapy Technicians	16	Technical
29	Healthcare Practitioners and Technical Occupations	292	Health Technologists and Technicians	292055	Surgical Technologists	16	Technical
29	Healthcare Practitioners and Technical Occupations	292	Health Technologists and Technicians	292056	Veterinary Technologists and Technicians	16	Technical
29	Healthcare Practitioners and Technical Occupations	292	Health Technologists and Technicians	292061	Licensed Practical and Licensed Vocational Nurses	15	Service
29	Healthcare Practitioners and Technical Occupations	292	Health Technologists and Technicians	292071	Medical Records and Health Information Technicians	16	Technical
29	Healthcare Practitioners and Technical Occupations	292	Health Technologists and Technicians	292081	Opticians, Dispensing	16	Technical
29	Healthcare Practitioners and Technical Occupations	292	Health Technologists and Technicians	292091	Orthotists and Prosthetists	16	Technical
29	Healthcare Practitioners and Technical Occupations	292	Health Technologists and Technicians	292099	Health Technologists and Technicians, All Other	16	Technical
29	Healthcare Practitioners and Technical Occupations	299	Other Healthcare Practitioners and Technical Occupations	299011	Occupational Health and Safety Specialists	9	Professional A
29	Healthcare Practitioners and Technical Occupations	299	Other Healthcare Practitioners and Technical Occupations	299012	Occupational Health and Safety Technicians	16	Technical
29	Healthcare Practitioners and Technical Occupations	299	Other Healthcare Practitioners and Technical Occupations	299091	Athletic Trainers	15	Service
29	Healthcare Practitioners and Technical Occupations	299	Other Healthcare Practitioners and Technical Occupations	299099	Healthcare Practitioners and Technical Workers, All Other	9 (also 16,15)	Professional A
31	Healthcare Support Occupations	311	Nursing, Psychiatric, and Home Health Aides	311011	Home Health Aides	15	Service

See notes at end of table.

Table F-1. Occupational coding crosswalk: 2006—Continued

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
31	Healthcare Support Occupations	311	Nursing, Psychiatric, and Home Health Aides	311012	Nursing Aides, Orderlies, and Attendants	15	Service
31	Healthcare Support Occupations	311	Nursing, Psychiatric, and Home Health Aides	311013	Psychiatric Aides	15	Service
31	Healthcare Support Occupations	312	Occupational and Physical Therapist Assistants and Aides	312011	Occupational Therapist Assistants	15	Service
31	Healthcare Support Occupations	312	Occupational and Physical Therapist Assistants and Aides	312012	Occupational Therapist Aides	15	Service
31	Healthcare Support Occupations	312	Occupational and Physical Therapist Assistants and Aides	312021	Physical Therapist Assistants	15	Service
31	Healthcare Support Occupations	312	Occupational and Physical Therapist Assistants and Aides	312022	Physical Therapist Aides	15	Service
31	Healthcare Support Occupations	319	Other Healthcare Support Occupations	319011	Massage Therapists	15	Service
31	Healthcare Support Occupations	319	Other Healthcare Support Occupations	319091	Dental Assistants	15	Service
31	Healthcare Support Occupations	319	Other Healthcare Support Occupations	319092	Medical Assistants	15	Service
31	Healthcare Support Occupations	319	Other Healthcare Support Occupations	319093	Medical Equipment Preparers	15	Service
31	Healthcare Support Occupations	319	Other Healthcare Support Occupations	319094	Medical Transcriptionists	1	Clerical
31	Healthcare Support Occupations	319	Other Healthcare Support Occupations	319095	Pharmacy Aides	15	Service
31	Healthcare Support Occupations	319	Other Healthcare Support Occupations	319096	Veterinary Assistants and Laboratory Animal Caretakers	15	Service
31	Healthcare Support Occupations	319	Other Healthcare Support Occupations	319099	Healthcare Support Workers, All Other	15	Service
33	Protective Service Occupations	331	First-Line Supervisors/Managers, Protective Service Workers	331011	First-Line Supervisors/Managers of Correctional Officers	6	Manager, Administrator
33	Protective Service Occupations	331	First-Line Supervisors/Managers, Protective Service Workers	331012	First-Line Supervisors/Managers of Police and Detectives	6	Manager, Administrator
33	Protective Service Occupations	331	First-Line Supervisors/Managers, Protective Service Workers	331021	First-Line Supervisors/Managers of Fire Fighting and Prevention Workers	6	Manager, Administrator
33	Protective Service Occupations	331	First-Line Supervisors/Managers, Protective Service Workers	331099	First-Line Supervisors/Managers, Protective Service Workers, All Other	6	Manager, Administrator
33	Protective Service Occupations	332	Fire Fighting and Prevention Workers	332011	Fire Fighters	12	Protective Service

See notes at end of table.

**Table F-1. Occupational coding crosswalk: 2006—Continued**

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
33	Protective Service Occupations	332	Fire Fighting and Prevention Workers	332021	Fire Inspectors and Investigators	12	Protective Service
33	Protective Service Occupations	332	Fire Fighting and Prevention Workers	332022	Forest Fire Inspectors and Prevention Specialists	12	Protective Service
33	Protective Service Occupations	333	Law Enforcement Workers	333011	Bailiffs	12	Protective Service
33	Protective Service Occupations	333	Law Enforcement Workers	333012	Correctional Officers and Jailers	12	Protective Service
33	Protective Service Occupations	333	Law Enforcement Workers	333021	Detectives and Criminal Investigators	12	Protective Service
33	Protective Service Occupations	333	Law Enforcement Workers	333031	Fish and Game Wardens	12	Protective Service
33	Protective Service Occupations	333	Law Enforcement Workers	333041	Parking Enforcement Workers	15	Service
33	Protective Service Occupations	333	Law Enforcement Workers	333051	Police and Sheriff's Patrol Officers	12	Protective Service
33	Protective Service Occupations	333	Law Enforcement Workers	333052	Transit and Railroad Police	12	Protective Service
33	Protective Service Occupations	339	Other Protective Service Workers	339011	Animal Control Workers	12	Protective Service
33	Protective Service Occupations	339	Other Protective Service Workers	339021	Private Detectives and Investigators	12	Protective Service
33	Protective Service Occupations	339	Other Protective Service Workers	339031	Gaming Surveillance Officers and Gaming Investigators	12	Protective Service
33	Protective Service Occupations	339	Other Protective Service Workers	339032	Security Guards	12	Protective Service
33	Protective Service Occupations	339	Other Protective Service Workers	339091	Crossing Guards	15	Service
33	Protective Service Occupations	339	Other Protective Service Workers	339092	Lifeguards, Ski Patrol, and Other Recreational Protective Service Workers	15	Service
33	Protective Service Occupations	339	Other Protective Service Workers	339099	Protective Service Workers, All Other	12 (also 15)	Protective Service
35	Food Preparation and Serving Related Occupations	351	Supervisors, Food Preparation and Serving Workers	351011	Chefs and Head Cooks	2	Craftsperson
35	Food Preparation and Serving Related Occupations	351	Supervisors, Food Preparation and Serving Workers	351012	First-Line Supervisors/Managers of Food Preparation and Serving Workers	6	Manager, Administrator
35	Food Preparation and Serving Related Occupations	352	Cooks and Food Preparation Workers	352011	Cooks, Fast Food	15	Service

See notes at end of table.



Table F-1. Occupational coding crosswalk: 2006—Continued

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
35	Food Preparation and Serving Related Occupations	352	Cooks and Food Preparation Workers	352012	Cooks, Institution and Cafeteria	15	Service
35	Food Preparation and Serving Related Occupations	352	Cooks and Food Preparation Workers	352013	Cooks, Private Household	15	Service
35	Food Preparation and Serving Related Occupations	352	Cooks and Food Preparation Workers	352014	Cooks, Restaurant	15	Service
35	Food Preparation and Serving Related Occupations	352	Cooks and Food Preparation Workers	352015	Cooks, Short Order	15	Service
35	Food Preparation and Serving Related Occupations	352	Cooks and Food Preparation Workers	352019	Cooks, All Other	15	Service
35	Food Preparation and Serving Related Occupations	352	Cooks and Food Preparation Workers	352021	Food Preparation Workers	15	Service
35	Food Preparation and Serving Related Occupations	353	Food and Beverage Serving Workers	353011	Bartenders	15	Service
35	Food Preparation and Serving Related Occupations	353	Food and Beverage Serving Workers	353021	Combined Food Preparation and Serving Workers, Including Fast Food	15	Service
35	Food Preparation and Serving Related Occupations	353	Food and Beverage Serving Workers	353022	Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	15	Service
35	Food Preparation and Serving Related Occupations	353	Food and Beverage Serving Workers	353031	Waiters and Waitresses	15	Service
35	Food Preparation and Serving Related Occupations	353	Food and Beverage Serving Workers	353041	Food Servers, Nonrestaurant	15	Service
35	Food Preparation and Serving Related Occupations	359	Other Food Preparation and Serving Related Workers	359011	Dining Room and Cafeteria Attendants and Bartender Helpers	15	Service
35	Food Preparation and Serving Related Occupations	359	Other Food Preparation and Serving Related Workers	359021	Dishwashers	15	Service
35	Food Preparation and Serving Related Occupations	359	Other Food Preparation and Serving Related Workers	359031	Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	15	Service
35	Food Preparation and Serving Related Occupations	359	Other Food Preparation and Serving Related Workers	359099	Food Preparation and Serving Related Workers, All Other	15	Service
37	Building and Grounds Cleaning and Maintenance Occupations	371	Supervisors, Building and Grounds Cleaning and Maintenance Workers	371011	First-Line Supervisors/Managers of Housekeeping and Janitorial Workers	6	Manager, Administrator
37	Building and Grounds Cleaning and Maintenance Occupations	371	Supervisors, Building and Grounds Cleaning and Maintenance Workers	371012	First-Line Supervisors/Managers of Landscaping, Lawn Service, and Groundskeeping Workers	6	Manager, Administrator

See notes at end of table.

Table F-1. Occupational coding crosswalk: 2006—Continued

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
37	Building and Grounds Cleaning and Maintenance Occupations	372	Building Cleaning and Pest Control Workers	372011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	15	Service
37	Building and Grounds Cleaning and Maintenance Occupations	372	Building Cleaning and Pest Control Workers	372012	Maids and Housekeeping Cleaners	15	Service
37	Building and Grounds Cleaning and Maintenance Occupations	372	Building Cleaning and Pest Control Workers	372019	Building Cleaning Workers, All Other	15	Service
37	Building and Grounds Cleaning and Maintenance Occupations	372	Building Cleaning and Pest Control Workers	372021	Pest Control Workers	15	Service
37	Building and Grounds Cleaning and Maintenance Occupations	373	Grounds Maintenance Workers	373011	Landscaping and Groundskeeping Workers	5	Laborer
37	Building and Grounds Cleaning and Maintenance Occupations	373	Grounds Maintenance Workers	373012	Pesticide Handlers, Sprayers, and Applicators, Vegetation	5	Laborer
37	Building and Grounds Cleaning and Maintenance Occupations	373	Grounds Maintenance Workers	373013	Tree Trimmers and Pruners	5	Laborer
37	Building and Grounds Cleaning and Maintenance Occupations	373	Grounds Maintenance Workers	373019	Grounds Maintenance Workers, All Other	5	Laborer
39	Personal Care and Service Occupations	391	Supervisors, Personal Care and Service Workers	391011	Gaming Supervisors	6	Manager, Administrator
39	Personal Care and Service Occupations	391	Supervisors, Personal Care and Service Workers	391012	Slot Key Persons	1	Clerical
39	Personal Care and Service Occupations	391	Supervisors, Personal Care and Service Workers	391021	First-Line Supervisors/Managers of Personal Service Workers	6	Manager, Administrator
39	Personal Care and Service Occupations	392	Animal Care and Service Workers	392011	Animal Trainers	2	Craftsperson
39	Personal Care and Service Occupations	392	Animal Care and Service Workers	392021	Nonfarm Animal Caretakers	15	Service
39	Personal Care and Service Occupations	393	Entertainment Attendants and Related Workers	393011	Gaming Dealers	1	Clerical
39	Personal Care and Service Occupations	393	Entertainment Attendants and Related Workers	393012	Gaming and Sports Book Writers and Runners	1	Clerical

See notes at end of table.

Table F-1. Occupational coding crosswalk: 2006—Continued

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
39	Personal Care and Service Occupations	393	Entertainment Attendants and Related Workers	393019	Gaming Service Workers, All Other	1	Clerical
39	Personal Care and Service Occupations	393	Entertainment Attendants and Related Workers	393021	Motion Picture Projectionists	15	Service
39	Personal Care and Service Occupations	393	Entertainment Attendants and Related Workers	393031	Ushers, Lobby Attendants, and Ticket Takers	15	Service
39	Personal Care and Service Occupations	393	Entertainment Attendants and Related Workers	393091	Amusement and Recreation Attendants	15	Service
39	Personal Care and Service Occupations	393	Entertainment Attendants and Related Workers	393092	Costume Attendants	15	Service
39	Personal Care and Service Occupations	393	Entertainment Attendants and Related Workers	393093	Locker Room, Coatroom, and Dressing Room Attendants	15	Service
39	Personal Care and Service Occupations	393	Entertainment Attendants and Related Workers	393099	Entertainment Attendants and Related Workers, All Other	15	Service
39	Personal Care and Service Occupations	394	Funeral Service Workers	394011	Embalmers	15	Service
39	Personal Care and Service Occupations	394	Funeral Service Workers	394021	Funeral Attendants	15	Service
39	Personal Care and Service Occupations	395	Personal Appearance Workers	395011	Barbers	15	Service
39	Personal Care and Service Occupations	395	Personal Appearance Workers	395012	Hairdressers, Hairstylists, and Cosmetologists	15	Service
39	Personal Care and Service Occupations	395	Personal Appearance Workers	395091	Makeup Artists, Theatrical and Performance	15	Service
39	Personal Care and Service Occupations	395	Personal Appearance Workers	395092	Manicurists and Pedicurists	15	Service
39	Personal Care and Service Occupations	395	Personal Appearance Workers	395093	Shampooers	15	Service
39	Personal Care and Service Occupations	395	Personal Appearance Workers	395094	Skin Care Specialists	15	Service
39	Personal Care and Service Occupations	396	Transportation, Tourism, and Lodging Attendants	396011	Baggage Porters and Bellhops	15	Service
39	Personal Care and Service Occupations	396	Transportation, Tourism, and Lodging Attendants	396012	Concierges	15	Service
39	Personal Care and Service Occupations	396	Transportation, Tourism, and Lodging Attendants	396021	Tour Guides and Escorts	15	Service
39	Personal Care and Service Occupations	396	Transportation, Tourism, and Lodging Attendants	396022	Travel Guides	15	Service

See notes at end of table.

Table F-1. Occupational coding crosswalk: 2006—Continued

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
39	Personal Care and Service Occupations	396	Transportation, Tourism, and Lodging Attendants	396031	Flight Attendants	15	Service
39	Personal Care and Service Occupations	396	Transportation, Tourism, and Lodging Attendants	396032	Transportation Attendants, Except Flight Attendants and Baggage Porters	15	Service
39	Personal Care and Service Occupations	399	Other Personal Care and Service Workers	399011	Child Care Workers	15	Service
39	Personal Care and Service Occupations	399	Other Personal Care and Service Workers	399021	Personal and Home Care Aides	15	Service
39	Personal Care and Service Occupations	399	Other Personal Care and Service Workers	399031	Fitness Trainers and Aerobics Instructors	15	Service
39	Personal Care and Service Occupations	399	Other Personal Care and Service Workers	399032	Recreation Workers	15	Service
39	Personal Care and Service Occupations	399	Other Personal Care and Service Workers	399041	Residential Advisors	15	Service
39	Personal Care and Service Occupations	399	Other Personal Care and Service Workers	399099	Personal Care and Service Workers, All Other	15	Service
41	Sales and Related Occupations	411	Supervisors, Sales Workers	411011	First-Line Supervisors/Managers of Retail Sales Workers	6	Manager, Administrator
41	Sales and Related Occupations	411	Supervisors, Sales Workers	411012	First-Line Supervisors/Managers of Non-Retail Sales Workers	6	Manager, Administrator
41	Sales and Related Occupations	412	Retail Sales Workers	412011	Cashiers	15	Service
41	Sales and Related Occupations	412	Retail Sales Workers	412012	Gaming Change Persons and Booth Cashiers	15	Service
41	Sales and Related Occupations	412	Retail Sales Workers	412021	Counter and Rental Clerks	15	Service
41	Sales and Related Occupations	412	Retail Sales Workers	412022	Parts Salespersons	13	Sales
41	Sales and Related Occupations	412	Retail Sales Workers	412031	Retail Salespersons	13	Sales
41	Sales and Related Occupations	413	Sales Representatives, Services	413011	Advertising Sales Agents	13	Sales
41	Sales and Related Occupations	413	Sales Representatives, Services	413021	Insurance Sales Agents	13	Sales
41	Sales and Related Occupations	413	Sales Representatives, Services	413031	Securities, Commodities, and Financial Services Sales Agents	13	Sales
41	Sales and Related Occupations	413	Sales Representatives, Services	413041	Travel Agents	13	Sales

See notes at end of table.

Table F-1. Occupational coding crosswalk: 2006—Continued

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
41	Sales and Related Occupations	413	Sales Representatives, Services	413099	Sales Representatives, Services, All Other	13	Sales
41	Sales and Related Occupations	414	Sales Representatives, Wholesale and Manufacturing	414011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	13	Sales
41	Sales and Related Occupations	414	Sales Representatives, Wholesale and Manufacturing	414012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	13	Sales
41	Sales and Related Occupations	419	Other Sales and Related Workers	419011	Demonstrators and Product Promoters	13	Sales
41	Sales and Related Occupations	419	Other Sales and Related Workers	419012	Models	9	Professional A
41	Sales and Related Occupations	419	Other Sales and Related Workers	419021	Real Estate Brokers	13	Sales
41	Sales and Related Occupations	419	Other Sales and Related Workers	419022	Real Estate Sales Agents	13	Sales
41	Sales and Related Occupations	419	Other Sales and Related Workers	419031	Sales Engineers	9	Professional A
41	Sales and Related Occupations	419	Other Sales and Related Workers	419041	Telemarketers	13	Sales
41	Sales and Related Occupations	419	Other Sales and Related Workers	419091	Door-To-Door Sales Workers, News and Street Vendors, and Related Workers	13	Sales
41	Sales and Related Occupations	419	Other Sales and Related Workers	419099	Sales and Related Workers, All Other	13	Sales
43	Office and Administrative Support Occupations	431	Supervisors, Office and Administrative Support Workers	431011	First-Line Supervisors/Managers of Office and Administrative Support Workers	6	Manager, Administrator
43	Office and Administrative Support Occupations	432	Communications Equipment Operators	432011	Switchboard Operators, Including Answering Service	1	Clerical
43	Office and Administrative Support Occupations	432	Communications Equipment Operators	432021	Telephone Operators	1	Clerical
43	Office and Administrative Support Occupations	432	Communications Equipment Operators	432099	Communications Equipment Operators, All Other	1	Clerical
43	Office and Administrative Support Occupations	433	Financial Clerks	433011	Bill and Account Collectors	1	Clerical
43	Office and Administrative Support Occupations	433	Financial Clerks	433021	Billing and Posting Clerks and Machine Operators	1	Clerical
43	Office and Administrative Support Occupations	433	Financial Clerks	433031	Bookkeeping, Accounting, and Auditing Clerks	1	Clerical

See notes at end of table.

**Table F-1. Occupational coding crosswalk: 2006—Continued**

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
43	Office and Administrative Support Occupations	433	Financial Clerks	433041	Gaming Cage Workers	1	Clerical
43	Office and Administrative Support Occupations	433	Financial Clerks	433051	Payroll and Timekeeping Clerks	1	Clerical
43	Office and Administrative Support Occupations	433	Financial Clerks	433061	Procurement Clerks	1	Clerical
43	Office and Administrative Support Occupations	433	Financial Clerks	433071	Tellers	1	Clerical
43	Office and Administrative Support Occupations	434	Information and Record Clerks	434011	Brokerage Clerks	1	Clerical
43	Office and Administrative Support Occupations	434	Information and Record Clerks	434021	Correspondence Clerks	1	Clerical
43	Office and Administrative Support Occupations	434	Information and Record Clerks	434031	Court, Municipal, and License Clerks	1	Clerical
43	Office and Administrative Support Occupations	434	Information and Record Clerks	434041	Credit Authorizers, Checkers, and Clerks	1	Clerical
43	Office and Administrative Support Occupations	434	Information and Record Clerks	434051	Customer Service Representatives	1	Clerical
43	Office and Administrative Support Occupations	434	Information and Record Clerks	434061	Eligibility Interviewers, Government Programs	1	Clerical
43	Office and Administrative Support Occupations	434	Information and Record Clerks	434071	File Clerks	1	Clerical
43	Office and Administrative Support Occupations	434	Information and Record Clerks	434081	Hotel, Motel, and Resort Desk Clerks	1	Clerical
43	Office and Administrative Support Occupations	434	Information and Record Clerks	434111	Interviewers, Except Eligibility and Loan	1	Clerical
43	Office and Administrative Support Occupations	434	Information and Record Clerks	434121	Library Assistants, Clerical	1	Clerical
43	Office and Administrative Support Occupations	434	Information and Record Clerks	434131	Loan Interviewers and Clerks	1	Clerical
43	Office and Administrative Support Occupations	434	Information and Record Clerks	434141	New Accounts Clerks	1	Clerical
43	Office and Administrative Support Occupations	434	Information and Record Clerks	434151	Order Clerks	1	Clerical
43	Office and Administrative Support Occupations	434	Information and Record Clerks	434161	Human Resources Assistants, Except Payroll and Timekeeping	1	Clerical
43	Office and Administrative Support Occupations	434	Information and Record Clerks	434171	Receptionists and Information Clerks	1	Clerical

See notes at end of table.

Table F-1. Occupational coding crosswalk: 2006—Continued

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
43	Office and Administrative Support Occupations	434	Information and Record Clerks	434181	Reservation and Transportation Ticket Agents and Travel Clerks	1	Clerical
43	Office and Administrative Support Occupations	434	Information and Record Clerks	434199	Information and Record Clerks, All Other	1	Clerical
43	Office and Administrative Support Occupations	435	Material Recording, Scheduling, Dispatching, and Distributing Workers	435011	Cargo and Freight Agents	1	Clerical
43	Office and Administrative Support Occupations	435	Material Recording, Scheduling, Dispatching, and Distributing Workers	435021	Couriers and Messengers	1	Clerical
43	Office and Administrative Support Occupations	435	Material Recording, Scheduling, Dispatching, and Distributing Workers	435031	Police, Fire, and Ambulance Dispatchers	1	Clerical
43	Office and Administrative Support Occupations	435	Material Recording, Scheduling, Dispatching, and Distributing Workers	435032	Dispatchers, Except Police, Fire, and Ambulance	1	Clerical
43	Office and Administrative Support Occupations	435	Material Recording, Scheduling, Dispatching, and Distributing Workers	435041	Meter Readers, Utilities	1	Clerical
43	Office and Administrative Support Occupations	435	Material Recording, Scheduling, Dispatching, and Distributing Workers	435051	Postal Service Clerks	1	Clerical
43	Office and Administrative Support Occupations	435	Material Recording, Scheduling, Dispatching, and Distributing Workers	435052	Postal Service Mail Carriers	1	Clerical
43	Office and Administrative Support Occupations	435	Material Recording, Scheduling, Dispatching, and Distributing Workers	435053	Postal Service Mail Sorters, Processors, and Processing Machine Operators	1	Clerical
43	Office and Administrative Support Occupations	435	Material Recording, Scheduling, Dispatching, and Distributing Workers	435061	Production, Planning, and Expediting Clerks	1	Clerical
43	Office and Administrative Support Occupations	435	Material Recording, Scheduling, Dispatching, and Distributing Workers	435071	Shipping, Receiving, and Traffic Clerks	1	Clerical
43	Office and Administrative Support Occupations	435	Material Recording, Scheduling, Dispatching, and Distributing Workers	435081	Stock Clerks and Order Fillers	1	Clerical
43	Office and Administrative Support Occupations	435	Material Recording, Scheduling, Dispatching, and Distributing Workers	435111	Weighers, Measurers, Checkers, and Samplers, Recordkeeping	1	Clerical

See notes at end of table.

Table F-1. Occupational coding crosswalk: 2006—Continued

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
43	Office and Administrative Support Occupations	436	Secretaries and Administrative Assistants	436011	Executive Secretaries and Administrative Assistants	1	Clerical
43	Office and Administrative Support Occupations	436	Secretaries and Administrative Assistants	436012	Legal Secretaries	1	Clerical
43	Office and Administrative Support Occupations	436	Secretaries and Administrative Assistants	436013	Medical Secretaries	1	Clerical
43	Office and Administrative Support Occupations	436	Secretaries and Administrative Assistants	436014	Secretaries, Except Legal, Medical, and Executive	1	Clerical
43	Office and Administrative Support Occupations	439	Other Office and Administrative Support Workers	439011	Computer Operators	1	Clerical
43	Office and Administrative Support Occupations	439	Other Office and Administrative Support Workers	439021	Data Entry Keyers	1	Clerical
43	Office and Administrative Support Occupations	439	Other Office and Administrative Support Workers	439022	Word Processors and Typists	1	Clerical
43	Office and Administrative Support Occupations	439	Other Office and Administrative Support Workers	439031	Desktop Publishers	1	Clerical
43	Office and Administrative Support Occupations	439	Other Office and Administrative Support Workers	439041	Insurance Claims and Policy Processing Clerks	1	Clerical
43	Office and Administrative Support Occupations	439	Other Office and Administrative Support Workers	439051	Mail Clerks and Mail Machine Operators, Except Postal Service	1	Clerical
43	Office and Administrative Support Occupations	439	Other Office and Administrative Support Workers	439061	Office Clerks, General	1	Clerical
43	Office and Administrative Support Occupations	439	Other Office and Administrative Support Workers	439071	Office Machine Operators, Except Computer	1	Clerical
43	Office and Administrative Support Occupations	439	Other Office and Administrative Support Workers	439081	Proofreaders and Copy Markers	1	Clerical
43	Office and Administrative Support Occupations	439	Other Office and Administrative Support Workers	439111	Statistical Assistants	1	Clerical
43	Office and Administrative Support Occupations	439	Other Office and Administrative Support Workers	439199	Office and Administrative Support Workers, All Other	1	Clerical
45	Farming, Fishing, and Forestry Occupations	451	Supervisors, Farming, Fishing, and Forestry Workers	451011	First-Line Supervisors/Managers of Farming, Fishing, and Forestry Workers	3	Farmer, Farm Manager
45	Farming, Fishing, and Forestry Occupations	451	Supervisors, Farming, Fishing, and Forestry Workers	451012	Farm Labor Contractors	3	Farmer, Farm Manager
45	Farming, Fishing, and Forestry Occupations	452	Agricultural Workers	452011	Agricultural Inspectors	1	Clerical
45	Farming, Fishing, and Forestry Occupations	452	Agricultural Workers	452021	Animal Breeders	2	Craftsperson

See notes at end of table.



Table F-1. Occupational coding crosswalk: 2006—Continued

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
45	Farming, Fishing, and Forestry Occupations	452	Agricultural Workers	452041	Graders and Sorters, Agricultural Products	5	Laborer
45	Farming, Fishing, and Forestry Occupations	452	Agricultural Workers	452091	Agricultural Equipment Operators	8	Operative
45	Farming, Fishing, and Forestry Occupations	452	Agricultural Workers	452092	Farmworkers and Laborers, Crop, Nursery, and Greenhouse	5	Laborer
45	Farming, Fishing, and Forestry Occupations	452	Agricultural Workers	452093	Farmworkers, Farm and Ranch Animals	5	Laborer
45	Farming, Fishing, and Forestry Occupations	452	Agricultural Workers	452099	Agricultural Workers, All Other	5 (also 1, 2, 8)	Laborer
45	Farming, Fishing, and Forestry Occupations	453	Fishing and Hunting Workers	453011	Fishers and Related Fishing Workers	5	Laborer
45	Farming, Fishing, and Forestry Occupations	453	Fishing and Hunting Workers	453021	Hunters and Trappers	5	Laborer
45	Farming, Fishing, and Forestry Occupations	454	Forest, Conservation, and Logging Workers	454011	Forest and Conservation Workers	5	Laborer
45	Farming, Fishing, and Forestry Occupations	454	Forest, Conservation, and Logging Workers	454021	Fallers	8	Operative
45	Farming, Fishing, and Forestry Occupations	454	Forest, Conservation, and Logging Workers	454022	Logging Equipment Operators	8	Operative
45	Farming, Fishing, and Forestry Occupations	454	Forest, Conservation, and Logging Workers	454023	Log Graders and Scalers	1	Clerical
45	Farming, Fishing, and Forestry Occupations	454	Forest, Conservation, and Logging Workers	454029	Logging Workers, All Other	8 (also 1, 5)	Operative
47	Construction and Extraction Occupations	471	Supervisors, Construction and Extraction Workers	471011	First-Line Supervisors/Managers of Construction Trades and Extraction Workers	6	Manager, Administrator
47	Construction and Extraction Occupations	472	Construction Trades Workers	472011	Boilermakers	2	Craftsperson
47	Construction and Extraction Occupations	472	Construction Trades Workers	472021	Brickmasons and Blockmasons	2	Craftsperson
47	Construction and Extraction Occupations	472	Construction Trades Workers	472022	Stonemasons	2	Craftsperson
47	Construction and Extraction Occupations	472	Construction Trades Workers	472031	Carpenters	2	Craftsperson
47	Construction and Extraction Occupations	472	Construction Trades Workers	472041	Carpet Installers	2	Craftsperson

See notes at end of table.

**Table F-1. Occupational coding crosswalk: 2006—Continued**

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
47	Construction and Extraction Occupations	472	Construction Trades Workers	472042	Floor Layers, Except Carpet, Wood, and Hard Tiles	2	Craftsperson
47	Construction and Extraction Occupations	472	Construction Trades Workers	472043	Floor Sanders and Finishers	2	Craftsperson
47	Construction and Extraction Occupations	472	Construction Trades Workers	472044	Tile and Marble Setters	2	Craftsperson
47	Construction and Extraction Occupations	472	Construction Trades Workers	472051	Cement Masons and Concrete Finishers	2	Craftsperson
47	Construction and Extraction Occupations	472	Construction Trades Workers	472053	Terrazzo Workers and Finishers	2	Craftsperson
47	Construction and Extraction Occupations	472	Construction Trades Workers	472061	Construction Laborers	5	Laborer
47	Construction and Extraction Occupations	472	Construction Trades Workers	472071	Paving, Surfacing, and Tamping Equipment Operators	8	Operative
47	Construction and Extraction Occupations	472	Construction Trades Workers	472072	Pile-Driver Operators	8	Operative
47	Construction and Extraction Occupations	472	Construction Trades Workers	472073	Operating Engineers and Other Construction Equipment Operators	8	Operative
47	Construction and Extraction Occupations	472	Construction Trades Workers	472081	Drywall and Ceiling Tile Installers	2	Craftsperson
47	Construction and Extraction Occupations	472	Construction Trades Workers	472082	Tapers	2	Craftsperson
47	Construction and Extraction Occupations	472	Construction Trades Workers	472111	Electricians	2	Craftsperson
47	Construction and Extraction Occupations	472	Construction Trades Workers	472121	Glaziers	2	Craftsperson
47	Construction and Extraction Occupations	472	Construction Trades Workers	472131	Insulation Workers, Floor, Ceiling, and Wall	2	Craftsperson
47	Construction and Extraction Occupations	472	Construction Trades Workers	472132	Insulation Workers, Mechanical	2	Craftsperson
47	Construction and Extraction Occupations	472	Construction Trades Workers	472141	Painters, Construction and Maintenance	2	Craftsperson
47	Construction and Extraction Occupations	472	Construction Trades Workers	472142	Paperhangers	2	Craftsperson
47	Construction and Extraction Occupations	472	Construction Trades Workers	472151	Pipelayers	2	Craftsperson
47	Construction and Extraction Occupations	472	Construction Trades Workers	472152	Plumbers, Pipefitters, and Steamfitters	2	Craftsperson

See notes at end of table.

Table F-1. Occupational coding crosswalk: 2006—Continued

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
47	Construction and Extraction Occupations	472	Construction Trades Workers	472161	Plasterers and Stucco Masons	2	Craftsperson
47	Construction and Extraction Occupations	472	Construction Trades Workers	472171	Reinforcing Iron and Rebar Workers	2	Craftsperson
47	Construction and Extraction Occupations	472	Construction Trades Workers	472181	Roofers	2	Craftsperson
47	Construction and Extraction Occupations	472	Construction Trades Workers	472211	Sheet Metal Workers	2	Craftsperson
47	Construction and Extraction Occupations	472	Construction Trades Workers	472221	Structural Iron and Steel Workers	2	Craftsperson
47	Construction and Extraction Occupations	473	Helpers, Construction Trades	473011	Helpers--Brickmasons, Blockmasons, Stonemasons, and Tile and Marble Setters	5	Laborer
47	Construction and Extraction Occupations	473	Helpers, Construction Trades	473012	Helpers--Carpenters	5	Laborer
47	Construction and Extraction Occupations	473	Helpers, Construction Trades	473013	Helpers--Electricians	5	Laborer
47	Construction and Extraction Occupations	473	Helpers, Construction Trades	473014	Helpers--Painters, Paperhangers, Plasterers, and Stucco Masons	5	Laborer
47	Construction and Extraction Occupations	473	Helpers, Construction Trades	473015	Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	5	Laborer
47	Construction and Extraction Occupations	473	Helpers, Construction Trades	473016	Helpers--Roofers	5	Laborer
47	Construction and Extraction Occupations	473	Helpers, Construction Trades	473019	Helpers, Construction Trades, All Other	5	Laborer
47	Construction and Extraction Occupations	474	Other Construction and Related Workers	474011	Construction and Building Inspectors	1	Clerical
47	Construction and Extraction Occupations	474	Other Construction and Related Workers	474021	Elevator Installers and Repairers	2	Craftsperson
47	Construction and Extraction Occupations	474	Other Construction and Related Workers	474031	Fence Erectors	5	Laborer
47	Construction and Extraction Occupations	474	Other Construction and Related Workers	474041	Hazardous Materials Removal Workers	5	Laborer
47	Construction and Extraction Occupations	474	Other Construction and Related Workers	474051	Highway Maintenance Workers	8	Operative
47	Construction and Extraction Occupations	474	Other Construction and Related Workers	474061	Rail-Track Laying and Maintenance Equipment Operators	8	Operative

See notes at end of table.

Table F-1. Occupational coding crosswalk: 2006—Continued

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
47	Construction and Extraction Occupations	474	Other Construction and Related Workers	474071	Septic Tank Servicers and Sewer Pipe Cleaners	5	Laborer
47	Construction and Extraction Occupations	474	Other Construction and Related Workers	474091	Segmental Pavers	5	Laborer
47	Construction and Extraction Occupations	474	Other Construction and Related Workers	474099	Construction and Related Workers, All Other	5 (also 1, 2, 8)	Laborer
47	Construction and Extraction Occupations	475	Extraction Workers	475011	Derrick Operators, Oil and Gas	8	Operative
47	Construction and Extraction Occupations	475	Extraction Workers	475012	Rotary Drill Operators, Oil and Gas	8	Operative
47	Construction and Extraction Occupations	475	Extraction Workers	475013	Service Unit Operators, Oil, Gas, and Mining	8	Operative
47	Construction and Extraction Occupations	475	Extraction Workers	475021	Earth Drillers, Except Oil and Gas	8	Operative
47	Construction and Extraction Occupations	475	Extraction Workers	475031	Explosives Workers, Ordnance Handling Experts, and Blasters	8	Operative
47	Construction and Extraction Occupations	475	Extraction Workers	475041	Continuous Mining Machine Operators	8	Operative
47	Construction and Extraction Occupations	475	Extraction Workers	475042	Mine Cutting and Channeling Machine Operators	8	Operative
47	Construction and Extraction Occupations	475	Extraction Workers	475049	Mining Machine Operators, All Other	8	Operative
47	Construction and Extraction Occupations	475	Extraction Workers	475051	Rock Splitters, Quarry	8	Operative
47	Construction and Extraction Occupations	475	Extraction Workers	475061	Roof Bolters, Mining	8	Operative
47	Construction and Extraction Occupations	475	Extraction Workers	475071	Roustabouts, Oil and Gas	8	Operative
47	Construction and Extraction Occupations	475	Extraction Workers	475081	Helpers—Extraction Workers	5	Laborer
47	Construction and Extraction Occupations	475	Extraction Workers	475099	Extraction Workers, All Other	8 (also 5)	Operative
49	Installation, Maintenance, and Repair Occupations	491	Supervisors of Installation, Maintenance, and Repair Workers	491011	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers	6	Manager, Administrator
49	Installation, Maintenance, and Repair Occupations	492	Electrical and Electronic Equipment Mechanics, Installers, and Repairers	492011	Computer, Automated Teller, and Office Machine Repairers	2	Craftsperson

See notes at end of table.

Table F-1. Occupational coding crosswalk: 2006—Continued

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
49	Installation, Maintenance, and Repair Occupations	492	Electrical and Electronic Equipment Mechanics, Installers, and Repairers	492021	Radio Mechanics	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	492	Electrical and Electronic Equipment Mechanics, Installers, and Repairers	492022	Telecommunications Equipment Installers and Repairers, Except Line Installers	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	492	Electrical and Electronic Equipment Mechanics, Installers, and Repairers	492091	Avionics Technicians	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	492	Electrical and Electronic Equipment Mechanics, Installers, and Repairers	492092	Electric Motor, Power Tool, and Related Repairers	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	492	Electrical and Electronic Equipment Mechanics, Installers, and Repairers	492093	Electrical and Electronics Installers and Repairers, Transportation Equipment	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	492	Electrical and Electronic Equipment Mechanics, Installers, and Repairers	492094	Electrical and Electronics Repairers, Commercial and Industrial Equipment	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	492	Electrical and Electronic Equipment Mechanics, Installers, and Repairers	492095	Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	492	Electrical and Electronic Equipment Mechanics, Installers, and Repairers	492096	Electronic Equipment Installers and Repairers, Motor Vehicles	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	492	Electrical and Electronic Equipment Mechanics, Installers, and Repairers	492097	Electronic Home Entertainment Equipment Installers and Repairers	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	492	Electrical and Electronic Equipment Mechanics, Installers, and Repairers	492098	Security and Fire Alarm Systems Installers	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	493	Vehicle and Mobile Equipment Mechanics, Installers, and Repairers	493011	Aircraft Mechanics and Service Technicians	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	493	Vehicle and Mobile Equipment Mechanics, Installers, and Repairers	493021	Automotive Body and Related Repairers	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	493	Vehicle and Mobile Equipment Mechanics, Installers, and Repairers	493022	Automotive Glass Installers and Repairers	2	Craftsperson

See notes at end of table.

Table F-1. Occupational coding crosswalk: 2006—Continued

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
49	Installation, Maintenance, and Repair Occupations	493	Vehicle and Mobile Equipment Mechanics, Installers, and Repairers	493023	Automotive Service Technicians and Mechanics	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	493	Vehicle and Mobile Equipment Mechanics, Installers, and Repairers	493031	Bus and Truck Mechanics and Diesel Engine Specialists	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	493	Vehicle and Mobile Equipment Mechanics, Installers, and Repairers	493041	Farm Equipment Mechanics	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	493	Vehicle and Mobile Equipment Mechanics, Installers, and Repairers	493042	Mobile Heavy Equipment Mechanics, Except Engines	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	493	Vehicle and Mobile Equipment Mechanics, Installers, and Repairers	493043	Rail Car Repairers	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	493	Vehicle and Mobile Equipment Mechanics, Installers, and Repairers	493051	Motorboat Mechanics	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	493	Vehicle and Mobile Equipment Mechanics, Installers, and Repairers	493052	Motorcycle Mechanics	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	493	Vehicle and Mobile Equipment Mechanics, Installers, and Repairers	493053	Outdoor Power Equipment and Other Small Engine Mechanics	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	493	Vehicle and Mobile Equipment Mechanics, Installers, and Repairers	493091	Bicycle Repairers	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	493	Vehicle and Mobile Equipment Mechanics, Installers, and Repairers	493092	Recreational Vehicle Service Technicians	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	493	Vehicle and Mobile Equipment Mechanics, Installers, and Repairers	493093	Tire Repairers and Changers	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	499	Other Installation, Maintenance, and Repair Occupations	499011	Mechanical Door Repairers	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	499	Other Installation, Maintenance, and Repair Occupations	499012	Control and Valve Installers and Repairers, Except Mechanical Door	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	499	Other Installation, Maintenance, and Repair Occupations	499021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	2	Craftsperson

See notes at end of table.

Table F-1. Occupational coding crosswalk: 2006—Continued

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
49	Installation, Maintenance, and Repair Occupations	499	Other Installation, Maintenance, and Repair Occupations	499031	Home Appliance Repairers	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	499	Other Installation, Maintenance, and Repair Occupations	499041	Industrial Machinery Mechanics	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	499	Other Installation, Maintenance, and Repair Occupations	499042	Maintenance and Repair Workers, General	8	Operative
49	Installation, Maintenance, and Repair Occupations	499	Other Installation, Maintenance, and Repair Occupations	499043	Maintenance Workers, Machinery	8	Operative
49	Installation, Maintenance, and Repair Occupations	499	Other Installation, Maintenance, and Repair Occupations	499044	Millwrights	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	499	Other Installation, Maintenance, and Repair Occupations	499045	Refractory Materials Repairers, Except Brickmasons	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	499	Other Installation, Maintenance, and Repair Occupations	499051	Electrical Power-Line Installers and Repairers	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	499	Other Installation, Maintenance, and Repair Occupations	499052	Telecommunications Line Installers and Repairers	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	499	Other Installation, Maintenance, and Repair Occupations	499061	Camera and Photographic Equipment Repairers	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	499	Other Installation, Maintenance, and Repair Occupations	499062	Medical Equipment Repairers	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	499	Other Installation, Maintenance, and Repair Occupations	499063	Musical Instrument Repairers and Tuners	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	499	Other Installation, Maintenance, and Repair Occupations	499064	Watch Repairers	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	499	Other Installation, Maintenance, and Repair Occupations	499069	Precision Instrument and Equipment Repairers, All Other	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	499	Other Installation, Maintenance, and Repair Occupations	499091	Coin, Vending, and Amusement Machine Servicers and Repairers	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	499	Other Installation, Maintenance, and Repair Occupations	499092	Commercial Divers	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	499	Other Installation, Maintenance, and Repair Occupations	499093	Fabric Menders, Except Garment	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	499	Other Installation, Maintenance, and Repair Occupations	499094	Locksmiths and Safe Repairers	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	499	Other Installation, Maintenance, and Repair Occupations	499095	Manufactured Building and Mobile Home Installers	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	499	Other Installation, Maintenance, and Repair Occupations	499096	Riggers	2	Craftsperson

See notes at end of table.

Table F-1. Occupational coding crosswalk: 2006—Continued

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
49	Installation, Maintenance, and Repair Occupations	499	Other Installation, Maintenance, and Repair Occupations	499097	Signal and Track Switch Repairers	2	Craftsperson
49	Installation, Maintenance, and Repair Occupations	499	Other Installation, Maintenance, and Repair Occupations	499098	Helpers—Installation, Maintenance, and Repair Workers	5	Laborer
49	Installation, Maintenance, and Repair Occupations	499	Other Installation, Maintenance, and Repair Occupations	499099	Installation, Maintenance, and Repair Workers, All Other	2	Craftsperson
51	Production Occupations	511	Supervisors, Production Workers	511011	First-Line Supervisors/Managers of Production and Operating Workers	6	Manager, Administrator
51	Production Occupations	512	Assemblers and Fabricators	512011	Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	8	Operative
51	Production Occupations	512	Assemblers and Fabricators	512021	Coil Winders, Tapers, and Finishers	8	Operative
51	Production Occupations	512	Assemblers and Fabricators	512022	Electrical and Electronic Equipment Assemblers	8	Operative
51	Production Occupations	512	Assemblers and Fabricators	512023	Electromechanical Equipment Assemblers	8	Operative
51	Production Occupations	512	Assemblers and Fabricators	512031	Engine and Other Machine Assemblers	8	Operative
51	Production Occupations	512	Assemblers and Fabricators	512041	Structural Metal Fabricators and Fitters	8	Operative
51	Production Occupations	512	Assemblers and Fabricators	512091	Fiberglass Laminators and Fabricators	8	Operative
51	Production Occupations	512	Assemblers and Fabricators	512092	Team Assemblers	8	Operative
51	Production Occupations	512	Assemblers and Fabricators	512093	Timing Device Assemblers, Adjusters, and Calibrators	8	Operative
51	Production Occupations	512	Assemblers and Fabricators	512099	Assemblers and Fabricators, All Other	8	Operative
51	Production Occupations	513	Food Processing Workers	513011	Bakers	2	Craftsperson
51	Production Occupations	513	Food Processing Workers	513021	Butchers and Meat Cutters	8	Operative
51	Production Occupations	513	Food Processing Workers	513022	Meat, Poultry, and Fish Cutters and Trimmers	8	Operative
51	Production Occupations	513	Food Processing Workers	513023	Slaughtering and Meat Packers	8	Operative
51	Production Occupations	513	Food Processing Workers	513091	Food and Tobacco Roasting, Baking, and Drying Machine Operators and Tenders	8	Operative
51	Production Occupations	513	Food Processing Workers	513092	Food Batchmakers	8	Operative
51	Production Occupations	513	Food Processing Workers	513093	Food Cooking Machine Operators and Tenders	8	Operative
51	Production Occupations	514	Metal Workers and Plastic Workers	514011	Computer-Controlled Machine Tool Operators, Metal and Plastic	8	Operative
51	Production Occupations	514	Metal Workers and Plastic Workers	514012	Numerical Tool and Process Control Programmers	8	Operative

See notes at end of table.



Table F-1. Occupational coding crosswalk: 2006—Continued

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
51	Production Occupations	514	Metal Workers and Plastic Workers	514021	Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic	8	Operative
51	Production Occupations	514	Metal Workers and Plastic Workers	514022	Forging Machine Setters, Operators, and Tenders, Metal and Plastic	8	Operative
51	Production Occupations	514	Metal Workers and Plastic Workers	514023	Rolling Machine Setters, Operators, and Tenders, Metal and Plastic	8	Operative
51	Production Occupations	514	Metal Workers and Plastic Workers	514031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	8	Operative
51	Production Occupations	514	Metal Workers and Plastic Workers	514032	Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic	8	Operative
51	Production Occupations	514	Metal Workers and Plastic Workers	514033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	8	Operative
51	Production Occupations	514	Metal Workers and Plastic Workers	514034	Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic	8	Operative
51	Production Occupations	514	Metal Workers and Plastic Workers	514035	Milling and Planing Machine Setters, Operators, and Tenders, Metal and Plastic	8	Operative
51	Production Occupations	514	Metal Workers and Plastic Workers	514041	Machinists	2	Craftsperson
51	Production Occupations	514	Metal Workers and Plastic Workers	514051	Metal-Refining Furnace Operators and Tenders	8	Operative
51	Production Occupations	514	Metal Workers and Plastic Workers	514052	Pourers and Casters, Metal	8	Operative
51	Production Occupations	514	Metal Workers and Plastic Workers	514061	Model Makers, Metal and Plastic	8	Operative
51	Production Occupations	514	Metal Workers and Plastic Workers	514062	Patternmakers, Metal and Plastic	8	Operative
51	Production Occupations	514	Metal Workers and Plastic Workers	514071	Foundry Mold and Coremakers	8	Operative
51	Production Occupations	514	Metal Workers and Plastic Workers	514072	Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	8	Operative
51	Production Occupations	514	Metal Workers and Plastic Workers	514081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	8	Operative
51	Production Occupations	514	Metal Workers and Plastic Workers	514111	Tool and Die Makers	2	Craftsperson
51	Production Occupations	514	Metal Workers and Plastic Workers	514121	Welders, Cutters, Solderers, and Brazers	8	Operative
51	Production Occupations	514	Metal Workers and Plastic Workers	514122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	8	Operative

See notes at end of table.

**Table F-1. Occupational coding crosswalk: 2006—Continued**

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
51	Production Occupations	514	Metal Workers and Plastic Workers	514191	Heat Treating Equipment Setters, Operators, and Tenders, Metal and Plastic	8	Operative
51	Production Occupations	514	Metal Workers and Plastic Workers	514192	Lay-Out Workers, Metal and Plastic	8	Operative
51	Production Occupations	514	Metal Workers and Plastic Workers	514193	Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic	8	Operative
51	Production Occupations	514	Metal Workers and Plastic Workers	514194	Tool Grinders, Filers, and Sharpeners	8	Operative
51	Production Occupations	514	Metal Workers and Plastic Workers	514199	Metal Workers and Plastic Workers, All Other	8 (also 2)	Operative
51	Production Occupations	515	Printing Workers	515011	Bindery Workers	8	Operative
51	Production Occupations	515	Printing Workers	515012	Bookbinders	8	Operative
51	Production Occupations	515	Printing Workers	515021	Job Printers	8	Operative
51	Production Occupations	515	Printing Workers	515022	Prepress Technicians and Workers	8	Operative
51	Production Occupations	515	Printing Workers	515023	Printing Machine Operators	8	Operative
51	Production Occupations	516	Textile, Apparel, and Furnishings Workers	516011	Laundry and Dry-Cleaning Workers	15	Service
51	Production Occupations	516	Textile, Apparel, and Furnishings Workers	516021	Pressers, Textile, Garment, and Related Materials	15	Service
51	Production Occupations	516	Textile, Apparel, and Furnishings Workers	516031	Sewing Machine Operators	8	Operative
51	Production Occupations	516	Textile, Apparel, and Furnishings Workers	516041	Shoe and Leather Workers and Repairers	8	Operative
51	Production Occupations	516	Textile, Apparel, and Furnishings Workers	516042	Shoe Machine Operators and Tenders	8	Operative
51	Production Occupations	516	Textile, Apparel, and Furnishings Workers	516051	Sewers, Hand	2	Craftsperson
51	Production Occupations	516	Textile, Apparel, and Furnishings Workers	516052	Tailors, Dressmakers, and Custom Sewers	2	Craftsperson
51	Production Occupations	516	Textile, Apparel, and Furnishings Workers	516061	Textile Bleaching and Dyeing Machine Operators and Tenders	8	Operative
51	Production Occupations	516	Textile, Apparel, and Furnishings Workers	516062	Textile Cutting Machine Setters, Operators, and Tenders	8	Operative
51	Production Occupations	516	Textile, Apparel, and Furnishings Workers	516063	Textile Knitting and Weaving Machine Setters, Operators, and Tenders	8	Operative

See notes at end of table.

Table F-1. Occupational coding crosswalk: 2006—Continued

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
51	Production Occupations	516	Textile, Apparel, and Furnishings Workers	516064	Textile Winding, Twisting, and Drawing Out Machine Setters, Operators, and Tenders	8	Operative
51	Production Occupations	516	Textile, Apparel, and Furnishings Workers	516091	Extruding and Forming Machine Setters, Operators, and Tenders, Synthetic and Glass Fibers	8	Operative
51	Production Occupations	516	Textile, Apparel, and Furnishings Workers	516092	Fabric and Apparel Patternmakers	8	Operative
51	Production Occupations	516	Textile, Apparel, and Furnishings Workers	516093	Upholsterers	8	Operative
51	Production Occupations	516	Textile, Apparel, and Furnishings Workers	516099	Textile, Apparel, and Furnishings Workers, All Other	8 (also 2, 15)	Operative
51	Production Occupations	517	Woodworkers	517011	Cabinetmakers and Bench Carpenters	2	Craftsperson
51	Production Occupations	517	Woodworkers	517021	Furniture Finishers	2	Craftsperson
51	Production Occupations	517	Woodworkers	517031	Model Makers, Wood	2	Craftsperson
51	Production Occupations	517	Woodworkers	517032	Patternmakers, Wood	2	Craftsperson
51	Production Occupations	517	Woodworkers	517041	Sawing Machine Setters, Operators, and Tenders, Wood	8	Operative
51	Production Occupations	517	Woodworkers	517042	Woodworking Machine Setters, Operators, and Tenders, Except Sawing	8	Operative
51	Production Occupations	517	Woodworkers	517099	Woodworkers, All Other	2 (also 8)	Craftsperson
51	Production Occupations	518	Plant and System Operators	518011	Nuclear Power Reactor Operators	8	Operative
51	Production Occupations	518	Plant and System Operators	518012	Power Distributors and Dispatchers	8	Operative
51	Production Occupations	518	Plant and System Operators	518013	Power Plant Operators	8	Operative
51	Production Occupations	518	Plant and System Operators	518021	Stationary Engineers and Boiler Operators	8	Operative
51	Production Occupations	518	Plant and System Operators	518031	Water and Liquid Waste Treatment Plant and System Operators	8	Operative
51	Production Occupations	518	Plant and System Operators	518091	Chemical Plant and System Operators	8	Operative
51	Production Occupations	518	Plant and System Operators	518092	Gas Plant Operators	8	Operative
51	Production Occupations	518	Plant and System Operators	518093	Petroleum Pump System Operators, Refinery Operators, and Gaugers	8	Operative
51	Production Occupations	518	Plant and System Operators	518099	Plant and System Operators, All Other	8	Operative
51	Production Occupations	519	Other Production Occupations	519011	Chemical Equipment Operators and Tenders	8	Operative

See notes at end of table.

Table F-1. Occupational coding crosswalk: 2006—Continued

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
51	Production Occupations	519	Other Production Occupations	519012	Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	8	Operative
51	Production Occupations	519	Other Production Occupations	519021	Crushing, Grinding, and Polishing Machine Setters, Operators, and Tenders	8	Operative
51	Production Occupations	519	Other Production Occupations	519022	Grinding and Polishing Workers, Hand	5	Laborer
51	Production Occupations	519	Other Production Occupations	519023	Mixing and Blending Machine Setters, Operators, and Tenders	8	Operative
51	Production Occupations	519	Other Production Occupations	519031	Cutters and Trimmers, Hand	5	Laborer
51	Production Occupations	519	Other Production Occupations	519032	Cutting and Slicing Machine Setters, Operators, and Tenders	8	Operative
51	Production Occupations	519	Other Production Occupations	519041	Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders	8	Operative
51	Production Occupations	519	Other Production Occupations	519051	Furnace, Kiln, Oven, Drier, and Kettle Operators and Tenders	8	Operative
51	Production Occupations	519	Other Production Occupations	519061	Inspectors, Testers, Sorters, Samplers, and Weighers	8	Operative
51	Production Occupations	519	Other Production Occupations	519071	Jewelers and Precious Stone and Metal Workers	2	Craftsperson
51	Production Occupations	519	Other Production Occupations	519081	Dental Laboratory Technicians	16	Technical
51	Production Occupations	519	Other Production Occupations	519082	Medical Appliance Technicians	16	Technical
51	Production Occupations	519	Other Production Occupations	519083	Ophthalmic Laboratory Technicians	16	Technical
51	Production Occupations	519	Other Production Occupations	519111	Packaging and Filling Machine Operators and Tenders	8	Operative
51	Production Occupations	519	Other Production Occupations	519121	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	8	Operative
51	Production Occupations	519	Other Production Occupations	519122	Painters, Transportation Equipment	8	Operative
51	Production Occupations	519	Other Production Occupations	519123	Painting, Coating, and Decorating Workers	2	Craftsperson
51	Production Occupations	519	Other Production Occupations	519131	Photographic Process Workers	15	Service
51	Production Occupations	519	Other Production Occupations	519132	Photographic Processing Machine Operators	8	Operative
51	Production Occupations	519	Other Production Occupations	519141	Semiconductor Processors	8	Operative
51	Production Occupations	519	Other Production Occupations	519191	Cementing and Gluing Machine Operators and Tenders	8	Operative

See notes at end of table.

Table F-1. Occupational coding crosswalk: 2006—Continued

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
51	Production Occupations	519	Other Production Occupations	519192	Cleaning, Washing, and Metal Pickling Equipment Operators and Tenders	8	Operative
51	Production Occupations	519	Other Production Occupations	519193	Cooling and Freezing Equipment Operators and Tenders	8	Operative
51	Production Occupations	519	Other Production Occupations	519194	Etchers and Engravers	8	Operative
51	Production Occupations	519	Other Production Occupations	519195	Molders, Shapers, and Casters, Except Metal and Plastic	8	Operative
51	Production Occupations	519	Other Production Occupations	519196	Paper Goods Machine Setters, Operators, and Tenders	8	Operative
51	Production Occupations	519	Other Production Occupations	519197	Tire Builders	8	Operative
51	Production Occupations	519	Other Production Occupations	519198	Helpers--Production Workers	5	Laborer
51	Production Occupations	519	Other Production Occupations	519199	Production Workers, All Other	8 (also 2, 5, 15, 16)	Operative
53	Transportation and Material Moving Occupations	531	Supervisors, Transportation and Material Moving Workers	531011	Aircraft Cargo Handling Supervisors	6	Manager, Administrator
53	Transportation and Material Moving Occupations	531	Supervisors, Transportation and Material Moving Workers	531021	First-Line Supervisors/Managers of Helpers, Laborers, and Material Movers, Hand	6	Manager, Administrator
53	Transportation and Material Moving Occupations	531	Supervisors, Transportation and Material Moving Workers	531031	First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle Operators	6	Manager, Administrator
53	Transportation and Material Moving Occupations	532	Air Transportation Workers	532011	Airline Pilots, Copilots, and Flight Engineers	9	Professional A
53	Transportation and Material Moving Occupations	532	Air Transportation Workers	532012	Commercial Pilots	9	Professional A
53	Transportation and Material Moving Occupations	532	Air Transportation Workers	532021	Air Traffic Controllers	9	Professional A
53	Transportation and Material Moving Occupations	532	Air Transportation Workers	532022	Airfield Operations Specialists	9	Professional A
53	Transportation and Material Moving Occupations	533	Motor Vehicle Operators	533011	Ambulance Drivers and Attendants, Except Emergency Medical Technicians	8	Operative
53	Transportation and Material Moving Occupations	533	Motor Vehicle Operators	533021	Bus Drivers, Transit and Intercity	8	Operative
53	Transportation and Material Moving Occupations	533	Motor Vehicle Operators	533022	Bus Drivers, School	8	Operative
53	Transportation and Material Moving Occupations	533	Motor Vehicle Operators	533031	Driver/Sales Workers	8	Operative

See notes at end of table.

**Table F-1. Occupational coding crosswalk: 2006—Continued**

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
53	Transportation and Material Moving Occupations	533	Motor Vehicle Operators	533032	Truck Drivers, Heavy and Tractor-Trailer	8	Operative
53	Transportation and Material Moving Occupations	533	Motor Vehicle Operators	533033	Truck Drivers, Light or Delivery Services	8	Operative
53	Transportation and Material Moving Occupations	533	Motor Vehicle Operators	533041	Taxi Drivers and Chauffeurs	8	Operative
53	Transportation and Material Moving Occupations	533	Motor Vehicle Operators	533099	Motor Vehicle Operators, All Other	8	Operative
53	Transportation and Material Moving Occupations	534	Rail Transportation Workers	534011	Locomotive Engineers	9	Professional A
53	Transportation and Material Moving Occupations	534	Rail Transportation Workers	534012	Locomotive Firers	8	Operative
53	Transportation and Material Moving Occupations	534	Rail Transportation Workers	534013	Rail Yard Engineers, Dinkey Operators, and Hostlers	8	Operative
53	Transportation and Material Moving Occupations	534	Rail Transportation Workers	534021	Railroad Brake, Signal, and Switch Operators	8	Operative
53	Transportation and Material Moving Occupations	534	Rail Transportation Workers	534031	Railroad Conductors and Yardmasters	9	Operative
53	Transportation and Material Moving Occupations	534	Rail Transportation Workers	534041	Subway and Streetcar Operators	8	Operative
53	Transportation and Material Moving Occupations	534	Rail Transportation Workers	534099	Rail Transportation Workers, All Other	8 (also 9)	Operative
53	Transportation and Material Moving Occupations	535	Water Transportation Workers	535011	Sailors and Marine Oilers	8	Operative
53	Transportation and Material Moving Occupations	535	Water Transportation Workers	535021	Captains, Mates, and Pilots of Water Vessels	9	Professional A
53	Transportation and Material Moving Occupations	535	Water Transportation Workers	535022	Motorboat Operators	8	Operative
53	Transportation and Material Moving Occupations	535	Water Transportation Workers	535031	Ship Engineers	9	Professional A
53	Transportation and Material Moving Occupations	536	Other Transportation Workers	536011	Bridge and Lock Tenders	8	Operative
53	Transportation and Material Moving Occupations	536	Other Transportation Workers	536021	Parking Lot Attendants	15	Service
53	Transportation and Material Moving Occupations	536	Other Transportation Workers	536031	Service Station Attendants	15	Service
53	Transportation and Material Moving Occupations	536	Other Transportation Workers	536041	Traffic Technicians	16	Technical

See notes at end of table.

Table F-1. Occupational coding crosswalk: 2006—Continued

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
53	Transportation and Material Moving Occupations	536	Other Transportation Workers	536051	Transportation Inspectors	1	Clerical
53	Transportation and Material Moving Occupations	536	Other Transportation Workers	536099	Transportation Workers, All Other	15 (also 1, 8, 16)	Service
53	Transportation and Material Moving Occupations	537	Material Moving Workers	537011	Conveyor Operators and Tenders	8	Operative
53	Transportation and Material Moving Occupations	537	Material Moving Workers	537021	Crane and Tower Operators	8	Operative
53	Transportation and Material Moving Occupations	537	Material Moving Workers	537031	Dredge Operators	8	Operative
53	Transportation and Material Moving Occupations	537	Material Moving Workers	537032	Excavating and Loading Machine and Dragline Operators	8	Operative
53	Transportation and Material Moving Occupations	537	Material Moving Workers	537033	Loading Machine Operators, Underground Mining	8	Operative
53	Transportation and Material Moving Occupations	537	Material Moving Workers	537041	Hoist and Winch Operators	8	Operative
53	Transportation and Material Moving Occupations	537	Material Moving Workers	537051	Industrial Truck and Tractor Operators	8	Operative
53	Transportation and Material Moving Occupations	537	Material Moving Workers	537061	Cleaners of Vehicles and Equipment	5	Laborer
53	Transportation and Material Moving Occupations	537	Material Moving Workers	537062	Laborers and Freight, Stock, and Material Movers, Hand	5	Laborer
53	Transportation and Material Moving Occupations	537	Material Moving Workers	537063	Machine Feeders and Offbearers	5	Laborer
53	Transportation and Material Moving Occupations	537	Material Moving Workers	537064	Packers and Packagers, Hand	5	Laborer
53	Transportation and Material Moving Occupations	537	Material Moving Workers	537071	Gas Compressor and Gas Pumping Station Operators	8	Operative
53	Transportation and Material Moving Occupations	537	Material Moving Workers	537072	Pump Operators, Except Wellhead Pumps	8	Operative
53	Transportation and Material Moving Occupations	537	Material Moving Workers	537073	Wellhead Pumps	8	Operative
53	Transportation and Material Moving Occupations	537	Material Moving Workers	537081	Refuse and Recyclable Material Collectors	5	Laborer
53	Transportation and Material Moving Occupations	537	Material Moving Workers	537111	Shuttle Car Operators	8	Operative
53	Transportation and Material Moving Occupations	537	Material Moving Workers	537121	Tank Car, Truck, and Ship Loaders	5	Laborer

See notes at end of table.

Table F-1. Occupational coding crosswalk: 2006—Continued

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
53	Transportation and Material Moving Occupations	537	Material Moving Workers	537199	Material Moving Workers, All Other	8 (also 5)	Operative
55	Military Specific Occupations	551	Military Officer Special and Tactical Operations Leaders/Managers	551011	Air Crew Officers	7	Military
55	Military Specific Occupations	551	Military Officer Special and Tactical Operations Leaders/Managers	551012	Aircraft Launch and Recovery Officers	7	Military
55	Military Specific Occupations	551	Military Officer Special and Tactical Operations Leaders/Managers	551013	Armored Assault Vehicle Officers	7	Military
55	Military Specific Occupations	551	Military Officer Special and Tactical Operations Leaders/Managers	551014	Artillery and Missile Officers	7	Military
55	Military Specific Occupations	551	Military Officer Special and Tactical Operations Leaders/Managers	551015	Command and Control Center Officers	7	Military
55	Military Specific Occupations	551	Military Officer Special and Tactical Operations Leaders/Managers	551016	Infantry Officers	7	Military
55	Military Specific Occupations	551	Military Officer Special and Tactical Operations Leaders/Managers	551017	Special Forces Officers	7	Military
55	Military Specific Occupations	551	Military Officer Special and Tactical Operations Leaders/Managers	551019	Military Officer Special and Tactical Operations Leaders/Managers, All Other	7	Military
55	Military Specific Occupations	552	First-Line Enlisted Military Supervisor/Managers	552011	First-Line Supervisors/Managers of Air Crew Members	7	Military
55	Military Specific Occupations	552	First-Line Enlisted Military Supervisor/Managers	552012	First-Line Supervisors/Managers of Weapons Specialists/Crew Members	7	Military
55	Military Specific Occupations	552	First-Line Enlisted Military Supervisor/Managers	552013	First-Line Supervisors/Managers of All Other Tactical Operations Specialists	7	Military
55	Military Specific Occupations	553	Military Enlisted Tactical Operations and Air/Weapons Specialists and Crew Members	553011	Air Crew Members	7	Military
55	Military Specific Occupations	553	Military Enlisted Tactical Operations and Air/Weapons Specialists and Crew Members	553012	Aircraft Launch and Recovery Specialists	7	Military
55	Military Specific Occupations	553	Military Enlisted Tactical Operations and Air/Weapons Specialists and Crew Members	553013	Armored Assault Vehicle Crew Members	7	Military
55	Military Specific Occupations	553	Military Enlisted Tactical Operations and Air/Weapons Specialists and Crew Members	553014	Artillery and Missile Crew Members	7	Military
55	Military Specific Occupations	553	Military Enlisted Tactical Operations and Air/Weapons Specialists and Crew Members	553015	Command and Control Center Specialists	7	Military

See notes at end of table.



Table F-1. Occupational coding crosswalk: 2006—Continued

General O*NET code	General O*NET category	Midlevel O*NET code	Midlevel O*NET category	Specific O*NET code	Specific O*NET category	ELS code	ELS category
55	Military Specific Occupations	553	Military Enlisted Tactical Operations and Air/Weapons Specialists and Crew Members	553016	Infantry	7	Military
55	Military Specific Occupations	553	Military Enlisted Tactical Operations and Air/Weapons Specialists and Crew Members	553017	Radar and Sonar Technicians	7	Military
55	Military Specific Occupations	553	Military Enlisted Tactical Operations and Air/Weapons Specialists and Crew Members	553018	Special Forces	7	Military
55	Military Specific Occupations	553	Military Enlisted Tactical Operations and Air/Weapons Specialists and Crew Members	553019	Military Enlisted Tactical Operations and Air/Weapons Specialists and Crew Members, All Other	7	Military

NOTE: O\*NET OnLine was developed for the U.S. Department of Labor by the National Center for O\*NET Development.

SOURCE: O\*NET Online: The Online Occupational Information Network, available at <http://online.onetcenter.org/>; U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002" and "First Follow-up, 2004."

**Appendix G**  
**Transcript Standard Errors and Design**  
**Effects**

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Table G-1. Student design effects, by survey item using transcript weight, all respondents: 2004–05

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Left school in 2004	F1RDTLFT	89.2	0.44	0.27	13,700	2.81	1.68
Left school with standard diploma	F1RREASL = 1	85.1	0.52	0.30	14,400	3.11	1.76
Total CUs in mathematics	F1RMAT_C	3.3	0.02	0.01	14,900	5.10	2.26
Total CUs in science	F1RSCI_C	3.0	0.02	0.01	14,900	4.54	2.13
Total CUs in English	F1RENG_C	4.0	0.02	0.01	14,900	4.70	2.17
Total CUs in social studies	F1RSOC_C	3.7	0.03	0.01	14,900	7.35	2.71
Total CUs in fine arts	F1RFIN_C	1.8	0.03	0.01	14,900	4.18	2.04
Total CUs in non-English language	F1RNON_C	1.7	0.03	0.01	14,900	5.56	2.36
Total CUs in family/cons. science	F1RFAM_C	0.4	0.01	0.01	14,900	5.20	2.28
Total CUs in general labor market preparation	F1RGLA_C	0.4	0.02	0.01	14,900	5.76	2.40
Total CUs in specific labor market preparation	F1RSLA_C	2.5	0.05	0.02	14,900	6.87	2.62
Total CUs in general studies	F1RGEN_C	0.5	0.02	0.01	14,900	6.68	2.58
Total CUs in health/physical/recreation education	F1RHEA_C	2.2	0.02	0.01	14,900	6.17	2.48
Total CUs in religion and theology	F1RREL_C	0.2	0.01	0.01	14,900	2.22	1.49
Total CUs in military science	F1RMIL_C	0.1	0.01	0.01	14,900	4.42	2.10
Total CUs	F1RHTUN	24.1	0.11	0.05	14,900	5.86	2.42
Total AP/IB courses	F1RAPIB	0.7	0.03	0.01	14,900	4.04	2.01
Math pipeline: Advanced III	F1RMAPIP = 8	11.3	0.45	0.26	14,900	3.02	1.74
Academic concentrator	F1RTRCC = 1	20.8	0.69	0.33	14,900	4.35	2.09
New basics: College bound, core curriculum	F1RNEWB = 1	25.8	0.70	0.36	14,900	3.79	1.95
9th-grade GPA	F1RGP9	2.7	0.01	0.01	14,500	3.97	1.99
9th-grade academic GPA	F1RAGP9	2.5	0.02	0.01	14,400	3.87	1.97
10th-grade GPA	F1RGP10	2.6	0.02	0.01	14,700	4.56	2.13
10th-grade academic GPA	F1RAGP10	2.5	0.02	0.01	14,700	4.33	2.08
11th-grade GPA	F1RGP11	2.7	0.01	0.01	13,900	4.00	2.00
11th-grade academic GPA	F1RAGP11	2.5	0.02	0.01	13,900	3.78	1.94
12th-grade GPA	F1RGP12	2.8	0.01	0.01	13,200	3.78	1.94
12th-grade academic GPA	F1RAGP12	2.7	0.01	0.01	13,100	3.67	1.92
Total GPA	F1RGP	2.7	0.01	0.01	14,900	4.75	2.18
Total academic GPA	F1RAGP	2.5	0.01	0.01	14,900	4.53	2.13
SUMMARY STATISTICS							
Mean						4.57	2.12
Minimum						2.22	1.49
Median						4.39	2.09
Maximum						7.35	2.71
Standard deviation						1.21	0.28

NOTE: N = sample size; DEFF = design effect; DEFT = square root of the design effect; CU = Carnegie Unit.

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

**Table G-2. Student design effects, by survey item using transcript weight, male respondents: 2004–05**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple standard error	N	DEFF	DEFT
Left school in 2004	F1RDLTFT	87.5	0.58	0.40	6,800	2.07	1.44
Left school with standard diploma	F1RREASL = 1	82.4	0.69	0.45	7,100	2.32	1.52
Total CUs in mathematics	F1RMAT_C	3.2	0.02	0.01	7,400	3.06	1.75
Total CUs in science	F1RSCI_C	2.9	0.02	0.01	7,400	2.81	1.67
Total CUs in English	F1RENG_C	3.9	0.03	0.01	7,400	3.01	1.74
Total CUs in social studies	F1RSOC_C	3.5	0.03	0.02	7,400	4.22	2.06
Total CUs in fine arts	F1RFIN_C	1.5	0.03	0.02	7,400	2.80	1.67
Total CUs in non-English language	F1RNON_C	1.5	0.03	0.01	7,400	3.28	1.81
Total CUs in family/cons. science	F1RFAM_C	0.3	0.01	0.01	7,400	3.22	1.80
Total CUs in general labor market preparation	F1RGLA_C	0.5	0.02	0.01	7,400	3.78	1.95
Total CUs in specific labor market preparation	F1RSLA_C	2.8	0.06	0.03	7,400	4.08	2.02
Total CUs in general studies	F1RGEN_C	0.5	0.02	0.01	7,400	3.77	1.94
Total CUs in health/physical/recreation education	F1RHEA_C	2.4	0.03	0.02	7,400	3.94	1.99
Total CUs in religion and theology	F1RREL_C	0.2	0.01	0.01	7,400	2.49	1.58
Total CUs in military science	F1RMIL_C	0.1	0.01	0.01	7,400	3.05	1.75
Total CUs	F1RHTUN	23.6	0.13	0.07	7,400	3.53	1.88
Total AP/IB courses	F1RAPIB	0.6	0.03	0.02	7,400	2.72	1.65
Math pipeline: Advanced III	F1RMAPIP = 8	11.5	0.57	0.37	7,400	2.37	1.54
Academic concentrator	F1RTRCC = 1	19.0	0.76	0.45	7,400	2.82	1.68
New basics: College bound, core curriculum	F1RNEWB = 1	24.8	0.79	0.50	7,400	2.51	1.58
9th-grade GPA	F1RGP9	2.5	0.02	0.01	7,200	2.63	1.62
9th-grade academic GPA	F1RAGP9	2.4	0.02	0.01	7,200	2.54	1.59
10th-grade GPA	F1RGP10	2.5	0.02	0.01	7,400	2.92	1.71
10th-grade academic GPA	F1RAGP10	2.3	0.02	0.01	7,300	2.90	1.70
11th-grade GPA	F1RGP11	2.5	0.02	0.01	6,900	2.53	1.59
11th-grade academic GPA	F1RAGP11	2.3	0.02	0.01	6,900	2.51	1.59
12th-grade GPA	F1RGP12	2.7	0.02	0.01	6,500	2.49	1.58
12th-grade academic GPA	F1RAGP12	2.5	0.02	0.01	6,500	2.37	1.54
Total GPA	F1RGP	2.5	0.02	0.01	7,400	2.95	1.72
Total academic GPA	F1RAGP	2.3	0.02	0.01	7,400	2.90	1.70
<b>SUMMARY STATISTICS</b>							
Mean						2.95	1.71
Minimum						2.07	1.44
Median						2.86	1.69
Maximum						4.22	2.06
Standard deviation						0.56	0.16

NOTE: N = sample size; DEFF = design effect; DEFT = square root of the design effect; CU = Carnegie Unit.  
 SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "High School Transcript Study."

Table G-3. Student design effects, by survey item using transcript weight, female respondents: 2004–05

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Left school in 2004	F1RDTLFT	91.0	0.49	0.35	6,900	2.04	1.43
Left school with standard diploma	F1RREASL = 1	87.8	0.57	0.38	7,200	2.21	1.49
Total CUs in mathematics	F1RMAT_C	3.4	0.02	0.01	7,500	3.35	1.83
Total CUs in science	F1RSCI_C	3.1	0.02	0.01	7,500	3.06	1.75
Total CUs in English	F1RENG_C	4.1	0.02	0.01	7,500	3.19	1.79
Total CUs in social studies	F1RSOC_C	3.8	0.03	0.01	7,500	4.70	2.17
Total CUs in fine arts	F1RFIN_C	2.1	0.04	0.02	7,500	3.15	1.77
Total CUs in non-English language	F1RNON_C	1.9	0.03	0.02	7,500	3.94	1.98
Total CUs in family/cons. science	F1RFAM_C	0.6	0.02	0.01	7,500	4.04	2.01
Total CUs in general labor market preparation	F1RGLA_C	0.3	0.02	0.01	7,500	3.36	1.83
Total CUs in specific labor market preparation	F1RSLA_C	2.2	0.05	0.02	7,500	4.78	2.19
Total CUs in general studies	F1RGEN_C	0.6	0.02	0.01	7,500	4.50	2.12
Total CUs in health/physical/recreation education	F1RHEA_C	2.0	0.03	0.01	7,500	4.59	2.14
Total CUs in religion and theology	F1RREL_C	0.2	0.01	0.01	7,500	2.53	1.59
Total CUs in military science	F1RMIL_C	0.1	0.01	0.01	7,500	3.51	1.87
Total CUs	F1RHTUN	24.5	0.12	0.06	7,500	3.72	1.93
Total AP/IB courses	F1RAPIB	0.8	0.03	0.02	7,500	2.97	1.72
Math pipeline: Advanced III	F1RMAPIP = 8	11.1	0.54	0.36	7,500	2.21	1.49
Academic concentrator	F1RTRCC = 1	22.6	0.84	0.48	7,500	3.00	1.73
New basics: College bound, core curriculum	F1RNEWB = 1	26.8	0.90	0.51	7,500	3.08	1.75
9th-grade GPA	F1RGP9	2.8	0.02	0.01	7,300	3.04	1.74
9th-grade academic GPA	F1RAGP9	2.7	0.02	0.01	7,200	3.09	1.76
10th-grade GPA	F1RGP10	2.8	0.02	0.01	7,400	3.26	1.81
10th-grade academic GPA	F1RAGP10	2.7	0.02	0.01	7,400	3.17	1.78
11th-grade GPA	F1RGP11	2.8	0.02	0.01	7,000	3.16	1.78
11th-grade academic GPA	F1RAGP11	2.7	0.02	0.01	7,000	2.98	1.73
12th-grade GPA	F1RGP12	3.0	0.02	0.01	6,700	3.00	1.73
12th-grade academic GPA	F1RAGP12	2.9	0.02	0.01	6,700	2.96	1.72
Total GPA	F1RGP	2.8	0.02	0.01	7,500	3.60	1.90
Total academic GPA	F1RAGP	2.7	0.02	0.01	7,500	3.51	1.87
SUMMARY STATISTICS							
Mean						3.32	1.81
Minimum						2.04	1.43
Median						3.17	1.78
Maximum						4.78	2.19
Standard deviation						0.69	0.19

NOTE: N = sample size; DEFF = design effect; DEFT = square root of the design effect; CU = Carnegie Unit.  
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "High School Transcript Study."

**Table G-4. Student design effects, by survey item using transcript weight, American Indian or Alaska Native respondents: 2004–05**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Left school in 2004	F1RDTLFT	81.9	3.57	3.67	100	0.94	0.97
Left school with standard diploma	F1RREASL = 1	72.4	4.26	4.07	100	1.10	1.05
Total CUs in mathematics	F1RMAT_C	2.9	0.13	0.10	130	1.68	1.30
Total CUs in science	F1RSCL_C	2.6	0.14	0.10	130	2.07	1.44
Total CUs in English	F1RENG_C	3.9	0.20	0.13	130	2.17	1.47
Total CUs in social studies	F1RSOC_C	3.7	0.22	0.14	130	2.42	1.55
Total CUs in fine arts	F1RFIN_C	1.3	0.20	0.12	130	2.52	1.59
Total CUs in non-English language	F1RNON_C	1.1	0.14	0.10	130	1.92	1.38
Total CUs in family/cons. science	F1RFAM_C	0.6	0.09	0.06	130	1.85	1.36
Total CUs in general labor market preparation	F1RGLA_C	0.8	0.17	0.11	130	2.36	1.54
Total CUs in specific labor market preparation	F1RSLA_C	2.5	0.18	0.16	130	1.21	1.10
Total CUs in general studies	F1RGEN_C	0.6	0.17	0.09	130	3.71	1.93
Total CUs in health/physical/recreation education	F1RHEA_C	2.4	0.17	0.12	130	2.05	1.43
Total CUs in religion and theology	F1RREL_C	#	0.02	0.03	130	†	†
Total CUs in military science	F1RMIL_C	0.2	0.10	0.06	130	2.31	1.52
Total CUs	F1RHTUN	22.7	0.67	0.53	130	1.59	1.26
Total AP/IB courses	F1RAPIB	0.2	0.08	0.07	130	1.51	1.23
Math pipeline: Advanced III	F1RMAPIP = 8	3.7	1.78	1.67	130	1.13	1.06
Academic concentrator	F1RTRCC = 1	8.7	3.17	2.50	130	1.61	1.27
New basics: College bound, core curriculum	F1RNEWB = 1	10.6	3.73	2.73	130	1.87	1.37
9th-grade GPA	F1RGP9	2.3	0.11	0.08	120	1.90	1.38
9th-grade academic GPA	F1RAGP9	2.1	0.11	0.08	120	1.76	1.33
10th-grade GPA	F1RGP10	2.3	0.08	0.07	120	1.50	1.23
10th-grade academic GPA	F1RAGP10	2.1	0.09	0.08	120	1.50	1.22
11th-grade GPA	F1RGP11	2.2	0.10	0.09	120	1.26	1.12
11th-grade academic GPA	F1RAGP11	2.0	0.11	0.09	120	1.33	1.15
12th-grade GPA	F1RGP12	2.6	0.10	0.09	100	1.33	1.15
12th-grade academic GPA	F1RAGP12	2.5	0.11	0.10	100	1.22	1.10
Total GPA	F1RGP	2.3	0.08	0.07	130	1.42	1.19
Total academic GPA	F1RAGP	2.1	0.08	0.07	130	1.23	1.11
<b>SUMMARY STATISTICS</b>							
Mean						1.69	1.28
Minimum						0.39	0.63
Median						1.60	1.26
Maximum						3.71	1.93
Standard deviation						0.62	0.24

† Not applicable.

# Rounds to zero.

NOTE: N = sample size; DEFF = design effect; DEFT = square root of the design effect; CU = Carnegie Unit.

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

Table G-5. Student design effects, by survey item using transcript weight, Asian respondents: 2004–05

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Left school in 2004	F1RDTLFT	92.2	1.03	0.72	1,400	2.07	1.44
Left school with standard diploma	F1RREASL = 1	88.6	1.24	0.84	1,500	2.21	1.49
Total CUs in mathematics	F1RMAT_C	3.6	0.05	0.03	1,500	2.48	1.58
Total CUs in science	F1RSCI_C	3.4	0.06	0.04	1,500	3.17	1.78
Total CUs in English	F1RENG_C	4.2	0.05	0.03	1,500	2.68	1.64
Total CUs in social studies	F1RSOC_C	3.7	0.06	0.03	1,500	3.48	1.87
Total CUs in fine arts	F1RFIN_C	1.7	0.06	0.04	1,500	2.48	1.57
Total CUs in non-English language	F1RNON_C	2.1	0.06	0.03	1,500	3.46	1.86
Total CUs in family/cons. science	F1RFAM_C	0.2	0.02	0.01	1,500	2.21	1.49
Total CUs in general labor market preparation	F1RGLA_C	0.2	0.03	0.01	1,500	3.38	1.84
Total CUs in specific labor market preparation	F1RSLA_C	1.9	0.07	0.04	1,500	2.63	1.62
Total CUs in general studies	F1RGEN_C	0.6	0.04	0.02	1,500	3.24	1.80
Total CUs in health/physical/recreation education	F1RHEA_C	2.2	0.05	0.03	1,500	3.25	1.80
Total CUs in religion and theology	F1RREL_C	0.2	0.04	0.02	1,500	4.21	2.05
Total CUs in military science	F1RMIL_C	0.1	0.02	0.01	1,500	2.59	1.61
Total CUs	F1RHTUN	24.3	0.24	0.14	1,500	2.99	1.73
Total AP/IB courses	F1RAPIB	1.8	0.13	0.07	1,500	3.71	1.93
Math pipeline: Advanced III	F1RMAPIP = 8	29.2	2.15	1.17	1,500	3.38	1.84
Academic concentrator	F1RTRCC = 1	33.8	2.00	1.22	1,500	2.72	1.65
New basics: College bound, core curriculum	F1RNEWB = 1	29.6	1.77	1.17	1,500	2.27	1.51
9th-grade GPA	F1RGP9	3.0	0.03	0.02	1,400	2.08	1.44
9th-grade academic GPA	F1RAGP9	2.9	0.03	0.02	1,400	2.01	1.42
10th-grade GPA	F1RGP10	2.9	0.03	0.02	1,500	2.33	1.53
10th-grade academic GPA	F1RAGP10	2.8	0.03	0.02	1,500	2.13	1.46
11th-grade GPA	F1RGP11	2.9	0.03	0.02	1,400	2.12	1.46
11th-grade academic GPA	F1RAGP11	2.8	0.03	0.02	1,400	2.16	1.47
12th-grade GPA	F1RGP12	3.0	0.03	0.02	1,400	2.04	1.43
12th-grade academic GPA	F1RAGP12	2.9	0.03	0.02	1,400	1.97	1.40
Total GPA	F1RGP	2.9	0.03	0.02	1,500	2.54	1.59
Total academic GPA	F1RAGP	2.8	0.03	0.02	1,500	2.46	1.57
SUMMARY STATISTICS							
Mean						2.68	1.63
Minimum						1.97	1.40
Median						2.51	1.58
Maximum						4.21	2.05
Standard deviation						0.60	0.18

NOTE: N = sample size; DEFF = design effect; DEFT = square root of the design effect; CU = Carnegie Unit.  
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "High School Transcript Study."



**Table G-6. Student design effects, by survey item using transcript weight, Black or African American respondents: 2004–05**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple standard error	N	DEFF	DEFT
Left school in 2004	F1RDTLFT	82.2	1.41	0.94	1,700	2.24	1.50
Left school with standard diploma	F1RREASL = 1	77.8	1.45	0.97	1,800	2.22	1.49
Total CUs in mathematics	F1RMAT_C	3.3	0.05	0.03	1,900	2.68	1.64
Total CUs in science	F1RSCI_C	2.8	0.05	0.03	1,900	2.65	1.63
Total CUs in English	F1RENG_C	3.9	0.05	0.03	1,900	2.46	1.57
Total CUs in social studies	F1RSOC_C	3.5	0.05	0.03	1,900	2.32	1.52
Total CUs in fine arts	F1RFIN_C	1.4	0.05	0.03	1,900	2.38	1.54
Total CUs in non-English language	F1RNON_C	1.3	0.05	0.03	1,900	3.48	1.87
Total CUs in family/cons. science	F1RFAM_C	0.5	0.03	0.02	1,900	2.91	1.71
Total CUs in general labor market preparation	F1RGLA_C	0.5	0.03	0.02	1,900	2.40	1.55
Total CUs in specific labor market preparation	F1RSLA_C	2.5	0.08	0.05	1,900	3.12	1.77
Total CUs in general studies	F1RGEN_C	0.5	0.03	0.02	1,900	2.48	1.58
Total CUs in health/physical/recreation education	F1RHEA_C	2.3	0.05	0.03	1,900	2.81	1.68
Total CUs in religion and theology	F1RREL_C	0.1	0.01	0.01	1,900	0.92	0.96
Total CUs in military science	F1RMIL_C	0.3	0.04	0.02	1,900	4.10	2.02
Total CUs	F1RHTUN	22.9	0.24	0.15	1,900	2.68	1.64
Total AP/IB courses	F1RAPIB	0.3	0.03	0.02	1,900	1.72	1.31
Math pipeline: Advanced III	F1RMAPIP = 8	3.4	0.42	0.41	1,900	1.04	1.02
Academic concentrator	F1RTRCC = 1	12.4	1.09	0.75	1,900	2.10	1.45
New basics: College bound, core curriculum	F1RNEWB = 1	23.5	1.40	0.97	1,900	2.08	1.44
9th-grade GPA	F1RGP9	2.2	0.03	0.02	1,900	2.04	1.43
9th-grade academic GPA	F1RAGP9	2.1	0.03	0.02	1,800	1.85	1.36
10th-grade GPA	F1RGP10	2.1	0.03	0.02	1,900	1.85	1.36
10th-grade academic GPA	F1RAGP10	2.0	0.03	0.02	1,900	1.66	1.29
11th-grade GPA	F1RGP11	2.3	0.03	0.02	1,700	1.75	1.32
11th-grade academic GPA	F1RAGP11	2.1	0.03	0.02	1,700	1.74	1.32
12th-grade GPA	F1RGP12	2.4	0.03	0.02	1,600	1.84	1.36
12th-grade academic GPA	F1RAGP12	2.3	0.03	0.02	1,600	1.92	1.38
Total GPA	F1RGP	2.2	0.02	0.02	1,900	1.98	1.41
Total academic GPA	F1RAGP	2.0	0.02	0.02	1,900	1.82	1.35
<b>SUMMARY STATISTICS</b>							
Mean						2.24	1.48
Minimum						0.92	0.96
Median						2.16	1.47
Maximum						4.10	2.02
Standard deviation						0.65	0.22

NOTE: N = sample size; DEFF = design effect; DEFT = square root of the design effect; CU = Carnegie Unit.  
 SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "High School Transcript Study."

Table G-7. Student design effects, by survey item using transcript weight, Hispanic or Latino respondents: 2004–05

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Left school in 2004	F1RDTLFT	82.7	1.14	0.85	2,000	1.78	1.33
Left school with standard diploma	F1RREASL = 1	76.4	1.31	0.93	2,100	1.99	1.41
Total CUs in mathematics	F1RMAT_C	3.0	0.05	0.03	2,200	3.54	1.88
Total CUs in science	F1RSCL_C	2.6	0.04	0.02	2,200	2.60	1.61
Total CUs in English	F1RENG_C	4.1	0.06	0.03	2,200	3.42	1.85
Total CUs in social studies	F1RSOC_C	3.4	0.05	0.03	2,200	3.48	1.87
Total CUs in fine arts	F1RFIN_C	1.5	0.06	0.03	2,200	3.45	1.86
Total CUs in non-English language	F1RNON_C	1.6	0.05	0.03	2,200	3.59	1.89
Total CUs in family/cons. science	F1RFAM_C	0.4	0.02	0.01	2,200	2.73	1.65
Total CUs in general labor market preparation	F1RGLA_C	0.4	0.03	0.02	2,200	2.54	1.59
Total CUs in specific labor market preparation	F1RSLA_C	2.2	0.07	0.04	2,200	3.19	1.79
Total CUs in general studies	F1RGEN_C	0.6	0.04	0.02	2,200	3.11	1.76
Total CUs in health/physical/recreation education	F1RHEA_C	2.3	0.05	0.03	2,200	3.54	1.88
Total CUs in religion and theology	F1RREL_C	0.1	0.02	0.01	2,200	1.55	1.25
Total CUs in military science	F1RMIL_C	0.1	0.02	0.01	2,200	2.58	1.61
Total CUs	F1RHUN	22.4	0.26	0.13	2,200	3.83	1.96
Total AP/IB courses	F1RAPIB	0.4	0.04	0.03	2,200	2.15	1.47
Math pipeline: Advanced III	F1RMAPIP = 8	4.8	0.59	0.46	2,200	1.68	1.30
Academic concentrator	F1RTRCC = 1	11.0	0.90	0.67	2,200	1.84	1.36
New basics: College bound, core curriculum	F1RNEWB = 1	19.2	1.45	0.84	2,200	2.98	1.73
9th-grade GPA	F1RGP9	2.4	0.03	0.02	2,100	2.96	1.72
9th-grade academic GPA	F1RAGP9	2.2	0.03	0.02	2,100	2.72	1.65
10th-grade GPA	F1RGP10	2.3	0.04	0.02	2,200	4.00	2.00
10th-grade academic GPA	F1RAGP10	2.1	0.04	0.02	2,200	3.78	1.94
11th-grade GPA	F1RGP11	2.4	0.04	0.02	2,000	3.58	1.89
11th-grade academic GPA	F1RAGP11	2.2	0.04	0.02	2,000	3.17	1.78
12th-grade GPA	F1RGP12	2.6	0.04	0.02	1,800	3.98	1.99
12th-grade academic GPA	F1RAGP12	2.4	0.04	0.02	1,800	3.66	1.91
Total GPA	F1RGP	2.3	0.03	0.02	2,200	4.14	2.03
Total academic GPA	F1RAGP	2.2	0.03	0.02	2,200	3.79	1.95
SUMMARY STATISTICS							
Mean						3.04	1.73
Minimum						1.55	1.25
Median						3.18	1.78
Maximum						4.14	2.03
Standard deviation						0.76	0.23

NOTE: N = sample size; DEFF = design effect; DEFT = square root of the design effect; CU = Carnegie Unit.

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

**Table G-8. Student design effects, by survey item using transcript weight, White respondents: 2004–05**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Left school in 2004	F1RDTLFT	92.6	0.40	0.30	8,000	1.86	1.36
Left school with standard diploma	F1RREASL = 1	89.2	0.51	0.34	8,200	2.26	1.50
Total CUs in mathematics	F1RMAT_C	3.4	0.02	0.01	8,500	4.07	2.02
Total CUs in science	F1RSCI_C	3.1	0.02	0.01	8,500	3.59	1.90
Total CUs in English	F1RENG_C	4.0	0.02	0.01	8,500	3.90	1.97
Total CUs in social studies	F1RSOC_C	3.8	0.03	0.01	8,500	6.46	2.54
Total CUs in fine arts	F1RFIN_C	2.0	0.04	0.02	8,500	3.01	1.74
Total CUs in non-English language	F1RNON_C	1.9	0.03	0.01	8,500	4.27	2.07
Total CUs in family/cons. science	F1RFAM_C	0.4	0.02	0.01	8,500	4.19	2.05
Total CUs in general labor market preparation	F1RGLA_C	0.4	0.02	0.01	8,500	4.98	2.23
Total CUs in specific labor market preparation	F1RSLA_C	2.7	0.06	0.03	8,500	5.95	2.44
Total CUs in general studies	F1RGEN_C	0.5	0.02	0.01	8,500	5.89	2.43
Total CUs in health/physical/recreation education	F1RHEA_C	2.2	0.03	0.01	8,500	5.50	2.35
Total CUs in religion and theology	F1RREL_C	0.3	0.01	0.01	8,500	2.23	1.49
Total CUs in military science	F1RMIL_C	0.1	0.01	0.01	8,500	2.83	1.68
Total CUs	F1RHTUN	24.9	0.12	0.06	8,500	4.93	2.22
Total AP/IB courses	F1RAPIB	0.8	0.03	0.02	8,500	3.48	1.87
Math pipeline: Advanced III	F1RMAPIP = 8	14.0	0.60	0.38	8,500	2.51	1.58
Academic concentrator	F1RTRCC = 1	25.1	0.94	0.47	8,500	3.94	1.99
New basics: College bound, core curriculum	F1RNEWB = 1	28.7	0.91	0.49	8,500	3.44	1.85
9th-grade GPA	F1RGP9	2.8	0.01	0.01	8,200	2.60	1.61
9th-grade academic GPA	F1RAGP9	2.7	0.02	0.01	8,200	2.59	1.61
10th-grade GPA	F1RGP10	2.8	0.01	0.01	8,400	2.78	1.67
10th-grade academic GPA	F1RAGP10	2.7	0.02	0.01	8,400	2.74	1.66
11th-grade GPA	F1RGP11	2.8	0.01	0.01	8,000	2.61	1.61
11th-grade academic GPA	F1RAGP11	2.7	0.02	0.01	8,000	2.47	1.57
12th-grade GPA	F1RGP12	3.0	0.01	0.01	7,700	2.39	1.55
12th-grade academic GPA	F1RAGP12	2.8	0.01	0.01	7,700	2.30	1.52
Total GPA	F1RGP	2.8	0.01	0.01	8,400	2.75	1.66
Total academic GPA	F1RAGP	2.7	0.01	0.01	8,400	2.70	1.64
<b>SUMMARY STATISTICS</b>							
Mean						3.51	1.85
Minimum						1.86	1.36
Median						2.92	1.71
Maximum						6.46	2.54
Standard deviation						1.27	0.32

NOTE: N = sample size; DEFF = design effect; DEFT = square root of the design effect; CU = Carnegie Unit.  
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "High School Transcript Study."

**Table G-9. Student design effects, by survey item using transcript weight, respondents reporting more than one race: 2004–05**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Left school in 2004	F1RDLTFT	86.6	1.50	1.34	700	1.26	1.12
Left school with standard diploma	F1RREASL = 1	83.3	1.75	1.43	700	1.50	1.22
Total CUs in mathematics	F1RMAT_C	3.2	0.06	0.04	700	1.90	1.38
Total CUs in science	F1RSCI_C	2.9	0.06	0.05	700	1.65	1.28
Total CUs in English	F1RENG_C	3.9	0.06	0.05	700	1.77	1.33
Total CUs in social studies	F1RSOC_C	3.6	0.07	0.05	700	2.01	1.42
Total CUs in fine arts	F1RFIN_C	1.9	0.11	0.07	700	2.11	1.45
Total CUs in non-English language	F1RNON_C	1.6	0.06	0.05	700	1.83	1.35
Total CUs in family/cons. science	F1RFAM_C	0.4	0.03	0.02	700	1.74	1.32
Total CUs in general labor market preparation	F1RGLA_C	0.4	0.05	0.03	700	2.05	1.43
Total CUs in specific labor market preparation	F1RSLA_C	2.6	0.14	0.09	700	2.55	1.60
Total CUs in general studies	F1RGEN_C	0.6	0.05	0.04	700	1.95	1.39
Total CUs in health/physical/recreation education	F1RHEA_C	2.1	0.06	0.04	700	2.25	1.50
Total CUs in religion and theology	F1RREL_C	0.2	0.03	0.03	700	0.90	0.95
Total CUs in military science	F1RMIL_C	0.1	0.02	0.02	700	1.37	1.17
Total CUs	F1RHTUN	23.5	0.30	0.22	700	1.85	1.36
Total AP/IB courses	F1RAPIB	0.6	0.07	0.06	700	1.58	1.26
Math pipeline: Advanced III	F1RMAPIP = 8	9.7	1.34	1.12	700	1.44	1.20
Academic concentrator	F1RTRCC = 1	16.5	1.84	1.40	700	1.74	1.32
New basics: College bound, core curriculum	F1RNEWB = 1	18.3	1.92	1.46	700	1.73	1.32
9th-grade GPA	F1RGP9	2.6	0.04	0.03	700	1.42	1.19
9th-grade academic GPA	F1RAGP9	2.5	0.04	0.03	700	1.46	1.21
10th-grade GPA	F1RGP10	2.5	0.04	0.03	700	1.58	1.26
10th-grade academic GPA	F1RAGP10	2.4	0.04	0.03	700	1.55	1.24
11th-grade GPA	F1RGP11	2.6	0.04	0.03	600	1.58	1.26
11th-grade academic GPA	F1RAGP11	2.5	0.04	0.04	600	1.56	1.25
12th-grade GPA	F1RGP12	2.7	0.04	0.03	600	1.78	1.34
12th-grade academic GPA	F1RAGP12	2.6	0.05	0.04	600	1.81	1.35
Total GPA	F1RGP	2.6	0.03	0.03	700	1.54	1.24
Total academic GPA	F1RAGP	2.5	0.04	0.03	700	1.60	1.26
<b>SUMMARY STATISTICS</b>							
Mean						1.70	1.30
Minimum						0.90	0.95
Median						1.69	1.30
Maximum						2.55	1.60
Standard deviation						0.32	0.12

NOTE: N = sample size; DEFF = design effect; DEFT = square root of the design effect; CU = Carnegie Unit.  
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "High School Transcript Study."

**Table G-10. Student design effects, by survey item using transcript weight, public school: 2004-05**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Left school in 2004	F1RDTLFT	88.7	0.48	0.31	10,600	2.42	1.56
Left school with standard diploma	F1RREASL = 1	84.5	0.55	0.34	11,200	2.64	1.62
Total CUs in mathematics	F1RMAT_C	3.3	0.02	0.01	11,700	4.46	2.11
Total CUs in science	F1RSCI_C	3.0	0.02	0.01	11,700	3.96	1.99
Total CUs in English	F1RENG_C	4.0	0.02	0.01	11,700	4.12	2.03
Total CUs in social studies	F1RSOC_C	3.6	0.03	0.01	11,700	6.49	2.55
Total CUs in fine arts	F1RFIN_C	1.8	0.03	0.02	11,700	3.51	1.87
Total CUs in non-English language	F1RNON_C	1.7	0.03	0.01	11,700	4.90	2.21
Total CUs in family/cons. science	F1RFAM_C	0.4	0.01	0.01	11,700	4.51	2.12
Total CUs in general labor market preparation	F1RGLA_C	0.4	0.02	0.01	11,700	4.90	2.21
Total CUs in specific labor market preparation	F1RSLA_C	2.6	0.05	0.02	11,700	6.06	2.46
Total CUs in general studies	F1RGEN_C	0.6	0.02	0.01	11,700	5.80	2.41
Total CUs in health/physical/recreation education	F1RHEA_C	2.2	0.03	0.01	11,700	5.36	2.32
Total CUs in religion and theology	F1RREL_C	#	#	#	11,700	†	†
Total CUs in military science	F1RMIL_C	0.1	0.01	0.01	11,700	3.77	1.94
Total CUs	F1RHTUN	24.0	0.12	0.05	11,700	5.08	2.25
Total AP/IB courses	F1RAPIB	0.6	0.03	0.01	11,700	3.54	1.88
Math pipeline: Advanced III	F1RMAPIP = 8	10.4	0.46	0.28	11,700	2.65	1.63
Academic concentrator	F1RTRCC = 1	18.8	0.71	0.36	11,700	3.89	1.97
New basics: College bound, core curriculum	F1RNEWB = 1	24.7	0.73	0.40	11,700	3.31	1.82
9th-grade GPA	F1RGP9	2.6	0.01	0.01	11,400	3.48	1.86
9th-grade academic GPA	F1RAGP9	2.5	0.02	0.01	11,300	3.39	1.84
10th-grade GPA	F1RGP10	2.6	0.02	0.01	11,600	3.99	2.00
10th-grade academic GPA	F1RAGP10	2.4	0.02	0.01	11,500	3.79	1.95
11th-grade GPA	F1RGP11	2.6	0.02	0.01	10,800	3.47	1.86
11th-grade academic GPA	F1RAGP11	2.5	0.02	0.01	10,800	3.29	1.81
12th-grade GPA	F1RGP12	2.8	0.01	0.01	10,200	3.26	1.81
12th-grade academic GPA	F1RAGP12	2.7	0.02	0.01	10,200	3.17	1.78
Total GPA	F1RGP	2.6	0.01	0.01	11,700	4.16	2.04
Total academic GPA	F1RAGP	2.5	0.02	0.01	11,700	3.97	1.99
<b>SUMMARY STATISTICS</b>							
Mean						4.00	1.98
Minimum						2.42	1.56
Median						3.84	1.96
Maximum						6.49	2.55
Standard deviation						1.03	0.25

† Not applicable.

# Rounds to zero.

NOTE: N = sample size; DEFF = design effect; DEFT = square root of the design effect; CU = Carnegie Unit.

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

Table G-11. Student design effects, by survey item using transcript weight, Catholic school: 2004–05

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Left school in 2004	F1RDTLFT	96.4	0.51	0.44	1,800	1.40	1.18
Left school with standard diploma	F1RREASL = 1	95.7	0.59	0.47	1,900	1.57	1.25
Total CUs in mathematics	F1RMAT_C	3.7	0.03	0.02	1,900	3.12	1.77
Total CUs in science	F1RSCI_C	3.4	0.05	0.02	1,900	7.24	2.69
Total CUs in English	F1RENG_C	4.3	0.06	0.02	1,900	8.32	2.88
Total CUs in social studies	F1RSOC_C	4.0	0.07	0.02	1,900	8.27	2.88
Total CUs in fine arts	F1RFIN_C	1.6	0.09	0.03	1,900	7.92	2.81
Total CUs in non-English language	F1RNON_C	2.7	0.07	0.02	1,900	7.72	2.78
Total CUs in family/cons. science	F1RFAM_C	0.1	0.02	0.01	1,900	8.57	2.93
Total CUs in general labor market preparation	F1RGLA_C	0.1	0.03	0.01	1,900	22.21	4.71
Total CUs in specific labor market preparation	F1RSLA_C	1.3	0.07	0.03	1,900	7.37	2.71
Total CUs in general studies	F1RGEN_C	0.2	0.03	0.01	1,900	8.55	2.92
Total CUs in health/physical/recreation education	F1RHEA_C	1.7	0.07	0.02	1,900	12.13	3.48
Total CUs in religion and theology	F1RREL_C	3.4	0.06	0.02	1,900	11.44	3.38
Total CUs in military science	F1RMIL_C	#	0.03	0.01	1,900	†	†
Total CUs	F1RHTUN	26.8	0.25	0.08	1,900	9.74	3.12
Total AP/IB courses	F1RAPIB	1.0	0.09	0.04	1,900	5.33	2.31
Math pipeline: Advanced III	F1RMAPIP = 8	21.0	1.73	0.94	1,900	3.39	1.84
Academic concentrator	F1RTRCC = 1	49.8	3.40	1.15	1,900	8.71	2.95
New basics: College bound, core curriculum	F1RNEWB = 1	53.8	3.62	1.15	1,900	9.97	3.16
9th-grade GPA	F1RGP9	3.0	0.03	0.02	1,900	4.33	2.08
9th-grade academic GPA	F1RAGP9	2.9	0.04	0.02	1,900	4.22	2.06
10th-grade GPA	F1RGP10	2.9	0.04	0.02	1,900	4.58	2.14
10th-grade academic GPA	F1RAGP10	2.8	0.04	0.02	1,900	4.55	2.13
11th-grade GPA	F1RGP11	2.9	0.03	0.02	1,800	4.34	2.08
11th-grade academic GPA	F1RAGP11	2.8	0.04	0.02	1,800	4.39	2.10
12th-grade GPA	F1RGP12	3.0	0.03	0.01	1,800	4.25	2.06
12th-grade academic GPA	F1RAGP12	2.9	0.03	0.02	1,800	3.90	1.98
Total GPA	F1RGP	3.0	0.03	0.01	1,900	4.72	2.17
Total academic GPA	F1RAGP	2.8	0.03	0.02	1,900	4.59	2.14
SUMMARY STATISTICS							
Mean						7.00	2.54
Minimum						1.40	1.18
Median						6.28	2.50
Maximum						22.21	4.71
Standard deviation						4.17	0.74

† Not applicable.

# Rounds to zero.

NOTE: N = sample size; DEFF = design effect; DEFT = square root of the design effect; CU = Carnegie Unit.

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

**Table G-12. Student design effects, by survey item using transcript weight, other private school: 2004–05**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Left school in 2004	F1RDTLFT	92.8	1.59	0.73	1,300	4.77	2.18
Left school with standard diploma	F1RREASL = 1	87.3	2.96	0.92	1,300	10.32	3.21
Total CUs in mathematics	F1RMAT_C	3.6	0.07	0.03	1,300	7.21	2.69
Total CUs in science	F1RSCI_C	3.4	0.07	0.03	1,300	5.56	2.36
Total CUs in English	F1RENG_C	4.2	0.08	0.03	1,300	5.42	2.33
Total CUs in social studies	F1RSOC_C	3.8	0.11	0.04	1,300	9.97	3.16
Total CUs in fine arts	F1RFIN_C	2.0	0.19	0.05	1,300	17.59	4.19
Total CUs in non-English language	F1RNON_C	2.3	0.14	0.04	1,300	13.50	3.67
Total CUs in family/cons. science	F1RFAM_C	0.1	0.03	0.01	1,300	10.28	3.21
Total CUs in general labor market preparation	F1RGLA_C	0.2	0.04	0.01	1,300	12.82	3.58
Total CUs in specific labor market preparation	F1RSLA_C	1.1	0.08	0.03	1,300	7.00	2.65
Total CUs in general studies	F1RGEN_C	0.3	0.04	0.02	1,300	7.84	2.80
Total CUs in health/physical/recreation education	F1RHEA_C	1.7	0.10	0.03	1,300	12.65	3.56
Total CUs in religion and theology	F1RREL_C	1.5	0.16	0.04	1,300	13.73	3.70
Total CUs in military science	F1RMIL_C	#	0.03	0.01	1,300	†	†
Total AP/IB courses	F1RHTUN	24.2	0.45	0.15	1,300	9.14	3.02
Math pipeline: Advanced III	F1RAPIB	1.1	0.17	0.05	1,300	10.42	3.23
Academic concentrator	F1RMAPIP = 8	25.0	3.46	1.19	1,300	8.50	2.92
New basics: College bound, core curriculum	F1RTRCC = 1	38.6	3.64	1.33	1,300	7.46	2.73
9th-grade GPA	F1RNEWB = 1	22.0	2.71	1.13	1,300	5.72	2.39
9th-grade academic GPA	F1RGP9	3.1	0.04	0.02	1,200	4.29	2.07
10th-grade GPA	F1RAGP9	3.0	0.04	0.02	1,200	4.39	2.09
10th-grade academic GPA	F1RGP10	3.1	0.04	0.02	1,300	2.13	2.13
11th-grade GPA	F1RAGP10	3.0	0.05	0.02	1,300	5.18	2.28
11th-grade academic GPA	F1RGP11	3.1	0.04	0.02	1,200	5.21	2.28
12th-grade GPA	F1RAGP11	3.0	0.05	0.02	1,200	5.07	2.25
12th-grade academic GPA	F1RGP12	3.2	0.04	0.02	1,200	5.27	2.29
Total GPA	F1RAGP12	3.1	0.04	0.02	1,200	4.99	2.23
Total academic GPA	F1RGP	3.1	0.04	0.02	1,300	5.51	2.35
	F1RAGP	3.0	0.04	0.02	1,300	5.85	2.42
<b>SUMMARY STATISTICS</b>							
Mean						7.92	2.76
Minimum						4.29	2.07
Median						7.11	2.67
Maximum						17.59	4.19
Standard deviation						3.44	0.58

† Not applicable.

# Rounds to zero.

NOTE: N = sample size; DEFT = design effect; DEFF = square root of the design effect; CU = Carnegie Unit.

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

Table G-13. Student design effects, by survey item using transcript weight, low socioeconomic status: 2004–05

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Left school in 2004	F1RDTLFT	82.1	0.98	0.69	3,100	2.06	1.43
Left school with standard diploma	F1RREASL = 1	75.9	1.04	0.74	3,400	1.98	1.41
Total CUs in mathematics	F1RMAT_C	3.0	0.03	0.02	3,500	2.72	1.65
Total CUs in science	F1RSCI_C	2.6	0.03	0.02	3,500	2.53	1.59
Total CUs in English	F1RENG_C	4.0	0.04	0.02	3,500	2.40	1.55
Total CUs in social studies	F1RSOC_C	3.4	0.04	0.02	3,500	2.40	1.55
Total CUs in fine arts	F1RFIN_C	1.5	0.04	0.03	3,500	2.07	1.44
Total CUs in non-English language	F1RNON_C	1.2	0.03	0.02	3,500	2.51	1.59
Total CUs in family/cons. science	F1RFAM_C	0.5	0.02	0.01	3,500	2.27	1.51
Total CUs in general labor market preparation	F1RGLA_C	0.5	0.03	0.02	3,500	2.39	1.55
Total CUs in specific labor market preparation	F1RSLA_C	2.7	0.07	0.04	3,500	2.87	1.69
Total CUs in general studies	F1RGEN_C	0.6	0.03	0.02	3,500	3.01	1.74
Total CUs in health/physical/recreation education	F1RHEA_C	2.2	0.04	0.02	3,500	3.21	1.79
Total CUs in religion and theology	F1RREL_C	0.1	0.01	0.01	3,500	0.88	0.94
Total CUs in military science	F1RMIL_C	0.1	0.02	0.01	3,500	2.21	1.49
Total CUs	F1RHTUN	22.7	0.19	0.11	3,500	3.16	1.78
Total AP/IB courses	F1RAPIB	0.3	0.02	0.02	3,500	1.63	1.28
Math pipeline: Advanced III	F1RMAPIP = 8	4.5	0.48	0.35	3,500	1.89	1.37
Academic concentrator	F1RTRCC = 1	8.8	0.64	0.48	3,500	1.80	1.34
New basics: College bound, core curriculum	F1RNEWB = 1	16.6	0.90	0.63	3,500	2.05	1.43
9th-grade GPA	F1RGP9	2.4	0.02	0.01	3,400	2.56	1.60
9th-grade academic GPA	F1RAGP9	2.2	0.02	0.02	3,400	2.32	1.52
10th-grade GPA	F1RGP10	2.3	0.02	0.02	3,500	2.58	1.61
10th-grade academic GPA	F1RAGP10	2.1	0.02	0.02	3,500	2.42	1.55
11th-grade GPA	F1RGP11	2.4	0.03	0.02	3,100	2.52	1.59
11th-grade academic GPA	F1RAGP11	2.2	0.03	0.02	3,100	2.42	1.55
12th-grade GPA	F1RGP12	2.6	0.02	0.02	2,900	2.04	1.43
12th-grade academic GPA	F1RAGP12	2.4	0.02	0.02	2,800	1.88	1.37
Total GPA	F1RGP	2.3	0.02	0.01	3,500	2.89	1.70
Total academic GPA	F1RAGP	2.2	0.02	0.01	3,500	2.57	1.60
SUMMARY STATISTICS							
Mean						2.34	1.52
Minimum						0.88	0.94
Median						2.40	1.55
Maximum						3.21	1.79
Standard deviation						0.48	0.17

NOTE: N = sample size; DEFF = design effect; DEFT = square root of the design effect; CU = Carnegie Unit.  
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "High School Transcript Study."



**Table G-14. Student design effects, by survey item using transcript weight, middle socioeconomic status: 2004–05**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Left school in 2004	F1RDTLFT	89.4	0.52	0.38	6,600	1.91	1.38
Left school with standard diploma	F1RREASL = 1	85.5	0.64	0.42	6,900	2.29	1.51
Total CUs in mathematics	F1RMAT_C	3.3	0.02	0.01	7,200	3.60	1.90
Total CUs in science	F1RSCI_C	3.0	0.02	0.01	7,200	2.90	1.70
Total CUs in English	F1RENG_C	4.0	0.02	0.01	7,200	2.98	1.73
Total CUs in social studies	F1RSOC_C	3.7	0.03	0.02	7,200	4.86	2.20
Total CUs in fine arts	F1RFIN_C	1.8	0.03	0.02	7,200	2.50	1.58
Total CUs in non-English language	F1RNON_C	1.7	0.03	0.01	7,200	3.29	1.81
Total CUs in family/cons. science	F1RFAM_C	0.4	0.02	0.01	7,200	3.43	1.85
Total CUs in general labor market preparation	F1RGLA_C	0.4	0.02	0.01	7,200	3.82	1.95
Total CUs in specific labor market preparation	F1RSLA_C	2.7	0.06	0.03	7,200	4.44	2.11
Total CUs in general studies	F1RGEN_C	0.5	0.02	0.01	7,200	4.03	2.01
Total CUs in health/physical/recreation education	F1RHEA_C	2.2	0.03	0.01	7,200	4.07	2.02
Total CUs in religion and theology	F1RREL_C	0.2	0.01	0.01	7,200	1.60	1.27
Total CUs in military science	F1RMIL_C	0.1	0.01	0.01	7,200	2.45	1.57
Total AP/IB courses	F1RHTUN	24.2	0.13	0.07	7,200	3.88	1.97
Math pipeline: Advanced III	F1RAPIB	0.5	0.02	0.02	7,200	2.06	1.44
Academic concentrator	F1RMAPIP = 8	8.4	0.42	0.33	7,200	1.63	1.28
New basics: College bound, core curriculum	F1RTRCC = 1	18.0	0.72	0.45	7,200	2.49	1.58
9th-grade GPA	F1RNEWB = 1	26.1	0.87	0.52	7,200	2.82	1.68
9th-grade academic GPA	F1RGP9	2.6	0.02	0.01	7,000	2.50	1.58
10th-grade academic GPA	F1RAGP9	2.5	0.02	0.01	7,000	2.46	1.57
10th-grade academic GPA	F1RGP10	2.6	0.02	0.01	7,100	2.94	1.72
11th-grade academic GPA	F1RAGP10	2.4	0.02	0.01	7,100	2.88	1.70
11th-grade academic GPA	F1RGP11	2.6	0.02	0.01	6,700	2.55	1.60
12th-grade academic GPA	F1RAGP11	2.5	0.02	0.01	6,700	2.45	1.57
12th-grade academic GPA	F1RGP12	2.8	0.02	0.01	6,400	2.67	1.63
Total GPA	F1RAGP12	2.6	0.02	0.01	6,300	2.64	1.62
Total academic GPA	F1RGP	2.6	0.02	0.01	7,200	2.93	1.71
	F1RAGP	2.5	0.02	0.01	7,200	2.90	1.70
<b>SUMMARY STATISTICS</b>							
Mean						2.93	1.70
Minimum						1.60	1.27
Median						2.85	1.69
Maximum						4.86	2.20
Standard deviation						0.79	0.23

NOTE: N = sample size; DEFF = design effect; DEFT = square root of the design effect; CU = Carnegie Unit.  
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "High School Transcript Study."

Table G-15. Student design effects, by survey item using transcript weight, high socioeconomic status: 2004–05

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Left school in 2004	F1RDTLFT	95.6	0.43	0.33	4,000	1.69	1.30
Left school with standard diploma	F1RREASL = 1	93.4	0.56	0.39	4,100	2.09	1.44
Total CUs in mathematics	F1RMAT_C	3.6	0.03	0.02	4,200	2.72	1.65
Total CUs in science	F1RSCI_C	3.4	0.03	0.02	4,200	3.10	1.76
Total CUs in English	F1RENG_C	4.1	0.03	0.02	4,200	3.83	1.96
Total CUs in social studies	F1RSOC_C	3.9	0.04	0.02	4,200	4.84	2.20
Total CUs in fine arts	F1RFIN_C	2.1	0.05	0.03	4,200	3.42	1.85
Total CUs in non-English language	F1RNON_C	2.4	0.03	0.02	4,200	2.61	1.61
Total CUs in family/cons. science	F1RFAM_C	0.3	0.01	0.01	4,200	2.94	1.71
Total CUs in general labor market preparation	F1RGLA_C	0.3	0.02	0.01	4,200	4.05	2.01
Total CUs in specific labor market preparation	F1RSLA_C	1.9	0.05	0.03	4,200	2.79	1.67
Total CUs in general studies	F1RGEN_C	0.5	0.03	0.01	4,200	4.37	2.09
Total CUs in health/physical/recreation education	F1RHEA_C	2.1	0.03	0.02	4,200	3.81	1.95
Total CUs in religion and theology	F1RREL_C	0.4	0.02	0.02	4,200	2.15	1.47
Total CUs in military science	F1RMIL_C	0.1	0.01	0.01	4,200	2.95	1.72
Total CUs	F1RHTUN	25.3	0.13	0.07	4,200	3.19	1.79
Total AP/IB courses	F1RAPIB	1.5	0.06	0.03	4,200	3.58	1.89
Math pipeline: Advanced III	F1RMAPIP = 8	24.1	0.99	0.66	4,200	2.27	1.51
Academic concentrator	F1RTRCC = 1	38.5	1.31	0.75	4,200	3.07	1.75
New basics: College bound, core curriculum	F1RNEWB = 1	34.5	1.27	0.73	4,200	2.99	1.73
9th-grade GPA	F1RGP9	3.1	0.02	0.01	4,100	2.31	1.52
9th-grade academic GPA	F1RAGP9	3.0	0.02	0.01	4,100	2.36	1.54
10th-grade GPA	F1RGP10	3.0	0.02	0.01	4,200	2.42	1.55
10th-grade academic GPA	F1RAGP10	2.9	0.02	0.01	4,200	2.44	1.56
11th-grade GPA	F1RGP11	3.0	0.02	0.01	4,100	2.26	1.50
11th-grade academic GPA	F1RAGP11	2.9	0.02	0.01	4,100	2.19	1.48
12th-grade GPA	F1RGP12	3.1	0.02	0.01	4,000	2.20	1.48
12th-grade academic GPA	F1RAGP12	3.0	0.02	0.01	4,000	2.07	1.44
Total GPA	F1RGP	3.0	0.02	0.01	4,200	2.37	1.54
Total academic GPA	F1RAGP	2.9	0.02	0.01	4,200	2.33	1.53
SUMMARY STATISTICS							
Mean						2.85	1.67
Minimum						1.69	1.30
Median						2.67	1.63
Maximum						4.84	2.20
Standard deviation						0.76	0.22

NOTE: N = sample size; DEFF = design effect; DEFT = square root of the design effect; CU = Carnegie Unit.  
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "High School Transcript Study."

**Table G-16. Student design effects, by survey item using transcript weight, urban: 2004–05**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Left school in 2004	F1RDTLFT	86.6	1.06	0.51	4,500	4.31	2.08
Left school with standard diploma	F1RREASL = 1	82.0	1.18	0.56	4,700	4.51	2.12
Total CUs in mathematics	F1RMAT_C	3.2	0.04	0.02	4,900	7.51	2.74
Total CUs in science	F1RSCI_C	3.0	0.05	0.02	4,900	6.90	2.63
Total CUs in English	F1RENG_C	4.0	0.04	0.02	4,900	4.80	2.19
Total CUs in social studies	F1RSOC_C	3.5	0.04	0.02	4,900	5.53	2.35
Total CUs in fine arts	F1RFIN_C	1.7	0.06	0.02	4,900	6.70	2.59
Total CUs in non-English language	F1RNON_C	1.8	0.05	0.02	4,900	8.27	2.88
Total CUs in family/cons. science	F1RFAM_C	0.3	0.02	0.01	4,900	7.06	2.66
Total CUs in general labor market preparation	F1RGLA_C	0.4	0.03	0.01	4,900	7.52	2.74
Total CUs in specific labor market preparation	F1RSLA_C	2.1	0.07	0.03	4,900	6.28	2.51
Total CUs in general studies	F1RGEN_C	0.5	0.04	0.01	4,900	7.70	2.77
Total CUs in health/physical/recreation education	F1RHEA_C	2.0	0.04	0.02	4,900	6.11	2.47
Total CUs in religion and theology	F1RREL_C	0.4	0.03	0.01	4,900	3.13	1.77
Total CUs in military science	F1RMIL_C	0.1	0.02	0.01	4,900	4.66	2.16
Total CUs	F1RHTUN	23.4	0.24	0.08	4,900	7.86	2.80
Total AP/IB courses	F1RAPIB	0.8	0.06	0.02	4,900	5.17	2.27
Math pipeline: Advanced III	F1RMAPIP = 8	10.8	0.86	0.44	4,900	3.73	1.93
Academic concentrator	F1RTRCC = 1	21.6	1.38	0.59	4,900	5.52	2.35
New basics: College bound, core curriculum	F1RNEWB = 1	25.7	1.41	0.62	4,900	5.08	2.25
9th-grade GPA	F1RGP9	2.6	0.03	0.01	4,700	5.61	2.37
9th-grade academic GPA	F1RAGP9	2.5	0.03	0.01	4,700	5.58	2.36
10th-grade GPA	F1RGP10	2.5	0.03	0.01	4,800	6.40	2.53
10th-grade academic GPA	F1RAGP10	2.4	0.04	0.01	4,800	6.18	2.49
11th-grade GPA	F1RGP11	2.6	0.03	0.01	4,500	5.66	2.38
11th-grade academic GPA	F1RAGP11	2.5	0.03	0.01	4,500	5.16	2.27
12th-grade GPA	F1RGP12	2.7	0.03	0.01	4,300	5.11	2.26
12th-grade academic GPA	F1RAGP12	2.6	0.03	0.01	4,200	5.17	2.27
Total GPA	F1RGP	2.5	0.03	0.01	4,900	6.95	2.64
Total academic GPA	F1RAGP	2.4	0.03	0.01	4,900	6.77	2.60
<b>SUMMARY STATISTICS</b>							
Mean						5.90	2.41
Minimum						3.13	1.77
Median						5.63	2.37
Maximum						8.27	2.88
Standard deviation						1.26	0.27

NOTE: N = sample size; DEFF = design effect; DEFT = square root of the design effect; CU = Carnegie Unit.  
 SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "High School Transcript Study."

Table G-17. Student design effects, by survey item using transcript weight, suburban: 2004–05

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Left school in 2004	F1RDTLFT	90.4	0.54	0.36	6,800	2.27	1.51
Left school with standard diploma	F1RREASL = 1	86.7	0.62	0.40	7,100	2.35	1.53
Total CUs in mathematics	F1RMAT_C	3.3	0.03	0.01	7,300	4.10	2.03
Total CUs in science	F1RSCI_C	3.0	0.02	0.01	7,300	3.25	1.80
Total CUs in English	F1RENG_C	4.0	0.03	0.01	7,300	3.96	1.99
Total CUs in social studies	F1RSOC_C	3.7	0.04	0.01	7,300	6.83	2.61
Total CUs in fine arts	F1RFIN_C	1.8	0.04	0.02	7,300	3.21	1.79
Total CUs in non-English language	F1RNON_C	1.8	0.03	0.02	7,300	4.79	2.19
Total CUs in family/cons. science	F1RFAM_C	0.5	0.02	0.01	7,300	4.55	2.13
Total CUs in general labor market preparation	F1RGLA_C	0.4	0.02	0.01	7,300	4.27	2.07
Total CUs in specific labor market preparation	F1RSLA_C	2.6	0.07	0.03	7,300	6.56	2.56
Total CUs in general studies	F1RGEN_C	0.5	0.03	0.01	7,300	6.47	2.54
Total CUs in health/physical/recreation education	F1RHEA_C	2.2	0.03	0.01	7,300	5.23	2.29
Total CUs in religion and theology	F1RREL_C	0.2	0.01	0.01	7,300	2.06	1.43
Total CUs in military science	F1RMIL_C	0.1	0.02	0.01	7,300	4.80	2.19
Total CUs	F1RHTUN	24.2	0.15	0.06	7,300	5.22	2.29
Total AP/IB courses	F1RAPIB	0.7	0.04	0.02	7,300	3.88	1.97
Math pipeline: Advanced III	F1RMAPIP = 8	12.4	0.64	0.39	7,300	2.72	1.65
Academic concentrator	F1RTRCC = 1	21.3	0.98	0.48	7,300	4.14	2.04
New basics: College bound, core curriculum	F1RNEWB = 1	26.2	0.95	0.51	7,300	3.41	1.85
9th-grade GPA	F1RGP9	2.7	0.02	0.01	7,100	3.24	1.80
9th-grade academic GPA	F1RAGP9	2.6	0.02	0.01	7,000	3.17	1.78
10th-grade GPA	F1RGP10	2.6	0.02	0.01	7,200	3.59	1.89
10th-grade academic GPA	F1RAGP10	2.5	0.02	0.01	7,200	3.43	1.85
11th-grade GPA	F1RGP11	2.7	0.02	0.01	6,800	3.23	1.80
11th-grade academic GPA	F1RAGP11	2.6	0.02	0.01	6,800	3.26	1.81
12th-grade GPA	F1RGP12	2.9	0.02	0.01	6,500	3.46	1.86
12th-grade academic GPA	F1RAGP12	2.7	0.02	0.01	6,500	3.37	1.83
Total GPA	F1RGP	2.7	0.02	0.01	7,300	3.65	1.91
Total academic GPA	F1RAGP	2.5	0.02	0.01	7,300	3.56	1.89
SUMMARY STATISTICS							
Mean						3.93	1.96
Minimum						2.06	1.43
Median						3.58	1.89
Maximum						6.83	2.61
Standard deviation						1.20	0.29

NOTE: N = sample size; DEFF = design effect; DEFT = square root of the design effect; CU = Carnegie Unit.  
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "High School Transcript Study."

**Table G-18. Student design effects, by survey item using transcript weight, rural: 2004–05**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Left school in 2004	F1RDLFT	90.0	0.80	0.61	2,400	1.75	1.32
Left school with standard diploma	F1RREASL = 1	85.5	1.13	0.69	2,600	2.63	1.62
Total CUs in mathematics	F1RMAT_C	3.4	0.04	0.02	2,700	4.19	2.05
Total CUs in science	F1RSCI_C	3.1	0.05	0.02	2,700	4.20	2.05
Total CUs in English	F1RENG_C	4.1	0.06	0.02	2,700	6.13	2.48
Total CUs in social studies	F1RSOC_C	3.8	0.08	0.03	2,700	9.90	3.15
Total CUs in fine arts	F1RFIN_C	2.0	0.07	0.04	2,700	3.24	1.80
Total CUs in non-English language	F1RNON_C	1.5	0.05	0.02	2,700	4.89	2.21
Total CUs in family/cons. science	F1RFAM_C	0.5	0.03	0.01	2,700	5.19	2.28
Total CUs in general labor market preparation	F1RGLA_C	0.5	0.05	0.02	2,700	6.40	2.53
Total CUs in specific labor market preparation	F1RSLA_C	3.1	0.14	0.05	2,700	8.77	2.96
Total CUs in general studies	F1RGEN_C	0.6	0.04	0.02	2,700	5.69	2.39
Total CUs in health/physical/recreation education	F1RHEA_C	2.3	0.07	0.03	2,700	7.98	2.83
Total CUs in religion and theology	F1RREL_C	#	0.01	#	2,700	†	†
Total CUs in military science	F1RMIL_C	0.1	0.02	0.01	2,700	2.75	1.66
Total CUs	F1RHTUN	25.0	0.21	0.10	2,700	3.93	1.98
Total AP/IB courses	F1RAPIB	0.4	0.04	0.02	2,700	2.66	1.63
Math pipeline: Advanced III	F1RMAPIP = 8	9.5	0.96	0.56	2,700	2.93	1.71
Academic concentrator	F1RTRCC = 1	18.4	1.40	0.74	2,700	3.52	1.88
New basics: College bound, core curriculum	F1RNEWB = 1	25.0	1.45	0.83	2,700	3.03	1.74
9th-grade GPA	F1RGP9	2.7	0.03	0.02	2,661	3.21	1.79
9th-grade academic GPA	F1RAGP9	2.6	0.03	0.02	2,700	3.06	1.75
10th-grade GPA	F1RGP10	2.7	0.03	0.02	2,700	3.69	1.92
10th-grade academic GPA	F1RAGP10	2.5	0.03	0.02	2,700	3.58	1.89
11th-grade GPA	F1RGP11	2.7	0.03	0.02	2,500	3.30	1.82
11th-grade academic GPA	F1RAGP11	2.6	0.03	0.02	2,500	3.07	1.75
12th-grade GPA	F1RGP12	2.9	0.02	0.02	2,400	2.44	1.56
12th-grade academic GPA	F1RAGP12	2.7	0.03	0.02	2,400	2.25	1.50
Total GPA	F1RGP	2.7	0.03	0.01	2,700	3.61	1.90
Total academic GPA	F1RAGP	2.6	0.03	0.02	2,700	3.30	1.82
SUMMARY STATISTICS							
Mean						4.17	2.00
Minimum						1.75	1.32
Median						3.55	1.88
Maximum						9.90	3.15
Standard deviation						1.95	0.43

† Not applicable.

# Rounds to zero.

NOTE: N = sample size; DEFF = design effect; DEFT = square root of the design effect; CU = Carnegie Unit.

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

Table G-19. Student design effects, by survey item using transcript weight, 2004 spring graduates: 2004–05

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Left school in 2004	F1RDTLFT	100.0	#	#	10,900	†	†
Left school with standard diploma	F1RREASL = 1	100.0	#	#	10,900	†	†
Total CUs in mathematics	F1RMAT_C	3.6	0.02	0.01	10,900	5.09	2.26
Total CUs in science	F1RSCI_C	3.3	0.02	0.01	10,900	4.54	2.13
Total CUs in English	F1RENG_C	4.3	0.02	0.01	10,900	6.17	2.48
Total CUs in social studies	F1RSOC_C	4.0	0.03	0.01	10,900	8.44	2.91
Total CUs in fine arts	F1RFIN_C	2.0	0.03	0.02	10,900	3.62	1.90
Total CUs in non-English language	F1RNON_C	2.0	0.03	0.01	10,900	4.69	2.16
Total CUs in family/cons. science	F1RFAM_C	0.4	0.01	0.01	10,900	4.58	2.14
Total CUs in general labor market preparation	F1RGLA_C	0.4	0.02	0.01	10,900	4.63	2.15
Total CUs in specific labor market preparation	F1RSLA_C	2.7	0.05	0.02	10,900	5.96	2.44
Total CUs in general studies	F1RGEN_C	0.6	0.02	0.01	10,900	6.22	2.49
Total CUs in health/physical/recreation education	F1RHEA_C	2.3	0.03	0.01	10,900	5.79	2.41
Total CUs in religion and theology	F1RREL_C	0.2	0.01	0.01	10,900	2.32	1.52
Total CUs in military science	F1RMIL_C	0.1	0.01	0.01	10,900	3.78	1.94
Total CUs	F1RHTUN	26.1	0.09	0.03	10,900	9.13	3.02
Total AP/IB courses	F1RAPIB	0.8	0.03	0.02	10,900	3.61	1.90
Math pipeline: Advanced III	F1RMAPIP = 8	14.1	0.56	0.33	10,900	2.83	1.68
Academic concentrator	F1RTRCC = 1	27.0	0.86	0.43	10,900	4.09	2.02
New basics: College bound, core curriculum	F1RNEWB = 1	32.8	0.87	0.45	10,900	3.73	1.93
9th-grade GPA	F1RGP9	2.9	0.01	0.01	10,900	3.00	1.73
9th-grade academic GPA	F1RAGP9	2.7	0.01	0.01	10,900	2.85	1.69
10th-grade GPA	F1RGP10	2.8	0.01	0.01	10,900	3.10	1.76
10th-grade academic GPA	F1RAGP10	2.7	0.01	0.01	10,900	3.02	1.74
11th-grade GPA	F1RGP11	2.8	0.01	0.01	10,900	3.14	1.77
11th-grade academic GPA	F1RAGP11	2.7	0.01	0.01	10,900	2.87	1.70
12th-grade GPA	F1RGP12	3.0	0.01	0.01	10,900	3.40	1.84
12th-grade academic GPA	F1RAGP12	2.8	0.01	0.01	10,900	3.14	1.77
Total GPA	F1RGP	2.9	0.01	0.01	10,900	3.32	1.82
Total academic GPA	F1RAGP	2.7	0.01	0.01	10,900	3.10	1.76
SUMMARY STATISTICS							
Mean						4.29	2.04
Minimum						2.32	1.52
Median						3.67	1.92
Maximum						9.13	3.02
Standard deviation						1.68	0.37

† Not applicable.

# Rounds to zero.

NOTE: N = sample size; DEFF = design effect; DEFT = square root of the design effect; CU = Carnegie Unit.

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

**Table G-20. Student design effects, by survey item using transcript weight, male 2004 spring graduates: 2004–05**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Left school in 2004	F1RDTLFT	100.0	#	#	5,300	†	†
Left school with standard diploma	F1RREASL = 1	100.0	#	#	5,300	†	†
Total CUs in mathematics	F1RMAT_C	3.6	0.02	0.01	5,300	3.16	1.78
Total CUs in science	F1RSCI_C	3.3	0.03	0.02	5,300	2.80	1.67
Total CUs in English	F1RENG_C	4.3	0.03	0.01	5,300	4.21	2.05
Total CUs in social studies	F1RSOC_C	3.9	0.03	0.01	5,300	4.82	2.19
Total CUs in fine arts	F1RFIN_C	1.7	0.04	0.03	5,300	2.53	1.59
Total CUs in non-English language	F1RNON_C	1.8	0.03	0.02	5,300	3.00	1.73
Total CUs in family/cons. science	F1RFAM_C	0.3	0.01	0.01	5,300	2.86	1.69
Total CUs in general labor market preparation	F1RGLA_C	0.4	0.02	0.01	5,300	3.00	1.73
Total CUs in specific labor market preparation	F1RSLA_C	3.1	0.07	0.03	5,300	3.79	1.95
Total CUs in general studies	F1RGEN_C	0.5	0.02	0.01	5,300	3.70	1.92
Total CUs in health/physical/recreation education	F1RHEA_C	2.5	0.03	0.02	5,300	3.45	1.86
Total CUs in religion and theology	F1RREL_C	0.3	0.02	0.01	5,300	2.67	1.63
Total CUs in military science	F1RMIL_C	0.1	0.01	0.01	5,300	2.74	1.65
Total CUs	F1RHTUN	26.0	0.10	0.05	5,300	5.25	2.29
Total AP/IB courses	F1RAPIB	0.8	0.04	0.02	5,300	2.47	1.57
Math pipeline: Advanced III	F1RMAPIP = 8	14.8	0.74	0.49	5,300	2.33	1.53
Academic concentrator	F1RTRCC = 1	25.9	1.00	0.60	5,300	2.78	1.67
New basics: College bound, core curriculum	F1RNEWB = 1	33.2	1.05	0.65	5,300	2.63	1.62
9th-grade GPA	F1RGP9	2.8	0.01	0.01	5,300	2.06	1.44
9th-grade academic GPA	F1RAGP9	2.6	0.02	0.01	5,300	2.02	1.42
10th-grade GPA	F1RGP10	2.7	0.02	0.01	5,300	2.17	1.47
10th-grade academic GPA	F1RAGP10	2.5	0.02	0.01	5,300	2.22	1.49
11th-grade GPA	F1RGP11	2.7	0.01	0.01	5,300	2.15	1.46
11th-grade academic GPA	F1RAGP11	2.5	0.02	0.01	5,300	2.06	1.44
12th-grade GPA	F1RGP12	2.8	0.01	0.01	5,300	2.25	1.50
12th-grade academic GPA	F1RAGP12	2.6	0.02	0.01	5,300	2.14	1.46
Total GPA	F1RGP	2.8	0.01	0.01	5,300	2.16	1.47
Total academic GPA	F1RAGP	2.6	0.01	0.01	5,300	2.17	1.47
<b>SUMMARY STATISTICS</b>							
Mean						2.84	1.67
Minimum						2.02	1.42
Median						2.65	1.63
Maximum						5.25	2.29
Standard deviation						0.85	0.23

† Not applicable.

# Rounds to zero.

NOTE: N = sample size; DEFF = design effect; DEFT = square root of the design effect; CU = Carnegie Unit.

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

Table G-21. Student design effects, by survey item using transcript weight, female 2004 spring graduates: 2004–05

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Left school in 2004	F1RDLFT	100.0	#	#	5,600	†	†
Left school with standard diploma	F1RREASL = 1	100.0	#	#	5,600	†	†
Total CUs in mathematics	F1RMAT_C	3.6	0.02	0.01	5,600	3.53	1.88
Total CUs in science	F1RSCI_C	3.3	0.02	0.01	5,600	3.13	1.77
Total CUs in English	F1RENG_C	4.4	0.03	0.01	5,600	3.92	1.98
Total CUs in social studies	F1RSOC_C	4.0	0.03	0.01	5,600	5.27	2.30
Total CUs in fine arts	F1RFIN_C	2.3	0.04	0.03	5,600	2.83	1.68
Total CUs in non-English language	F1RNON_C	2.2	0.03	0.02	5,600	3.47	1.86
Total CUs in family/cons. science	F1RFAM_C	0.5	0.02	0.01	5,600	3.67	1.92
Total CUs in general labor market preparation	F1RGLA_C	0.3	0.02	0.01	5,600	3.11	1.76
Total CUs in specific labor market preparation	F1RSLA_C	2.3	0.06	0.03	5,600	4.33	2.08
Total CUs in general studies	F1RGEN_C	0.6	0.02	0.01	5,600	3.96	1.99
Total CUs in health/physical/recreation education	F1RHEA_C	2.1	0.03	0.01	5,600	4.67	2.16
Total CUs in religion and theology	F1RREL_C	0.2	0.02	0.01	5,600	2.45	1.57
Total CUs in military science	F1RMIL_C	0.1	0.01	0.01	5,600	3.15	1.78
Total CUs	F1RHTUN	26.1	0.10	0.04	5,600	5.44	2.33
Total AP/IB courses	F1RAPIB	0.9	0.04	0.02	5,600	2.69	1.64
Math pipeline: Advanced III	F1RMAPIP = 8	13.6	0.66	0.46	5,600	2.11	1.45
Academic concentrator	F1RTRCC = 1	28.1	1.03	0.60	5,600	2.93	1.71
New basics: College bound, core curriculum	F1RNEWB = 1	32.5	1.10	0.62	5,600	3.08	1.76
9th-grade GPA	F1RGP9	3.0	0.02	0.01	5,600	2.72	1.65
9th-grade academic GPA	F1RAGP9	2.9	0.02	0.01	5,600	2.66	1.63
10th-grade GPA	F1RGP10	2.9	0.02	0.01	5,600	2.61	1.61
10th-grade academic GPA	F1RAGP10	2.8	0.02	0.01	5,600	2.55	1.60
11th-grade GPA	F1RGP11	2.9	0.02	0.01	5,600	2.78	1.67
11th-grade academic GPA	F1RAGP11	2.8	0.02	0.01	5,600	2.61	1.62
12th-grade GPA	F1RGP12	3.1	0.02	0.01	5,600	2.95	1.72
12th-grade academic GPA	F1RAGP12	3.0	0.02	0.01	5,600	2.66	1.63
Total GPA	F1RGP	3.0	0.01	0.01	5,600	2.93	1.71
Total academic GPA	F1RAGP	2.9	0.02	0.01	5,600	2.77	1.67
SUMMARY STATISTICS							
Mean							1.79
Minimum							1.45
Median							1.72
Maximum							2.33
Standard deviation							0.84

† Not applicable.

# Rounds to zero.

NOTE: N = sample size; DEFF = design effect; DEFT = square root of the design effect; CU = Carnegie Unit.

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



**Table G-22. Student design effects, by survey item using transcript weight, American Indian or Alaska Native 2004 spring graduates: 2004-05**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Left school in 2004	F1RDTLFT	100.0	#	#	80	†	†
Left school with standard diploma	F1RREASL = 1	100.0	#	#	80	†	†
Total CUs in mathematics	F1RMAT_C	3.3	0.13	0.11	80	1.31	1.15
Total CUs in science	F1RSCI_C	3.1	0.20	0.12	80	2.58	1.60
Total CUs in English	F1RENG_C	4.4	0.22	0.14	80	2.46	1.57
Total CUs in social studies	F1RSOC_C	4.2	0.27	0.15	80	3.19	1.79
Total CUs in fine arts	F1RFIN_C	1.4	0.27	0.17	80	2.36	1.54
Total CUs in non-English language	F1RNON_C	1.4	0.20	0.14	80	2.11	1.45
Total CUs in family/cons. science	F1RFAM_C	0.7	0.11	0.09	80	1.48	1.22
Total CUs in general labor market preparation	F1RGLA_C	1.0	0.25	0.17	80	2.31	1.52
Total CUs in specific labor market preparation	F1RSLA_C	2.7	0.24	0.21	80	1.39	1.18
Total CUs in general studies	F1RGEN_C	0.7	0.24	0.11	80	4.83	2.20
Total CUs in health/physical/recreation education	F1RHEA_C	2.7	0.23	0.16	80	2.03	1.42
Total CUs in religion and theology	F1RREL_C	0.1	0.03	0.05	80	0.36	0.60
Total CUs in military science	F1RMIL_C	0.2	0.12	0.07	80	2.51	1.59
Total CUs	F1RHTUN	25.8	0.61	0.38	80	2.63	1.62
Total AP/IB courses	F1RAPIB	0.3	0.13	0.11	80	1.42	1.19
Math pipeline: Advanced III	F1RMAPIP = 8	6.0	2.81	2.73	80	1.05	1.03
Academic concentrator	F1RTRCC = 1	14.1	5.10	4.01	80	1.62	1.27
New basics: College bound, core curriculum	F1RNEWB = 1	16.2	5.79	4.25	80	1.85	1.36
9th-grade GPA	F1RGP9	2.5	0.13	0.10	80	1.83	1.35
9th-grade academic GPA	F1RAGP9	2.3	0.15	0.11	80	1.72	1.31
10th-grade GPA	F1RGP10	2.5	0.10	0.08	80	1.55	1.24
10th-grade academic GPA	F1RAGP10	2.3	0.11	0.10	80	1.23	1.11
11th-grade GPA	F1RGP11	2.5	0.13	0.10	80	1.68	1.30
11th-grade academic GPA	F1RAGP11	2.3	0.13	0.11	80	1.45	1.20
12th-grade GPA	F1RGP12	2.8	0.09	0.08	70	1.38	1.17
12th-grade academic GPA	F1RAGP12	2.6	0.10	0.09	70	1.24	1.11
Total GPA	F1RGP	2.6	0.10	0.07	80	1.66	1.29
Total academic GPA	F1RAGP	2.4	0.10	0.08	80	1.33	1.15
<b>SUMMARY STATISTICS</b>							
Mean						1.88	1.34
Minimum						0.36	0.60
Median						1.67	1.29
Maximum						4.83	2.20
Standard deviation						0.83	0.29

† Not applicable.

# Rounds to zero.

NOTE: N = sample size; DEFF = design effect; DEFT = square root of the design effect; CU = Carnegie Unit.

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

Table G-23. Student design effects, by survey item using transcript weight, Asian 2004 spring graduates: 2004–05

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Left school in 2004	F1RDLFT	100.0	#	#	1,100	†	†
Left school with standard diploma	F1RREASL = 1	100.0	#	#	1,100	†	†
Total CUs in mathematics	F1RMAT_C	3.8	0.04	0.03	1,100	2.24	1.50
Total CUs in science	F1RSCI_C	3.7	0.06	0.04	1,100	2.84	1.69
Total CUs in English	F1RENG_C	4.4	0.05	0.03	1,100	3.12	1.77
Total CUs in social studies	F1RSOC_C	3.9	0.05	0.03	1,100	3.19	1.79
Total CUs in fine arts	F1RFIN_C	1.8	0.08	0.05	1,100	2.38	1.54
Total CUs in non-English language	F1RNON_C	2.4	0.06	0.04	1,100	2.92	1.71
Total CUs in family/cons. science	F1RFAM_C	0.3	0.02	0.02	1,100	2.16	1.47
Total CUs in general labor market preparation	F1RGLA_C	0.2	0.03	0.02	1,100	3.32	1.82
Total CUs in specific labor market preparation	F1RSLA_C	2.0	0.08	0.05	1,100	2.59	1.61
Total CUs in general studies	F1RGEN_C	0.6	0.04	0.03	1,100	2.72	1.65
Total CUs in health/physical/recreation education	F1RHEA_C	2.3	0.05	0.03	1,100	3.27	1.81
Total CUs in religion and theology	F1RREL_C	0.2	0.05	0.02	1,100	3.97	1.99
Total CUs in military science	F1RMIL_C	0.1	0.02	0.01	1,100	2.65	1.63
Total CUs	F1RHTUN	26.0	0.17	0.09	1,100	3.36	1.83
Total AP/IB courses	F1RAPIB	2.1	0.16	0.08	1,100	3.55	1.88
Math pipeline: Advanced III	F1RMAPIP = 8	33.8	2.54	1.40	1,100	3.30	1.82
Academic concentrator	F1RTRCC = 1	41.0	2.34	1.45	1,100	2.60	1.61
New basics: College bound, core curriculum	F1RNEWB = 1	35.4	2.16	1.41	1,100	2.34	1.53
9th-grade GPA	F1RGP9	3.1	0.03	0.02	1,100	1.97	1.40
9th-grade academic GPA	F1RAGP9	3.0	0.03	0.02	1,100	1.99	1.41
10th-grade GPA	F1RGP10	3.1	0.03	0.02	1,100	2.04	1.43
10th-grade academic GPA	F1RAGP10	3.0	0.03	0.02	1,100	1.97	1.40
11th-grade GPA	F1RGP11	3.1	0.03	0.02	1,100	2.13	1.46
11th-grade academic GPA	F1RAGP11	3.0	0.03	0.02	1,100	2.18	1.47
12th-grade GPA	F1RGP12	3.1	0.03	0.02	1,100	2.02	1.42
12th-grade academic GPA	F1RAGP12	3.0	0.03	0.02	1,100	1.99	1.41
Total GPA	F1RGP	3.1	0.03	0.02	1,100	2.12	1.46
Total academic GPA	F1RAGP	3.0	0.03	0.02	1,100	2.15	1.47
SUMMARY STATISTICS							
Mean						2.61	1.61
Minimum						1.97	1.40
Median						2.48	1.58
Maximum						3.97	1.99
Standard deviation						0.58	0.18

† Not applicable.

# Rounds to zero.

NOTE: N = sample size; DEFF = design effect; DEFT = square root of the design effect; CU = Carnegie Unit.

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

**Table G-24. Student design effects, by survey item using transcript weight, Black or African American 2004 spring graduates: 2004-05**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Left school in 2004	F1RDTLFT	100.0	#	#	1,200	†	†
Left school with standard diploma	F1RREASL = 1	100.0	#	#	1,200	†	†
Total CUs in mathematics	F1RMAT_C	3.7	0.05	0.03	1,200	2.69	1.64
Total CUs in science	F1RSCI_C	3.2	0.05	0.03	1,200	2.31	1.52
Total CUs in English	F1RENG_C	4.4	0.05	0.03	1,200	2.88	1.70
Total CUs in social studies	F1RSOC_C	3.9	0.05	0.03	1,200	2.87	1.69
Total CUs in fine arts	F1RFIN_C	1.6	0.07	0.05	1,200	2.30	1.52
Total CUs in non-English language	F1RNON_C	1.7	0.06	0.03	1,200	3.25	1.80
Total CUs in family/cons. science	F1RFAM_C	0.5	0.04	0.02	1,200	2.48	1.57
Total CUs in general labor market preparation	F1RGLA_C	0.5	0.04	0.03	1,200	2.31	1.52
Total CUs in specific labor market preparation	F1RSLA_C	2.8	0.11	0.06	1,200	2.89	1.70
Total CUs in general studies	F1RGEN_C	0.6	0.04	0.03	1,200	2.34	1.53
Total CUs in health/physical/recreation education	F1RHEA_C	2.4	0.06	0.04	1,200	2.67	1.63
Total CUs in religion and theology	F1RREL_C	0.1	0.01	0.02	1,200	0.69	0.83
Total CUs in military science	F1RMIL_C	0.3	0.05	0.03	1,200	3.01	1.73
Total CUs	F1RHTUN	26.0	0.20	0.10	1,200	3.83	1.96
Total AP/IB courses	F1RAPIB	0.4	0.04	0.03	1,200	1.67	1.29
Math pipeline: Advanced III	F1RMAPIP = 8	4.9	0.71	0.63	1,200	1.27	1.13
Academic concentrator	F1RTRCC = 1	18.4	1.62	1.13	1,200	2.06	1.44
New basics: College bound, core curriculum	F1RNEWB = 1	34.6	1.89	1.38	1,200	1.87	1.37
9th-grade GPA	F1RGP9	2.5	0.03	0.02	1,200	2.02	1.42
9th-grade academic GPA	F1RAGP9	2.3	0.03	0.02	1,200	1.83	1.35
10th-grade GPA	F1RGP10	2.4	0.03	0.02	1,200	2.05	1.43
10th-grade academic GPA	F1RAGP10	2.2	0.03	0.02	1,200	1.82	1.35
11th-grade GPA	F1RGP11	2.4	0.03	0.02	1,200	2.13	1.46
11th-grade academic GPA	F1RAGP11	2.3	0.03	0.02	1,200	1.98	1.41
12th-grade GPA	F1RGP12	2.6	0.03	0.02	1,200	2.13	1.46
12th-grade academic GPA	F1RAGP12	2.4	0.03	0.02	1,200	1.91	1.38
Total GPA	F1RGP	2.5	0.03	0.02	1,200	2.22	1.49
Total academic GPA	F1RAGP	2.3	0.03	0.02	1,200	1.93	1.39
<b>SUMMARY STATISTICS</b>							
Mean						2.26	1.49
Minimum						0.69	0.83
Median						2.17	1.47
Maximum						3.83	1.96
Standard deviation						0.62	0.22

† Not applicable.

# Rounds to zero.

NOTE: N = sample size; DEFF = design effect; DEFT = square root of the design effect; CU = Carnegie Unit.

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

Table G-25. Student design effects, by survey item using transcript weight, Hispanic or Latino 2004 spring graduates: 2004–05

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Left school in 2004	F1RDLTFT	100.0	#	#	1,400	†	†
Left school with standard diploma	F1RREASL = 1	100.0	#	#	1,400	†	†
Total CUs in mathematics	F1RMAT_C	3.5	0.04	0.03	1,400	2.79	1.67
Total CUs in science	F1RSCI_C	2.9	0.04	0.03	1,400	2.09	1.45
Total CUs in English	F1RENG_C	4.6	0.06	0.03	1,400	3.27	1.81
Total CUs in social studies	F1RSOC_C	3.8	0.05	0.03	1,400	4.11	2.03
Total CUs in fine arts	F1RFIN_C	1.8	0.07	0.04	1,400	2.61	1.62
Total CUs in non-English language	F1RNON_C	1.9	0.06	0.03	1,400	3.27	1.81
Total CUs in family/cons. science	F1RFAM_C	0.4	0.03	0.02	1,400	2.47	1.57
Total CUs in general labor market preparation	F1RGLA_C	0.4	0.03	0.02	1,400	2.09	1.45
Total CUs in specific labor market preparation	F1RSLA_C	2.5	0.09	0.06	1,400	2.59	1.61
Total CUs in general studies	F1RGEN_C	0.7	0.05	0.03	1,400	2.83	1.68
Total CUs in health/physical/recreation education	F1RHEA_C	2.4	0.06	0.03	1,400	3.47	1.86
Total CUs in religion and theology	F1RREL_C	0.2	0.02	0.02	1,400	1.43	1.19
Total CUs in military science	F1RMIL_C	0.2	0.03	0.02	1,400	2.91	1.71
Total CUs	F1RHTUN	25.3	0.21	0.09	1,400	5.90	2.43
Total AP/IB courses	F1RAPIB	0.7	0.05	0.04	1,400	1.86	1.36
Math pipeline: Advanced III	F1RMAPIP = 8	7.1	0.88	0.69	1,400	1.61	1.27
Academic concentrator	F1RTRCC = 1	16.4	1.30	1.00	1,400	1.70	1.30
New basics: College bound, core curriculum	F1RNEWB = 1	27.3	1.96	1.20	1,400	2.66	1.63
9th-grade GPA	F1RGP9	2.7	0.03	0.02	1,400	2.09	1.45
9th-grade academic GPA	F1RAGP9	2.5	0.03	0.02	1,400	1.98	1.41
10th-grade GPA	F1RGP10	2.6	0.03	0.02	1,400	2.31	1.52
10th-grade academic GPA	F1RAGP10	2.4	0.03	0.02	1,400	2.40	1.55
11th-grade GPA	F1RGP11	2.6	0.03	0.02	1,400	2.22	1.49
11th-grade academic GPA	F1RAGP11	2.5	0.03	0.02	1,400	2.04	1.43
12th-grade GPA	F1RGP12	2.8	0.03	0.02	1,400	2.57	1.60
12th-grade academic GPA	F1RAGP12	2.6	0.03	0.02	1,400	2.35	1.53
Total GPA	F1RGP	2.7	0.03	0.02	1,400	2.52	1.59
Total academic GPA	F1RAGP	2.5	0.03	0.02	1,400	2.40	1.55
SUMMARY STATISTICS							
Mean						2.59	1.59
Minimum						1.43	1.19
Median						2.44	1.56
Maximum						5.90	2.43
Standard deviation						0.87	0.25

† Not applicable.

# Rounds to zero.

NOTE: N = sample size; DEFF = design effect; DEFT = square root of the design effect; CU = Carnegie Unit.

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

**Table G-26. Student design effects, by survey item using transcript weight, White 2004 spring graduates: 2004–05**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Left school in 2004	F1RDTLFT	100.0	#	#	6,600	†	†
Left school with standard diploma	F1RREASL = 1	100.0	#	#	6,600	†	†
Total CUs in mathematics	F1RMAT_C	3.6	0.02	0.01	6,600	4.04	2.01
Total CUs in science	F1RSCI_C	3.4	0.02	0.01	6,600	3.56	1.89
Total CUs in English	F1RENG_C	4.3	0.02	0.01	6,600	4.54	2.13
Total CUs in social studies	F1RSOC_C	4.0	0.03	0.01	6,600	6.94	2.63
Total CUs in fine arts	F1RFIN_C	2.2	0.04	0.02	6,600	2.84	1.68
Total CUs in non-English language	F1RNON_C	2.1	0.03	0.02	6,600	3.86	1.96
Total CUs in family/cons. science	F1RFAM_C	0.4	0.02	0.01	6,600	3.71	1.93
Total CUs in general labor market preparation	F1RGLA_C	0.4	0.02	0.01	6,600	4.15	2.04
Total CUs in specific labor market preparation	F1RSLA_C	2.8	0.07	0.03	6,600	5.10	2.26
Total CUs in general studies	F1RGEN_C	0.5	0.02	0.01	6,600	5.75	2.40
Total CUs in health/physical/recreation education	F1RHEA_C	2.3	0.03	0.01	6,600	5.29	2.30
Total CUs in religion and theology	F1RREL_C	0.3	0.02	0.01	6,600	2.31	1.52
Total CUs in military science	F1RMIL_C	0.1	0.01	0.01	6,600	2.54	1.59
Total CUs	F1RHTUN	26.3	0.11	0.04	6,600	7.94	2.82
Total AP/IB courses	F1RAPIB	0.9	0.04	0.02	6,600	3.20	1.79
Math pipeline: Advanced III	F1RMAPIP = 8	16.2	0.70	0.45	6,600	2.40	1.55
Academic concentrator	F1RTRCC = 1	30.3	1.08	0.57	6,600	3.64	1.91
New basics: College bound, core curriculum	F1RNEWB = 1	34.3	1.08	0.58	6,600	3.45	1.86
9th-grade GPA	F1RGP9	3.0	0.01	0.01	6,600	2.03	1.42
9th-grade academic GPA	F1RAGP9	2.9	0.01	0.01	6,600	2.04	1.43
10th-grade GPA	F1RGP10	2.9	0.01	0.01	6,600	2.07	1.44
10th-grade academic GPA	F1RAGP10	2.8	0.01	0.01	6,600	2.11	1.45
11th-grade GPA	F1RGP11	2.9	0.01	0.01	6,600	2.13	1.46
11th-grade academic GPA	F1RAGP11	2.8	0.01	0.01	6,600	1.99	1.41
12th-grade GPA	F1RGP12	3.1	0.01	0.01	6,600	2.33	1.53
12th-grade academic GPA	F1RAGP12	2.9	0.01	0.01	6,600	2.22	1.49
Total GPA	F1RGP	3.0	0.01	0.01	6,600	2.11	1.45
Total academic GPA	F1RAGP	2.8	0.01	0.01	6,600	2.05	1.43
<b>SUMMARY STATISTICS</b>							
Mean						3.44	1.81
Minimum						1.99	1.41
Median						3.02	1.74
Maximum						7.94	2.82
Standard deviation						1.58	0.40

† Not applicable.

# Rounds to zero.

NOTE: N = sample size; DEFF = design effect; DEFT = square root of the design effect; CU = Carnegie Unit.

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

**Table G-27. Student design effects, by survey item using transcript weight, 2004 spring graduates reporting more than one race: 2004–05**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Left school in 2004	F1RDTLFT	100.0	#	#	500	†	†
Left school with standard diploma	F1RREASL = 1	100.0	#	#	500	†	†
Total CUs in mathematics	F1RMAT_C	3.5	0.06	0.04	500	1.92	1.39
Total CUs in science	F1RSCI_C	3.2	0.06	0.05	500	1.60	1.26
Total CUs in English	F1RENG_C	4.3	0.06	0.04	500	2.16	1.47
Total CUs in social studies	F1RSOC_C	3.9	0.07	0.05	500	1.93	1.39
Total CUs in fine arts	F1RFIN_C	2.1	0.14	0.09	500	2.10	1.45
Total CUs in non-English language	F1RNON_C	1.9	0.07	0.05	500	1.77	1.33
Total CUs in family/cons. science	F1RFAM_C	0.3	0.03	0.03	500	1.69	1.30
Total CUs in general labor market preparation	F1RGLA_C	0.3	0.05	0.04	500	1.85	1.36
Total CUs in specific labor market preparation	F1RSLA_C	2.8	0.18	0.11	500	2.84	1.69
Total CUs in general studies	F1RGEN_C	0.7	0.07	0.05	500	2.05	1.43
Total CUs in health/physical/recreation education	F1RHEA_C	2.2	0.08	0.05	500	2.31	1.52
Total CUs in religion and theology	F1RREL_C	0.3	0.04	0.04	500	0.96	0.98
Total CUs in military science	F1RMIL_C	0.1	0.02	0.02	500	1.20	1.10
Total CUs	F1RHTUN	25.9	0.23	0.15	500	2.48	1.58
Total AP/IB courses	F1RAPIB	0.8	0.09	0.07	500	1.60	1.27
Math pipeline: Advanced III	F1RMAPIB = 8	12.4	1.75	1.49	500	1.39	1.18
Academic concentrator	F1RTRCC = 1	23.1	2.56	1.90	500	1.82	1.35
New basics: College bound, core curriculum	F1RNEWB = 1	24.1	2.52	1.93	500	1.70	1.30
9th-grade GPA	F1RGP9	2.8	0.04	0.03	500	1.77	1.33
9th-grade academic GPA	F1RAGP9	2.7	0.05	0.03	500	1.73	1.32
10th-grade GPA	F1RGP10	2.8	0.05	0.03	500	1.94	1.39
10th-grade academic GPA	F1RAGP10	2.6	0.05	0.03	500	1.71	1.31
11th-grade GPA	F1RGP11	2.8	0.05	0.03	500	1.98	1.41
11th-grade academic GPA	F1RAGP11	2.6	0.05	0.04	500	1.89	1.37
12th-grade GPA	F1RGP12	2.9	0.04	0.03	500	2.10	1.45
12th-grade academic GPA	F1RAGP12	2.7	0.05	0.03	500	2.03	1.42
Total GPA	F1RGP	2.8	0.04	0.03	500	1.88	1.37
Total academic GPA	F1RAGP	2.7	0.04	0.03	500	1.81	1.34
<b>SUMMARY STATISTICS</b>							
Mean						1.86	1.36
Minimum						0.96	0.98
Median						1.86	1.36
Maximum						2.84	1.69
Standard deviation						0.36	0.14

† Not applicable.

# Rounds to zero.

NOTE: N = sample size; DEFF = design effect; DEFT = square root of the design effect; CU = Carnegie Unit.

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

**Table G-28. Student design effects, by survey item using transcript weight, public school 2004 spring graduates: 2004-05**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple standard error	N	DEFF	DEFT
Left school in 2004	F1RDLTFT	100.0	#	#	8,200	†	†
Left school with standard diploma	F1RREASL = 1	100.0	#	#	8,200	†	†
Total CUs in mathematics	F1RMAT_C	3.6	0.02	0.01	8,200	4.37	2.09
Total CUs in science	F1RSCI_C	3.3	0.02	0.01	8,200	3.88	1.97
Total CUs in English	F1RENG_C	4.3	0.02	0.01	8,200	5.30	2.30
Total CUs in social studies	F1RSOC_C	4.0	0.03	0.01	8,200	7.33	2.71
Total CUs in fine arts	F1RFIN_C	2.0	0.04	0.02	8,200	2.96	1.72
Total CUs in non-English language	F1RNON_C	1.9	0.03	0.01	8,200	4.05	2.01
Total CUs in family/cons. science	F1RFAM_C	0.4	0.02	0.01	8,200	3.88	1.97
Total CUs in general labor market preparation	F1RGLA_C	0.4	0.02	0.01	8,200	3.86	1.96
Total CUs in specific labor market preparation	F1RSLA_C	2.8	0.06	0.03	8,200	5.15	2.27
Total CUs in general studies	F1RGEN_C	0.6	0.02	0.01	8,200	5.29	2.30
Total CUs in health/physical/recreation education	F1RHEA_C	2.4	0.03	0.01	8,200	4.92	2.22
Total CUs in religion and theology	F1RREL_C	#	#	#	8,200	†	†
Total CUs in military science	F1RMIL_C	0.1	0.01	0.01	8,200	3.13	1.77
Total CUs	F1RHTUN	26.0	0.10	0.04	8,200	7.85	2.80
Total AP/IB courses	F1RAPIB	0.8	0.03	0.02	8,200	3.08	1.75
Math pipeline: Advanced III	F1RMAPIP = 8	13.1	0.58	0.37	8,200	2.41	1.55
Academic concentrator	F1RTRCC = 1	24.7	0.90	0.48	8,200	3.57	1.89
New basics: College bound, core curriculum	F1RNEWB = 1	31.8	0.91	0.51	8,200	3.15	1.77
9th-grade GPA	F1RGP9	2.8	0.01	0.01	8,200	2.58	1.61
9th-grade academic GPA	F1RAGP9	2.7	0.01	0.01	8,200	2.46	1.57
10th-grade GPA	F1RGP10	2.8	0.01	0.01	8,200	2.67	1.63
10th-grade academic GPA	F1RAGP10	2.7	0.01	0.01	8,200	2.60	1.61
11th-grade GPA	F1RGP11	2.8	0.01	0.01	8,200	2.69	1.64
11th-grade academic GPA	F1RAGP11	2.7	0.01	0.01	8,200	2.46	1.57
12th-grade GPA	F1RGP12	2.9	0.01	0.01	8,200	2.91	1.71
12th-grade academic GPA	F1RAGP12	2.8	0.01	0.01	8,200	2.69	1.64
Total GPA	F1RGP	2.8	0.01	0.01	8,200	2.87	1.69
Total academic GPA	F1RAGP	2.7	0.01	0.01	8,200	2.67	1.63
<b>SUMMARY STATISTICS</b>							
Mean						3.69	1.89
Minimum						2.41	1.55
Median						3.10	1.76
Maximum						7.85	2.80
Standard deviation						1.43	0.34

† Not applicable.

# Rounds to zero.

NOTE: N = sample size; DEFF = design effect; DEFT = square root of the design effect; CU = Carnegie Unit.

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

Table G-29. Student design effects, by survey item using transcript weight, Catholic school 2004 spring graduates: 2004–05

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Left school in 2004	F1RDTLFT	100.0	#	#	1,600	†	†
Left school with standard diploma	F1RREASL = 1	100.0	#	#	1,600	†	†
Total CUs in mathematics	F1RMAT_C	3.8	0.03	0.02	1,600	2.77	1.66
Total CUs in science	F1RSCI_C	3.5	0.06	0.02	1,600	7.72	2.78
Total CUs in English	F1RENG_C	4.4	0.06	0.02	1,600	10.87	3.30
Total CUs in social studies	F1RSOC_C	4.1	0.07	0.02	1,600	9.52	3.09
Total CUs in fine arts	F1RFIN_C	1.7	0.10	0.04	1,600	7.89	2.81
Total CUs in non-English language	F1RNON_C	2.8	0.07	0.02	1,600	7.54	2.75
Total CUs in family/cons. science	F1RFAM_C	0.1	0.03	0.01	1,600	9.09	3.02
Total CUs in general labor market preparation	F1RGLA_C	0.1	0.03	0.01	1,600	18.91	4.35
Total CUs in specific labor market preparation	F1RSLA_C	1.3	0.07	0.03	1,600	7.09	2.66
Total CUs in general studies	F1RGEN_C	0.2	0.03	0.01	1,600	7.62	2.76
Total CUs in health/physical/recreation education	F1RHEA_C	1.8	0.08	0.02	1,600	11.27	3.36
Total CUs in religion and theology	F1RREL_C	3.4	0.07	0.02	1,600	12.59	3.55
Total CUs in military science	F1RMIL_C	#	0.03	0.01	1,600	†	†
Total CUs	F1RHTUN	27.4	0.24	0.06	1,600	16.18	4.02
Total AP/IB courses	F1RAPIB	1.1	0.10	0.04	1,600	5.29	2.30
Math pipeline: Advanced III	F1RMAPIP = 8	22.0	1.83	1.03	1,600	3.17	1.78
Academic concentrator	F1RTRCC = 1	53.2	3.56	1.24	1,600	8.26	2.87
New basics: College bound, core curriculum	F1RNEWB = 1	57.5	3.82	1.23	1,600	9.67	3.11
9th-grade GPA	F1RGP9	3.0	0.03	0.02	1,600	3.75	1.94
9th-grade academic GPA	F1RAGP9	2.9	0.04	0.02	1,600	3.59	1.90
10th-grade GPA	F1RGP10	2.9	0.03	0.02	1,600	4.02	2.00
10th-grade academic GPA	F1RAGP10	2.9	0.04	0.02	1,600	4.01	2.00
11th-grade GPA	F1RGP11	3.0	0.03	0.02	1,600	3.86	1.97
11th-grade academic GPA	F1RAGP11	2.9	0.04	0.02	1,600	3.84	1.96
12th-grade GPA	F1RGP12	3.0	0.03	0.02	1,600	4.26	2.06
12th-grade academic GPA	F1RAGP12	2.9	0.03	0.02	1,600	3.92	1.98
Total GPA	F1RGP	3.0	0.03	0.02	1,600	4.15	2.04
Total academic GPA	F1RAGP	2.9	0.03	0.02	1,600	3.96	1.99
SUMMARY STATISTICS							
Mean						7.41	2.63
Minimum						2.77	1.66
Median						7.31	2.70
Maximum						18.91	4.35
Standard deviation						4.17	0.73

† Not applicable.

# Rounds to zero.

NOTE: N = sample size; DEFF = design effect; DEFT = square root of the design effect; CU = Carnegie Unit.

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



**Table G-30. Student design effects, by survey item using transcript weight, other private school 2004 spring graduates: 2004-05**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple standard error	N	DEFF	DEFT
Left school in 2004	F1RDTLFT	100.0	#	#	1,000	†	†
Left school with standard diploma	F1RREASL = 1	100.0	#	#	1,000	†	†
Total CUs in mathematics	F1RMAT_C	3.8	0.07	0.02	1,000	8.21	2.87
Total CUs in science	F1RSCI_C	3.6	0.06	0.03	1,000	4.89	2.21
Total CUs in English	F1RENG_C	4.4	0.08	0.03	1,000	7.21	2.69
Total CUs in social studies	F1RSOC_C	4.0	0.12	0.04	1,000	12.13	3.48
Total CUs in fine arts	F1RFIN_C	2.1	0.21	0.05	1,000	15.03	3.88
Total CUs in non-English language	F1RNON_C	2.5	0.13	0.04	1,000	10.64	3.26
Total CUs in family/cons. science	F1RFAM_C	0.1	0.03	0.01	1,000	9.39	3.06
Total CUs in general labor market preparation	F1RGLA_C	0.2	0.05	0.01	1,000	12.88	3.59
Total CUs in specific labor market preparation	F1RSLA_C	1.1	0.08	0.04	1,000	5.12	2.26
Total CUs in general studies	F1RGEN_C	0.3	0.05	0.02	1,000	7.87	2.81
Total CUs in health/physical/recreation education	F1RHEA_C	1.8	0.10	0.03	1,000	11.18	3.34
Total CUs in religion and theology	F1RREL_C	1.5	0.18	0.05	1,000	12.13	3.48
Total CUs in military science	F1RMIL_C	0.1	0.04	0.01	1,000	7.86	2.80
Total CUs	F1RHTUN	25.8	0.37	0.10	1,000	12.60	3.55
Total AP/IB courses	F1RAPIB	1.3	0.19	0.06	1,000	9.18	3.03
Math pipeline: Advanced III	F1RMAPIP = 8	30.2	4.07	1.42	1,000	8.18	2.86
Academic concentrator	F1RTRCC = 1	47.8	4.16	1.55	1,000	7.21	2.69
New basics: College bound, core curriculum	F1RNEWB = 1	25.4	3.38	1.35	1,000	6.27	2.50
9th-grade GPA	F1RGP9	3.2	0.04	0.02	1,000	3.70	1.92
9th-grade academic GPA	F1RAGP9	3.1	0.04	0.02	1,000	3.66	1.91
10th-grade GPA	F1RGP10	3.1	0.04	0.02	1,000	3.59	1.90
10th-grade academic GPA	F1RAGP10	3.1	0.04	0.02	1,000	3.84	1.96
11th-grade GPA	F1RGP11	3.2	0.04	0.02	1,000	4.37	2.09
11th-grade academic GPA	F1RAGP11	3.1	0.04	0.02	1,000	4.09	2.02
12th-grade GPA	F1RGP12	3.3	0.04	0.02	1,000	4.48	2.12
12th-grade academic GPA	F1RAGP12	3.2	0.04	0.02	1,000	4.21	2.05
Total GPA	F1RGP	3.2	0.03	0.02	1,000	4.13	2.03
Total academic GPA	F1RAGP	3.1	0.04	0.02	1,000	4.04	2.01
<b>SUMMARY STATISTICS</b>							
Mean						7.43	2.66
Minimum						3.59	1.90
Median						7.21	2.69
Maximum						15.03	3.88
Standard deviation						3.45	0.62

† Not applicable.

# Rounds to zero.

NOTE: N = sample size; DEFF = design effect; DEFT = square root of the design effect; CU = Carnegie Unit.

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

Table G-31. Student design effects, by survey item using transcript weight, low socioeconomic status 2004 spring graduates: 2004-05

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Left school in 2004	F1RDLFT	100.0	#	#	2,200	†	†
Left school with standard diploma	F1RREASL = 1	100.0	#	#	2,200	†	†
Total CUs in mathematics	F1RMAT_C	3.4	0.03	0.02	2,200	2.32	1.52
Total CUs in science	F1RSCI_C	3.0	0.03	0.02	2,200	2.28	1.51
Total CUs in English	F1RENG_C	4.4	0.04	0.02	2,200	2.59	1.61
Total CUs in social studies	F1RSOC_C	3.8	0.04	0.02	2,200	2.51	1.59
Total CUs in fine arts	F1RFIN_C	1.8	0.05	0.04	2,200	1.73	1.31
Total CUs in non-English language	F1RNON_C	1.5	0.04	0.03	2,200	2.10	1.45
Total CUs in family/cons. science	F1RFAM_C	0.6	0.03	0.02	2,200	1.82	1.35
Total CUs in general labor market preparation	F1RGLA_C	0.5	0.03	0.02	2,200	2.10	1.45
Total CUs in specific labor market preparation	F1RSLA_C	3.1	0.08	0.05	2,200	2.52	1.59
Total CUs in general studies	F1RGEN_C	0.7	0.03	0.02	2,200	2.63	1.62
Total CUs in health/physical/recreation education	F1RHEA_C	2.4	0.04	0.03	2,200	2.53	1.59
Total CUs in religion and theology	F1RREL_C	0.1	0.01	0.01	2,200	0.88	0.94
Total CUs in military science	F1RMIL_C	0.2	0.02	0.02	2,200	2.29	1.51
Total CUs	F1RHTUN	25.7	0.15	0.07	2,200	4.03	2.01
Total AP/IB courses	F1RAPIB	0.4	0.03	0.02	2,200	1.61	1.27
Math pipeline: Advanced III	F1RMAPIP = 8	6.5	0.70	0.53	2,200	1.77	1.33
Academic concentrator	F1RTRCC = 1	13.3	0.94	0.73	2,200	1.67	1.29
New basics: College bound, core curriculum	F1RNEWB = 1	23.9	1.28	0.92	2,200	1.95	1.40
9th-grade GPA	F1RGP9	2.6	0.02	0.02	2,200	1.97	1.40
9th-grade academic GPA	F1RAGP9	2.5	0.02	0.02	2,200	1.83	1.35
10th-grade GPA	F1RGP10	2.5	0.02	0.02	2,200	1.93	1.39
10th-grade academic GPA	F1RAGP10	2.4	0.02	0.02	2,200	1.86	1.37
11th-grade GPA	F1RGP11	2.6	0.02	0.02	2,200	1.83	1.35
11th-grade academic GPA	F1RAGP11	2.4	0.02	0.02	2,200	1.79	1.34
12th-grade GPA	F1RGP12	2.8	0.02	0.01	2,200	1.92	1.38
12th-grade academic GPA	F1RAGP12	2.6	0.02	0.02	2,200	1.65	1.28
Total GPA	F1RGP	2.6	0.02	0.01	2,200	2.03	1.43
Total academic GPA	F1RAGP	2.5	0.02	0.01	2,200	1.83	1.35
SUMMARY STATISTICS							
Mean						2.07	1.43
Minimum						0.88	0.94
Median						1.94	1.39
Maximum						4.03	2.01
Standard deviation						0.54	0.18

† Not applicable.

# Rounds to zero.

NOTE: N = sample size; DEFF = design effect; DEFT = square root of the design effect; CU = Carnegie Unit.

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

**Table G-32. Student design effects, by survey item using transcript weight, middle socioeconomic status 2004 spring graduates: 2004-05**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Left school in 2004	F1RDTLFT	100.0	#	#	5,200	†	†
Left school with standard diploma	F1RREASL = 1	100.0	#	#	5,200	†	†
Total CUs in mathematics	F1RMAT_C	3.5	0.02	0.01	5,200	3.51	1.87
Total CUs in science	F1RSCI_C	3.2	0.02	0.01	5,200	2.84	1.69
Total CUs in English	F1RENG_C	4.3	0.03	0.01	5,200	3.76	1.94
Total CUs in social studies	F1RSOC_C	4.0	0.03	0.01	5,200	5.76	2.40
Total CUs in fine arts	F1RFIN_C	2.0	0.04	0.03	5,200	2.26	1.50
Total CUs in non-English language	F1RNON_C	1.9	0.03	0.02	5,200	3.05	1.75
Total CUs in family/cons. science	F1RFAM_C	0.4	0.02	0.01	5,200	3.13	1.77
Total CUs in general labor market preparation	F1RGLA_C	0.4	0.02	0.01	5,200	3.19	1.79
Total CUs in specific labor market preparation	F1RSLA_C	2.9	0.07	0.03	5,200	3.97	1.99
Total CUs in general studies	F1RGEN_C	0.6	0.02	0.01	5,200	3.80	1.95
Total CUs in health/physical/recreation education	F1RHEA_C	2.3	0.03	0.02	5,200	3.99	2.00
Total CUs in religion and theology	F1RREL_C	0.2	0.01	0.01	5,200	1.70	1.30
Total CUs in military science	F1RMIL_C	0.1	0.01	0.01	5,200	2.15	1.47
Total CUs	F1RHTUN	26.1	0.11	0.04	5,200	5.61	2.37
Total AP/IB courses	F1RAPIB	0.6	0.03	0.02	5,200	1.95	1.40
Math pipeline: Advanced III	F1RMAPIP = 8	10.3	0.54	0.42	5,200	1.68	1.30
Academic concentrator	F1RTRCC = 1	23.0	0.91	0.58	5,200	2.46	1.57
New basics: College bound, core curriculum	F1RNEWB = 1	33.0	1.10	0.65	5,200	2.84	1.69
9th-grade GPA	F1RGP9	2.8	0.01	0.01	5,200	2.08	1.44
9th-grade academic GPA	F1RAGP9	2.7	0.02	0.01	5,200	2.04	1.43
10th-grade GPA	F1RGP10	2.8	0.02	0.01	5,200	2.29	1.51
10th-grade academic GPA	F1RAGP10	2.6	0.02	0.01	5,200	2.30	1.52
11th-grade GPA	F1RGP11	2.8	0.02	0.01	5,200	2.22	1.49
11th-grade academic GPA	F1RAGP11	2.6	0.02	0.01	5,200	2.14	1.46
12th-grade GPA	F1RGP12	2.9	0.02	0.01	5,200	2.38	1.54
12th-grade academic GPA	F1RAGP12	2.8	0.02	0.01	5,200	2.30	1.52
Total GPA	F1RGP	2.8	0.01	0.01	5,200	2.28	1.51
Total academic GPA	F1RAGP	2.7	0.01	0.01	5,200	2.22	1.49
<b>SUMMARY STATISTICS</b>							
Mean						2.85	1.67
Minimum						1.68	1.30
Median						2.34	1.53
Maximum						5.76	2.40
Standard deviation						1.05	0.29

† Not applicable.

# Rounds to zero.

NOTE: N = sample size; DEFF = design effect; DEFT = square root of the design effect; CU = Carnegie Unit.

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

Table G-33. Student design effects, by survey item using transcript weight, high socioeconomic status 2004 spring graduates: 2004–05

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Left school in 2004	F1RDTLFT	100.0	#	#	3,500	†	†
Left school with standard diploma	F1RREASL = 1	100.0	#	#	3,500	†	†
Total CUs in mathematics	F1RMAT_C	3.8	0.03	0.01	3,500	3.19	1.79
Total CUs in science	F1RSCI_C	3.6	0.03	0.02	3,500	3.47	1.86
Total CUs in English	F1RENG_C	4.3	0.03	0.02	3,500	3.88	1.97
Total CUs in social studies	F1RSOC_C	4.1	0.04	0.02	3,500	4.55	2.13
Total CUs in fine arts	F1RFIN_C	2.2	0.06	0.03	3,500	3.35	1.83
Total CUs in non-English language	F1RNON_C	2.6	0.03	0.02	3,500	2.55	1.60
Total CUs in family/cons. science	F1RFAM_C	0.3	0.01	0.01	3,500	2.97	1.72
Total CUs in general labor market preparation	F1RGLA_C	0.2	0.02	0.01	3,500	3.24	1.80
Total CUs in specific labor market preparation	F1RSLA_C	2.0	0.05	0.03	3,500	2.71	1.65
Total CUs in general studies	F1RGEN_C	0.5	0.03	0.01	3,500	4.23	2.06
Total CUs in health/physical/recreation education	F1RHEA_C	2.2	0.04	0.02	3,500	3.70	1.92
Total CUs in religion and theology	F1RREL_C	0.4	0.03	0.02	3,500	2.01	1.42
Total CUs in military science	F1RMIL_C	0.1	0.02	0.01	3,500	2.42	1.55
Total CUs	F1RHTUN	26.4	0.12	0.05	3,500	4.88	2.21
Total AP/IB courses	F1RAPIB	1.6	0.07	0.04	3,500	3.27	1.81
Math pipeline: Advanced III	F1RMAPIP = 8	26.7	1.12	0.75	3,500	2.22	1.49
Academic concentrator	F1RTRCC = 1	44.3	1.42	0.84	3,500	2.87	1.69
New basics: College bound, core curriculum	F1RNEWB = 1	39.1	1.43	0.83	3,500	3.00	1.73
9th-grade GPA	F1RGP9	3.1	0.02	0.01	3,500	1.94	1.39
9th-grade academic GPA	F1RAGP9	3.1	0.02	0.01	3,500	2.02	1.42
10th-grade GPA	F1RGP10	3.1	0.02	0.01	3,500	2.07	1.44
10th-grade academic GPA	F1RAGP10	3.0	0.02	0.01	3,500	2.07	1.44
11th-grade GPA	F1RGP11	3.1	0.02	0.01	3,500	1.97	1.40
11th-grade academic GPA	F1RAGP11	3.0	0.02	0.01	3,500	1.84	1.36
12th-grade GPA	F1RGP12	3.2	0.02	0.01	3,500	2.00	1.41
12th-grade academic GPA	F1RAGP12	3.0	0.02	0.01	3,500	1.78	1.33
Total GPA	F1RGP	3.1	0.01	0.01	3,500	1.94	1.39
Total academic GPA	F1RAGP	3.0	0.02	0.01	3,500	1.90	1.38
SUMMARY STATISTICS							
Mean							
Minimum						2.79	1.65
Median						1.78	1.33
Maximum						2.63	1.62
Standard deviation						4.88	2.21
						0.89	0.26

† Not applicable.

# Rounds to zero.

NOTE: N = sample size; DEFF = design effect; DEFT = square root of the design effect; CU = Carnegie Unit.

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

**Table G-34. Student design effects, by survey item using transcript weight, urban 2004 spring graduates: 2004–05**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Left school in 2004	F1RDTLFT	100.0	#	#	3,500	†	†
Left school with standard diploma	F1RREASL = 1	100.0	#	#	3,500	†	†
Total CUs in mathematics	F1RMAT_C	3.6	0.04	0.01	3,500	6.52	2.55
Total CUs in science	F1RSCI_C	3.4	0.05	0.02	3,500	6.81	2.61
Total CUs in English	F1RENG_C	4.4	0.04	0.02	3,500	5.04	2.25
Total CUs in social studies	F1RSOC_C	3.9	0.05	0.02	3,500	6.66	2.58
Total CUs in fine arts	F1RFIN_C	2.0	0.07	0.03	3,500	5.46	2.34
Total CUs in non-English language	F1RNON_C	2.2	0.05	0.02	3,500	6.71	2.59
Total CUs in family/cons. science	F1RFAM_C	0.3	0.03	0.01	3,500	6.65	2.58
Total CUs in general labor market preparation	F1RGLA_C	0.4	0.03	0.01	3,500	6.59	2.57
Total CUs in specific labor market preparation	F1RSLA_C	2.2	0.08	0.03	3,500	5.83	2.41
Total CUs in general studies	F1RGEN_C	0.5	0.04	0.01	3,500	8.11	2.85
Total CUs in health/physical/recreation education	F1RHEA_C	2.1	0.05	0.02	3,500	5.28	2.30
Total CUs in religion and theology	F1RREL_C	0.4	0.04	0.02	3,500	3.37	1.84
Total CUs in military science	F1RMIL_C	0.2	0.03	0.01	3,500	4.89	2.21
Total CUs	F1RHTUN	25.7	0.19	0.06	3,500	11.29	3.36
Total AP/IB courses	F1RAPIB	1.1	0.07	0.03	3,500	4.59	2.14
Math pipeline: Advanced III	F1RMAPIP = 8	14.6	1.16	0.60	3,500	3.72	1.93
Academic concentrator	F1RTRCC = 1	30.2	1.73	0.78	3,500	4.91	2.22
New basics: College bound, core curriculum	F1RNEWB = 1	34.7	1.68	0.81	3,500	4.32	2.08
9th-grade GPA	F1RGP9	2.8	0.03	0.01	3,500	4.41	2.10
9th-grade academic GPA	F1RAGP9	2.7	0.03	0.01	3,400	4.30	2.07
10th-grade GPA	F1RGP10	2.8	0.03	0.01	3,500	4.36	2.09
10th-grade academic GPA	F1RAGP10	2.7	0.03	0.01	3,500	4.22	2.05
11th-grade GPA	F1RGP11	2.8	0.03	0.01	3,500	4.12	2.03
11th-grade academic GPA	F1RAGP11	2.7	0.03	0.01	3,500	3.64	1.91
12th-grade GPA	F1RGP12	2.9	0.03	0.01	3,500	4.80	2.19
12th-grade academic GPA	F1RAGP12	2.8	0.03	0.01	3,500	4.39	2.10
Total GPA	F1RGP	2.8	0.02	0.01	3,500	4.87	2.21
Total academic GPA	F1RAGP	2.7	0.03	0.01	3,500	4.55	2.13
<b>SUMMARY STATISTICS</b>							
Mean						5.37	2.30
Minimum						3.37	1.84
Median						4.88	2.21
Maximum						11.29	3.36
Standard deviation						1.64	0.33

† Not applicable.

# Rounds to zero.

NOTE: N = sample size; DEFF = design effect; DEFT = square root of the design effect; CU = Carnegie Unit.

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

Table G-35. Student design effects, by survey item using transcript weight, suburban 2004 spring graduates: 2004-05

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Left school in 2004	F1RDTLFT	100.0	#	#	5,500	†	†
Left school with standard diploma	F1RREASL = 1	100.0	#	#	5,500	†	†
Total CUs in mathematics	F1RMAT_C	3.6	0.03	0.01	5,500	4.44	2.11
Total CUs in science	F1RSCI_C	3.2	0.03	0.01	5,500	3.62	1.90
Total CUs in English	F1RENG_C	4.3	0.03	0.01	5,500	4.41	2.10
Total CUs in social studies	F1RSOC_C	4.0	0.04	0.01	5,500	7.63	2.76
Total CUs in fine arts	F1RFIN_C	2.0	0.04	0.03	5,500	2.89	1.70
Total CUs in non-English language	F1RNON_C	2.0	0.04	0.02	5,500	4.33	2.08
Total CUs in family/cons. science	F1RFAM_C	0.5	0.02	0.01	5,500	4.02	2.00
Total CUs in general labor market preparation	F1RGLA_C	0.4	0.02	0.01	5,500	3.64	1.91
Total CUs in specific labor market preparation	F1RSLA_C	2.7	0.08	0.03	5,500	5.99	2.45
Total CUs in general studies	F1RGEN_C	0.6	0.03	0.01	5,500	5.76	2.40
Total CUs in health/physical/recreation education	F1RHEA_C	2.4	0.03	0.02	5,500	4.65	2.16
Total CUs in religion and theology	F1RREL_C	0.2	0.02	0.01	5,500	2.20	1.48
Total CUs in military science	F1RMIL_C	0.1	0.02	0.01	5,500	3.79	1.95
Total CUs	F1RHUN	26.0	0.13	0.04	5,500	8.83	2.97
Total AP/IB courses	F1RAPIB	0.8	0.04	0.02	5,500	3.50	1.87
Math pipeline: Advanced III	F1RMAPIP = 8	15.1	0.78	0.48	5,500	2.61	1.62
Academic concentrator	F1RTRCC = 1	26.7	1.17	0.60	5,500	3.85	1.96
New basics: College bound, core curriculum	F1RNEWB = 1	32.5	1.18	0.63	5,500	3.46	1.86
9th-grade GPA	F1RGP9	2.9	0.02	0.01	5,400	2.55	1.60
9th-grade academic GPA	F1RAGP9	2.8	0.02	0.01	5,400	2.41	1.55
10th-grade GPA	F1RGP10	2.8	0.02	0.01	5,500	2.68	1.64
10th-grade academic GPA	F1RAGP10	2.7	0.02	0.01	5,500	2.65	1.63
11th-grade GPA	F1RGP11	2.8	0.02	0.01	5,500	2.89	1.70
11th-grade academic GPA	F1RAGP11	2.7	0.02	0.01	5,500	2.74	1.66
12th-grade GPA	F1RGP12	3.0	0.02	0.01	5,500	3.13	1.77
12th-grade academic GPA	F1RAGP12	2.8	0.02	0.01	5,400	2.93	1.71
Total GPA	F1RGP	2.9	0.02	0.01	5,500	2.92	1.71
Total academic GPA	F1RAGP	2.7	0.02	0.01	5,500	2.78	1.67
SUMMARY STATISTICS							
Mean						3.83	1.93
Minimum						2.20	1.48
Median						3.48	1.86
Maximum						8.83	2.97
Standard deviation						1.57	0.36

† Not applicable.

# Rounds to zero.

NOTE: N = sample size; DEFF = design effect; DEFT = square root of the design effect; CU = Carnegie Unit.

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

**Table G-36. Student design effects, by survey item using transcript weight, rural 2004 spring graduates: 2004-05**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Left school in 2004	F1RDTLFT	100.0	#	#	2,000	†	†
Left school with standard diploma	F1RREASL = 1	100.0	#	#	2,000	†	†
Total CUs in mathematics	F1RMAT_C	3.6	0.05	0.02	2,000	4.93	2.22
Total CUs in science	F1RSCI_C	3.3	0.05	0.02	2,000	3.90	1.98
Total CUs in English	F1RENG_C	4.4	0.07	0.02	2,000	10.33	3.21
Total CUs in social studies	F1RSOC_C	4.1	0.08	0.02	2,000	11.05	3.32
Total CUs in fine arts	F1RFIN_C	2.2	0.08	0.04	2,000	3.18	1.78
Total CUs in non-English language	F1RNON_C	1.8	0.06	0.03	2,000	4.00	2.00
Total CUs in family/cons. science	F1RFAM_C	0.4	0.03	0.02	2,000	4.28	2.07
Total CUs in general labor market preparation	F1RGLA_C	0.4	0.04	0.02	2,000	4.74	2.18
Total CUs in specific labor market preparation	F1RSLA_C	3.3	0.15	0.06	2,000	6.46	2.54
Total CUs in general studies	F1RGEN_C	0.6	0.04	0.02	2,000	5.10	2.26
Total CUs in health/physical/recreation education	F1RHEA_C	2.4	0.09	0.03	2,000	7.95	2.82
Total CUs in religion and theology	F1RREL_C	#	0.01	0.01	2,000	†	†
Total CUs in military science	F1RMIL_C	0.1	0.02	0.01	2,000	2.01	1.42
Total CUs	F1RHTUN	26.7	0.20	0.07	2,000	7.45	2.73
Total AP/IB courses	F1RAPIB	0.6	0.05	0.03	2,000	2.46	1.57
Math pipeline: Advanced III	F1RMAPIP = 8	11.2	1.06	0.71	2,000	2.24	1.50
Academic concentrator	F1RTRCC = 1	23.4	1.85	0.95	2,000	3.78	1.94
New basics: College bound, core curriculum	F1RNEWB = 1	31.2	1.95	1.04	2,000	3.50	1.87
9th-grade GPA	F1RGP9	2.9	0.03	0.02	2,000	2.41	1.55
9th-grade academic GPA	F1RAGP9	2.7	0.03	0.02	2,000	2.29	1.51
10th-grade GPA	F1RGP10	2.8	0.03	0.02	2,000	2.58	1.60
10th-grade academic GPA	F1RAGP10	2.7	0.03	0.02	2,000	2.52	1.59
11th-grade GPA	F1RGP11	2.8	0.03	0.02	2,000	2.57	1.60
11th-grade academic GPA	F1RAGP11	2.7	0.03	0.02	2,000	2.32	1.52
12th-grade GPA	F1RGP12	3.0	0.02	0.02	2,000	2.37	1.54
12th-grade academic GPA	F1RAGP12	2.8	0.03	0.02	2,000	2.23	1.49
Total GPA	F1RGP	2.9	0.02	0.01	2,000	2.49	1.58
Total academic GPA	F1RAGP	2.7	0.03	0.02	2,000	2.31	1.52
<b>SUMMARY STATISTICS</b>							
Mean						4.09	1.95
Minimum						2.01	1.42
Median						3.17	1.78
Maximum						11.05	3.32
Standard deviation						2.45	0.54

† Not applicable.

# Rounds to zero.

NOTE: N = sample size; DEFF = design effect; DEFT = square root of the design effect; CU = Carnegie Unit.

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

**Appendix H**  
**Propensity Models Versus Weighting Cell**  
**Approaches to Nonresponse Adjustment: A**  
**Methodological Comparison**

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# **Propensity Models Versus Weighting Cell Approaches to Nonresponse Adjustment**

## **A Methodological Comparison**

**Peter H. Siegel, Elizabeth Copello, and James R. Chromy**

September 2005

Contractor report to the Statistical Standards Program, National Center for Education Statistics



## Executive Summary

Statistical adjustment of nonresponse is a deep and pervasive issue for National Center for Education Studies (NCES) sample surveys. One example of nonresponse is in the base year of the Education Longitudinal Study of 2002 (ELS:2002). Approximately 61 percent of schools cooperated and about 87 percent of students responded by completing the questionnaire. The final two-stage response rate is the product of the school and student levels, or just over 53 percent. Adjusting for this magnitude of nonrandom unit nonresponse is an enormous challenge, given that most survey estimates and some of the population parameters are available only through the survey itself and not through objective benchmarks in other sources. To compare approaches to nonresponse adjustment, ELS:2002 data was used to examine the weight adjustment approaches. The adjustments are limited to student adjustments for students in public schools.

Section 1 defines the weighting methods typically used for adjusting sample weights. The nonresponse adjustments produce almost identical weights when one or two variables are used, except when using the logistic regression method. When additional variables are used, similar weights after nonresponse adjustment are produced by collapsing variables identically for each method and by using the same interaction terms. Section 2 describes and presents results for nonresponse adjustment using each of the four methods and using one, two, four, six, and eight variables.

Section 3 discusses and presents results for weight trimming using the interquartile range to determine extreme weights. Sometimes sampling weights or the weights after nonresponse or poststratification are extremely small or large; that is, the weights are outliers or extreme values. These outlier weights can be trimmed and smoothed (i.e., re-allocated) to an extent to not significantly increase the unequal weighting effect (UWE). Deciding when to trim and smooth weights is a subjective decision made during the weighting process. RTI's Generalized Exponential Model (GEM) can incorporate this trimming and smoothing. For other methods, the trimming and smoothing can be done separately before or after the weight adjustments. The four weighting methods produced results that were similar.

Section 4 discusses and presents results for poststratification using each of the four methods. Poststratification to control totals is done in some surveys to adjust the weights to match known population totals. The ELS:2002 student data were not poststratified because there were no known population totals. For the sake of comparing the four methods, control totals were formed using the ELS:2002 final weights applied to the selected sample of students in public schools. These final weights differ from the weights generated by GEM in these examples because ELS:2002 used two nonresponse models and more variables in the nonresponse models. The four weighting methods produced similar results to each other.

Section 5 discusses and presents results for the nonresponse bias analysis using each of the four methods. Unit nonresponse causes bias in survey estimates when the outcomes of respondents and nonrespondents are different. For ELS:2002, student response is defined as the student completing at least a specified portion of the student questionnaire. The student response rate was above 85 percent overall. In addition to comparing the weights and the UWEs across the four methods, the reduction in nonresponse bias was analyzed. The weighting class method had the least amount of significant bias among the methods.

Section 6 discusses the advantages and disadvantages of using each method, and further analyses that can be done to continue this research.

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## 1. Introduction

### 1.1 Background and Purpose of the Research

Statistical adjustment of nonresponse is a deep and pervasive issue for National Center for Education Statistics (NCES) sample surveys. One example of nonresponse can be seen in the base year of the Education Longitudinal Study of 2002 (ELS:2002). Approximately 61 percent of schools cooperated and about 87 percent of students responded by completing the questionnaire. The final two-stage response rate is the product of the school and student levels, or just over 53 percent. Adjusting for this magnitude of non-random unit nonresponse is an enormous challenge, especially in light of the fact that most survey estimates and some of the population parameters are available only through the survey itself, and not through objective benchmarks in other sources.

Contemporary statistical methods offer researchers three broad approaches to nonresponse adjustment. The first is using a traditional weighting cell approach. A second and more recent development is response propensity modeling, typically using logistic regression. A third common approach to weight adjustment is raking. A fourth, RTI's Generalized Exponential Model (GEM) is a generalization of weight adjustments, and in addition to nonresponse adjustment can optionally include features such as poststratification and weight trimming (Folsom and Singh, 2000).

A literature review discovered two comparative studies of the weighting class approach versus alternative methods completed in 1994 using panel data from the Survey of Income and Program Participation (SIPP). SIPP was using a weighting class approach for nonresponse adjustment, and Folsom and Witt (1994) compared it to inverse response propensity weighting via generalized raking. They had mixed results and were not able to show any superiority for the response propensity approach over the weighting class approach. Rizzo et al. (1994) compared SIPP's weighting class approach with six alternative weighting schemes and concluded that the different methods produced similar estimates, the weights from the different methods were highly correlated with each other, and the variability of the weights was similar for all the weighting schemes.

More recently, Kalton and Flores-Cervantes (2003) compared eight weighting techniques: cell weighting, raking, linear weighting, GREG weighting, logistic regression weighting, a mixture of cell weighting and another method, logit weighting, and truncated linear weighting. They briefly described each adjustment method and illustrated its application with a simple example. They compared results across methods.

In comparing approaches to nonresponse adjustment, ELS:2002 data was used to examine the weight adjustment approaches. Appendix A presents an overview of ELS:2002. The adjustments are limited to student adjustments for students in public schools. Four weight adjustment methods are defined below.

## 1.2 Description of Methods Studied

Four weight adjustment approaches were examined:

1. Weighting class adjustments, which are made by partitioning the sample into groups called weighting classes and adjusting the sample weights so that the sum of the weights of respondents equals the sum of the weights of respondents and nonrespondents for each cell.
2. Raking, which is an iterative proportional fitting procedure where the respondent row totals are first forced to equal the sum of the weights of respondents and nonrespondents for the row. Then the respondent adjusted column totals are forced to equal the sum of the weights of respondents and nonrespondents for the column. These adjustments are repeated until convergence is reached. Raking controls at the margins and can also be done for more than two dimensions.
3. Logistic regression, which uses auxiliary data to predict the response propensity of each sample member. The inverse of the respondent's predicted response propensity is the weight adjustment. The logistic approach is not a calibration method. Therefore, it does not force the weight sums to the marginal totals, but the weight sums are usually close to the marginal totals.
4. GEM, which is a unified approach to nonresponse adjustment, poststratification, and extreme weight reduction. GEM is a general version of weight adjustments, and is based on a generalization of Deville and Särndal's logit model (Deville and Särndal 1992). The GEM approach controls at the margins, and adjustment factors can be constrained individually.

Weighting class, raking, and GEM methods can be applied to poststratification as well as nonresponse adjustment. In poststratification, control totals are obtained from external sources believed to be the truth or at least much more precise than those based on the survey sample. Control totals for nonresponse adjustment are generated from the selected sample. The logistic regression modeling approach analyzes the selected sample and uses response as the dependent variable; this approach implicitly generates its own control totals based on the selected sample. Logistic regression does not naturally extend to poststratification.

Weighting class methods are the simplest to implement and to explain (Chapman 1976). Adjustments are either based on a single dimension or performed at the cell level (fully interacted model basis) for multiway table controls. When alternative methods are applied at the fully interacted model level, they reduce to a weighting class approach, as shown in the following sections.

Raking or iterative proportional fitting applies a weighting class approach in one dimension and then applies it to the adjusted weights in one or more other dimensions. The process controls marginal distributions only and continues until the cell-level adjustment stabilizes (Oh and Scheuren 1983). If applied in a single dimension (or at the cell level), it reduces to the weighting class method.

Logistic regression or response propensity methods fit a logistic regression model to the selected sample to predict the probability of responding. Variables used as predictors in the logistic regression must be known for all members of the selected sample (both respondents and

nonrespondents). Although the predictor variables can be continuous or categorical, this report compares only categorical predictors with other methods. As mentioned above, logistic regression is not a calibration method.

The GEM method developed by Folsom and Singh (2000) is a generalization of a calibration model presented by Deville and Särndal (1992) that allows bounds to be set on the adjustment factors. The form of the weight adjustment factors is

$$a_k(\lambda) = \frac{l(u-1) + u(1-l)e^{Ax'_k\lambda}}{(u-1) + (1-l)e^{Ax'_k\lambda}},$$

where  $l < 1 < u$  and  $A = (u-l)/[(u-1)(1-l)]$ . The parameters,  $u$  and  $l$ , are user-specified bounds on the adjustment factors. The column vector,  $\lambda$ , represents the model parameters corresponding to the covariate vector,  $x$ . The model parameters are obtained for poststratification by requiring that

$$\sum_{\text{respondents}} x_k d_k a_k(\lambda) = T_x,$$

where  $T_x$  is a vector of poststratification totals.

Two special cases are used in this report. The first was identified in the Deville-Särndal paper as  $l \rightarrow 0$  and  $u \rightarrow \infty$ ,  $a_k(\lambda) \rightarrow e^{x'_k\lambda}$ . This solution corresponds to the exponential model and in the limit yields the same results as the raking method.

Folsom and Singh's GEM generalized the Deville-Särndal calibration method by allowing unit-specific bounds on the adjustment factors and by adding a centering factor,  $c_k$ .

$$a_k(\lambda) = \frac{l_k(u_k - c_k) + u_k(c_k - l_k)e^{A_k x'_k \lambda}}{(u_k - c_k) + (c_k - l_k)e^{A_k x'_k \lambda}}$$

with  $A_k = (u_k - l_k)/[(u_k - c_k)(c_k - l_k)]$ . This model can be applied to either poststratification or nonresponse adjustment. For nonresponse adjustment, model parameters are obtained by solving

$$\sum_{\text{respondents}} x_k d_k a_k(\lambda) = \tilde{T}_x,$$

where  $\tilde{T}_x$  is a vector of sums based on the selected sample (using the design weights before adjustment). The second special case presented in this report is based on GEM. When allowing  $l_k = 1$ ,  $c_k = 2$ , and  $u_k \rightarrow \infty$ , then  $a_k(\lambda) \rightarrow 1 + e^{x'_k\lambda}$ ; that is, the GEM solution approaches the solution obtained by fitting the logistic regression model.

Results from both special cases of GEM are presented below and compared with results from other nonresponse adjustment approaches.



## 2. Nonresponse Adjustment

The four nonresponse weight adjustment methods were compared using ELS:2002 data for students in public schools. No trimming of extreme weights is done in the initial comparisons of the methods. Section 3 describes the effect of weight trimming. Five different sets of variables were used to compare the four methods. Each of these five sets is described in the subsections below. For each of these four methods, the mean, minimum, median, and maximum adjustment factor and weight after adjustment were examined, as well as the unequal weighting effect (UWE). The relative root mean squared differences (RRMSD) between methods were also computed by squaring the difference of the weight for each observation from two methods, taking the average of this squared difference across all observations, and taking the square root of the average. This square root was then divided by the mean weight, which is approximately the same, regardless of adjustment method. The formula is

$$\text{RRMSD} = \frac{\sqrt{\sum_n \frac{(X_i - Y_i)^2}{n}}}{\bar{X}},$$

where:

$X_i$  = nonresponse adjusted weight for student  $i$  using one adjustment method;

$Y_i$  = nonresponse adjusted weight for student  $i$  using a second adjustment method;

$\bar{X}$  = mean weight using any adjustment method; and

$n$  = number of responding students on the file.

### 2.1 One Variable

When the nonresponse adjustment uses one variable, the four adjustment methodologies produced identical results, within rounding error, except for the logistic regression method. The variable sex (male and female) was used for the adjustment using one variable. Table 1 shows the mean, minimum, median, and maximum adjustment factor and weight after adjustment and the UWE for each of the four methods. Table 2 displays the RRMSD between methods.

### 2.2 Two Variables

When the nonresponse adjustment uses two variables, the four adjustment methodologies can produce identical results, within rounding error, except for the logistic regression method. The variables sex (male and female) and race/ethnicity (Hispanic, Asian, Black, and White/other) were used for the adjustment using two variables. Tables 3 and 4 display the results of each method. As mentioned in section 1, GEM can be run to either be similar to the logistic approach or to raking. Typically, GEM is run to be similar to the logistic approach. To run GEM in a raking mode is similar to poststratification in GEM with control totals being set for sample totals. To produce results identical to weighting class, the GEM model needs to include the two-

way interaction term. The logistic method is slightly different from the weighting class method even when the interaction term is included. When the interaction term is excluded from the model the results are slightly different. The GEM, logistic, and weighting class methods are slightly different from each other. Without the interaction terms, the ranges of the adjustment factor and weight are a little narrower than for the model including the interaction term. When GEM is run to be similar to raking, the results between the two methods are the same, within rounding. These results are not identical to weighting class because interaction terms are excluded. For raking to be identical to weighting class, the raking is done within cells and not at the margins. The UWEs are nearly identical for all methods with and without interaction terms. The RRMSDs are about 0 when comparing all of the methods.

**Table 1. Summary statistics for one variable weight adjustments: 2005**

Type of weight adjustment	Adjustment factor				Weight				Overall UWE
	Mean	Maximum	Minimum	Median	Mean	Maximum	Minimum	Median	
GEM—logistic	1.1487	1.1626	1.1350	1.1350	263.87	9514.80	5.70	241.45	1.5807
Logistic	1.1492	1.1631	1.1355	1.1355	263.98	9518.72	5.70	241.55	1.5807
GEM—exponential	1.1487	1.1626	1.1350	1.1350	263.87	9514.80	5.70	241.45	1.5807
Raking	1.1487	1.1626	1.1350	1.1350	263.87	9514.80	5.70	241.45	1.5807
Weighting class	1.1487	1.1626	1.1350	1.1350	263.87	9514.80	5.70	241.45	1.5807

NOTE: GEM = Generalized Exponential Model; UWE = unequal weighting effect.  
SOURCE: Education Longitudinal Study of 2002 (ELS:2002).

**Table 2. Relative root mean squared differences (RRMSDs) for one variable weight adjustments: 2005**

Comparison	RRMSD
GEM—logistic vs. weighting class	0.00000
Logistic vs. weighting class	0.13652
Logistic vs. GEM—logistic	0.13652
GEM—logistic vs. raking	0.00000
Weighting class vs. raking	0.00000
Logistic vs. raking	0.13652

NOTE: GEM = Generalized Exponential Model.  
SOURCE: Education Longitudinal Study of 2002 (ELS:2002)

**Table 3. Summary statistics for two variables weight adjustments: 2005**

Type of weight adjustment	Adjustment factor				Weight				Overall UWE
	Mean	Maximum	Minimum	Median	Mean	Maximum	Minimum	Median	
GEM—logistic with no interactions	1.1562	1.2430	1.1221	1.1472	263.87	9388.32	5.78	240.21	1.5692
Logistic with no interactions	1.1563	1.2432	1.1221	1.1472	263.87	9388.37	5.78	240.25	1.5692
GEM—exponential with no interactions	1.1562	1.2371	1.1210	1.1483	263.87	9397.71	5.78	240.38	1.5695
Raking with no interactions	1.1562	1.2371	1.1210	1.1483	263.87	9397.71	5.78	240.38	1.5695
GEM—logistic with sex*race interaction	1.1562	1.2536	1.1202	1.1491	263.87	9403.88	5.79	240.17	1.5696
Logistic with sex*race interaction	1.1563	1.2545	1.1202	1.1491	263.88	9403.88	5.79	240.18	1.5696
GEM—exponential with sex*race interaction	1.1562	1.2536	1.1202	1.1491	263.87	9403.88	5.79	240.17	1.5696
Raking with sex*race interaction	1.1562	1.2536	1.1202	1.1491	263.87	9403.88	5.79	240.17	1.5696
Weighting class	1.1562	1.2536	1.1202	1.1491	263.87	9403.88	5.79	240.17	1.5696

NOTE: GEM = Generalized Exponential Model; UWE = unequal weighting effect.  
SOURCE: Education Longitudinal Study of 2002 (ELS:2002).



**Table 4. Relative root mean squared differences (RRMSDs) for two variables weight adjustments: 2005**

Comparison	RRMSD with no interaction in models	RRMSD with interaction in models
GEM—logistic vs. weighting class	0.00408	0.00000
Logistic vs. weighting class	0.00409	0.00007
Logistic vs. GEM—logistic	0.00007	0.00007
GEM—logistic vs. raking	0.00162	0.00000
Weighting class vs. raking	0.00316	0.00000
Logistic vs. raking	0.00162	0.00007

NOTE: GEM = Generalized Exponential Model.  
SOURCE: Education Longitudinal Study of 2002 (ELS:2002).

## 2.3 Four Variables

When the nonresponse adjustment uses four variables, the four adjustment methodologies can produce identical results for all methods, except for the logistic regression method. In theory, if the four variables are fully interacted, the results are identical. In practice, however, the models have singularities when all the interactions are included, so the models cannot be fully interacted. The analytically important variables sex (male and female), race/ethnicity (Hispanic, Asian, Black, and White/Other), region (Northeast, Midwest, South, and West), and metropolitan status (urban, suburban, and rural) were used for the adjustment using four variables. Tables 5 and 6 display the results of each method. For the weighting class method, cells need to be collapsed due to small sample sizes. For the variable metropolitan status, the categories suburban and rural were collapsed, and for the variable region, the categories Northeast and Midwest were collapsed. The other methods do not need to be collapsed. However, if variables are collapsed and interaction terms included, then GEM produces the same results as the weighting class. The logistic method has more narrow bounds on the adjustment factors and a slightly higher UWE than do the GEM and weighting class approaches. When the interaction terms are excluded from the models, the GEM, logistic, and raking methods produce results that are slightly different from each other and from the weighting class method. Without the interaction terms, the ranges of the adjustment factor and weight are a little narrower than for the model including the interaction term.

When collapsing variables, the marginal totals of the collapsed variables do not equal the same values of the variables if not collapsed. Table 7 shows that weighting class and GEM with interactions and collapsing produce the same marginal totals. However, when compared with GEM without interactions and collapsing, the marginal totals differ, with relative differences ranging from 1 to 4 percent.

The RRMSDs are about 0.06 when comparing the weighting class approach with all three other methods without collapsing and without the interaction. The differences are closer to 0 when comparing the other approaches. Collapsing variables but still excluding the interaction term slightly reduces the differences. However, the addition of the interaction term causes the differences between GEM-logistic and weighting class to be about zero. The differences between the other approaches are between 0.04 and 0.05.

**Table 5. Summary statistics for four variables weight adjustments: 2005**

Type of weight adjustment	Adjustment factor				Weight				Overall UWE
	Mean	Maximum	Minimum	Median	Mean	Maximum	Minimum	Median	
GEM—logistic with no collapsing and no interactions	1.1542	1.4204	1.0739	1.1424	263.87	9603.32	5.60	238.96	1.5956
Logistic with no collapsing and no interactions	1.1543	1.4168	1.0747	1.1427	263.88	9590.39	5.60	238.88	1.5944
Raking with no collapsing	1.1540	1.3488	1.0595	1.1467	263.87	9621.10	5.59	239.21	1.5953
GEM—logistic with metro and region collapsed and no interactions	1.1549	1.3412	1.0865	1.1399	263.87	9571.47	5.57	240.41	1.5859
Logistic with metro and region collapsed and no interactions	1.1550	1.3410	1.0870	1.1399	263.88	9561.27	5.57	240.51	1.5852
Raking with metro and region collapsed	1.1548	1.3000	1.0759	1.1441	263.87	9598.77	5.56	240.67	1.5870
GEM—logistic with metro and region collapsed and interactions	1.1550	1.4647	1.0343	1.1289	263.87	10244.61	5.57	240.15	1.6065
Logistic with metro and region collapsed and interactions	1.1546	1.4290	1.0850	1.1306	263.92	10181.11	5.58	238.08	1.6091
Weighting class with metro and region collapsed	1.1550	1.4647	1.0343	1.1289	263.87	10244.61	5.57	240.15	1.6065

NOTE: GEM = Generalized Exponential Model; UWE = unequal weighting effect.  
SOURCE: Education Longitudinal Study of 2002 (ELS:2002).

**Table 6. Relative root mean squared differences (RRMSDs) for four variables weight adjustments: 2005**

Comparison	RRMSD with no collapsing and no interaction in models	RRMSD with collapsing but no interaction in models	RRMSD with collapsing and interaction in models
GEM—logistic vs. weighting class	0.05646	0.04784	0.00000
Logistic vs. weighting class	0.05642	0.04817	0.04446
Logistic vs. GEM—logistic	0.00145	0.00085	0.04446
GEM—logistic vs. raking	0.00886	0.00643	0.04853
Weighting class vs. raking	0.05637	0.04853	0.04853
Logistic vs. raking	0.00862	0.00648	0.04678

NOTE: GEM = Generalized Exponential Model.  
SOURCE: Education Longitudinal Study of 2002 (ELS:2002).

**Table 7. Comparison of distribution of variables with and without collapsing for four variables model: 2005**

	GEM	GEM with variable collapsed and interactions	Relative difference	Weighting class	Relative difference
Metropolitan status					
Urban	889136.5	889136.5	0.0000	889136.5	0.0000
Suburban	1622840.0	1607308.0	0.0096	1607308.0	0.0096
Rural	664753.8	680285.6	-0.0234	680285.6	-0.0234
Region					
Northeast	573827.5	550670.8	0.0404	550670.8	0.0404
Midwest	764626.7	787783.4	-0.0303	787783.4	-0.0303
South	1098043.0	1098043.0	0.0000	1098043.0	0.0000
West	740232.6	740232.6	0.0000	740232.6	0.0000

NOTE: GEM = Generalized Exponential Model.  
SOURCE: Education Longitudinal Study of 2002 (ELS:2002).

## 2.4 Six Variables

Next, larger models were explored to show how the various methods handle more complex weight adjustments. To choose a larger number of variables, all 23 variables known for both the respondents and nonrespondents were included in GEM. Then the six significant variables were kept in the model, and the remaining non-significant variables were dropped from the model. These six variables are

- sex (male and female)
- region (Northeast, Midwest, South, and West);
- number of part-time teachers (0-1; 2-3; 4-6; > 6);
- percentage of students with an IEP (< 6; 6-10; 11-15; > 15);
- school level (K-12, PreK-10, 1-12; PreK/1-9/12, PreK-12; middle grades but no elementary; only high school); and
- 10th-grade enrollment (0-99; 100-249; 250-499, > 499).

When the nonresponse adjustment uses six variables, the four adjustment methodologies can produce identical results, except for the logistic regression method. As with the four-variable model, singularity in the models prevents the results from being identical because the models cannot be fully interacted. For the weighting class method, cells need to be collapsed due to small sample sizes. Given six variables, the cell sizes are smaller; thus more collapsing is needed than in the four-variable model. The other methods do not need to be collapsed. Tables 8 and 9 display the results of each method. When all methods include collapsed variables, the mean adjustment factors are close. The UWEs are also close. The addition of the six-variable interaction term caused the GEM and logistic models to have larger mean and maximum adjustment factors and smaller UWEs than prior to adding the interaction. The adjustment factor ranges are narrower for the weighting class approach than for the other approaches. For all models, except the logistic models, the mean weights are equal within rounding.

The RRMSDs are between 0.07 and 0.08 when comparing the weighting class approach with all three other methods without collapsing and without the interaction term. The differences are about 0.02 when comparing raking with GEM-logistic and logistic and about 0.00 when comparing GEM-logistic and logistic. Collapsing variables but still excluding the interaction term decreases all of the differences. However, the addition of the interaction term causes some of the differences to increase. The difference between GEM-logistic and logistic is still about zero.

## 2.5 Eight Variables

As an alternative method for choosing a larger number of variables for a more complex nonresponse adjustment, all 23 variables known for both respondents and nonrespondents were included in a Chi-Squared Automatic Interaction Detection (CHAID), which is a tree analysis. With response as the dependent model variable, eight significant variables were identified and included in each nonresponse adjustment method. These eight variables are

- metropolitan status (urban, suburban, and rural);
- region (Northeast, Midwest, South, and West);

- number of full-time teachers (1-40; 41-70; 71-100; > 100);
- percentage of full-time teachers certified (0-90; 91-99; 100);
- number of part-time teachers (0-1; 2-3; 4-6; > 6);
- percentage of students with an IEP (< 6; 6-10; 11-15; > 15);
- total enrollment (< 601; 601-1,200; 1,201-1,800; > 1,800); and
- number of class periods (1-4; 5-6; 7; 8-9).

When the nonresponse adjustment uses eight variables, the four adjustment methodologies can produce identical results, except for the logistic regression method. As with the four- and six-variable models, singularity in the models prevents the results from being identical because the models cannot be fully interacted. For the weighting class method, cells need to be collapsed due to small sample sizes. The other methods do not need to be collapsed. Tables 10 and 11 display the results of each method. When all methods include collapsed variables, the mean adjustment factors are close. The UWEs are also close. The adjustment factor range is wider for the weighting class approach than for the other approaches, but the weight range is narrower. The addition of the eight-variable interaction term causes the GEM and logistic models to have the mean adjustment factor and weight range decrease but the maximum adjustment factor and UWE increase. For all models, except the logistic models, the mean weights are equal within rounding.

When collapsing variables, the marginal totals of the collapsed variables do not equal the same values of the variables if not collapsed. Many variables were collapsed. The marginal totals were examined for the metropolitan status categories of suburban and rural being collapsed together and the region categories of Northeast collapsed with Midwest, and South collapsed with West. Table 12 shows that weighting class and GEM with interactions and collapsing produce different marginal totals. Also, when compared with GEM without interactions and collapsing, the marginal totals differ, with relative differences ranging from 0.01 percent to 6 percent.

A benefit of both the logistic and GEM approaches is that adjustment factors can be constrained to not be too high. They can also be constrained to not be too low, although nonresponse adjustment factors typically have a lower bound of one. Without the constraints, the adjustment factors are not considered too high in this example. However, for illustration, upper bound constraints were added. As seen in table 10, the constraints have minimal effect on the bounds, weights, and UWEs.

The RRMSDs are about 0.14 when comparing the weighting class approach with all three other methods without collapsing and without the interaction term. The differences are about 0.02 when comparing raking with GEM-logistic and logistic, and about 0.00 when comparing GEM-logistic with logistic. Collapsing variables but still excluding the interaction term decreases the differences with weighting class but increases the differences between raking and both GEM-logistic and logistic. The addition of the interaction term increases the differences between raking and both GEM-logistic and logistic. The differences between the other methods do not change or do not change much.

**Table 8. Summary statistics for six variables weight adjustments: 2005**

Type of weight adjustment	Adjustment factor				Weight				Overall UWE
	Mean	Maximum	Minimum	Median	Mean	Maximum	Minimum	Median	
GEM—logistic with no collapsing and no interactions	1.1457	1.6071	1.0248	1.1293	263.87	8885.23	6.33	238.56	1.6025
Logistic with no collapsing and no interactions	1.1455	1.5840	1.0252	1.1300	263.84	8894.15	6.34	238.46	1.6020
Raking without collapsing	1.1457	1.4124	0.9620	1.1396	263.87	8811.27	6.30	239.01	1.5952
GEM—logistic with collapsed variables and no interactions	1.1463	1.2473	1.0480	1.1475	263.87	9628.45	5.86	239.28	1.5961
Logistic with collapsed variables and no interactions	1.1465	1.2472	1.0488	1.1478	263.90	9629.91	5.87	239.26	1.5959
Raking with collapsed variables	1.1462	1.2297	1.0217	1.1528	263.87	9644.53	5.87	239.01	1.5958
GEM—logistic with collapsed variables and interactions	1.1482	1.3333	1.0000	1.1381	263.87	9081.55	6.27	238.82	1.5866
Logistic with collapsed variables and interactions	1.1481	1.3333	1.0008	1.1381	263.86	9081.55	6.27	238.81	1.5867
Weighting class with collapsed variables	1.1469	1.2584	1.0037	1.1535	263.87	9087.17	5.80	238.44	1.5864

NOTE: GEM = Generalized Exponential Model; UWE = unequal weighting effect.  
SOURCE: Education Longitudinal Study of 2002 (ELS:2002).

**Table 9. Relative root mean squared differences (RRMSDs) for six variables weight adjustments: 2005**

Comparison	RRMSD with no collapsing and no interaction in models	RRMSD with collapsing but no interaction in models	RRMSD with collapsing and interaction in models
GEM—logistic vs. weighting class	0.07836	0.03653	0.03828
Logistic vs. weighting class	0.07750	0.03669	0.03810
Logistic vs. GEM—logistic	0.00317	0.00069	0.00037
GEM—logistic vs. raking	0.02217	0.00730	0.05023
Weighting class vs. raking	0.07082	0.03877	0.03877
Logistic vs. raking	0.02136	0.00723	0.05009

NOTE: GEM = Generalized Exponential Model.  
SOURCE: Education Longitudinal Study of 2002 (ELS:2002).

**Table 10. Summary statistics for eight variables weight adjustments: 2005**

Type of weight adjustment	Adjustment factor				Weight				Overall UWE
	Mean	Maximum	Minimum	Median	Mean	Maximum	Minimum	Median	
GEM—logistic with no collapsing and no interactions	1.1473	1.6180	1.0328	1.1310	263.87	9509.80	6.35	238.52	1.6138
Logistic with no collapsing and no interactions	1.1468	1.5651	1.0341	1.1318	263.81	9486.97	6.36	238.66	1.6120
Raking with no collapsing	1.1471	1.4208	0.9769	1.1411	263.87	9652.46	6.31	238.85	1.6135
GEM—logistic with collapsed variables and no interactions	1.1461	1.2833	1.0713	1.1418	263.87	9705.91	5.98	238.08	1.6036
Logistic with collapsed variables and no interactions	1.1462	1.2832	1.0712	1.1415	263.90	9708.31	5.98	238.08	1.6037
Raking with collapsed variables	1.1459	1.2883	1.0338	1.1468	263.87	9684.50	5.70	238.03	1.6020
GEM—logistic with collapsed variables and interactions	1.1458	2.0000	1.0000	1.1600	263.87	9620.88	5.98	239.01	1.6042
Logistic with collapsed variables and interactions	1.1458	2.0000	1.0003	1.1602	263.87	9616.70	5.97	238.93	1.6040
Weighting class with collapsed variables	1.1473	1.6578	1.0000	1.1210	263.87	9077.16	6.03	238.00	1.5916
GEM—logistic with collapsed variables and interactions with tighter bounds	1.1458	2.0000	1.0000	1.1600	263.87	9623.41	5.98	239.03	1.6043

NOTE: GEM = Generalized Exponential Model; UWE = unequal weighting effect.  
SOURCE: Education Longitudinal Study of 2002 (ELS:2002).

**Table 11. Relative root mean squared differences (RRMSDs) for eight variables weight adjustments: 2005**

Comparison	RRMSD with no collapsing and no interaction in models	RRMSD with collapsing but no interaction in models	RRMSD with collapsing and interaction in models
GEM—logistic vs. weighting class	0.13786	0.10087	0.10045
Logistic vs. weighting class	0.13755	0.10098	0.10044
Logistic vs. GEM—logistic	0.00471	0.00070	0.00049
GEM—logistic vs. raking	0.02204	0.03293	0.06289
Weighting class vs. raking	0.13826	0.09634	0.09634
Logistic vs. raking	0.02065	0.03300	0.06296

NOTE: GEM = Generalized Exponential Model.  
SOURCE: Education Longitudinal Study of 2002 (ELS:2002).

**Table 12. Comparison of distribution of variables with and without collapsing for eight variables model: 2005**

	GEM	GEM with variable collapsed and interactions	Relative difference	Weighting class	Relative difference
Metropolitan status					
Urban	889136.5	889136.5	0.0000	889253.4	-0.0001
Suburban	1622840.0	1617380.0	0.0034	1616143.0	0.0041
Rural	664753.8	670213.4	-0.0082	671333.9	-0.0099
Region					
Northeast	573827.6	540789.5	0.0576	556090.6	0.0309
Midwest	764626.7	762542.1	0.0027	782363.6	-0.0232
South	1098043.0	1131081.0	-0.0301	1104378.0	-0.0058
West	740232.6	742317.2	-0.0028	733898.1	0.0086

NOTE: GEM = Generalized Exponential Model.  
SOURCE: Education Longitudinal Study of 2002 (ELS:2002).

## 2.6 Summary

The four adjustment methods produce similar results. For the logistic and GEM methods to be close to the raking and weighting class methods, the  $n$ -way interaction term needs to be included, where  $n$  is the number of variables in the adjustment. GEM can be run to be similar to either the logistic or raking methods. As the number of variables included in the nonresponse adjustment grows, the weighting class method needs to collapse variables due to small cell sizes, where the other methods do not necessarily need collapsing. It can take a long time to determine the appropriate cells for collapsing and then to program the collapsing. Collapsing causes the marginal totals to differ from the sample totals. Different variable selection methods can produce different numbers of variables to include in the nonresponse adjustment and can affect how similar the methods are. Given a dataset with over 12,000 records, the mean, minimum, median, and maximum adjustment factors generally do not vary considerably between methods. The weight ranges and UWEs generally do not vary much either, but there are times when the range is larger for GEM and logistic than for raking and weighting class. The RRMSDs between the methods do increase as more variables are included in the adjustment. GEM-logistic and logistic usually produce similar, but not identical, results. Some additional differences between these methods arise during weight trimming, as described in section 3.

If the model is expanded to include all variables known for both respondents and nonrespondents, then the GEM and logistic methods without any interaction terms or collapsing produce results that are close to each other. Table 13 displays the results for the GEM and logistic full models. However, weighting class adjustment becomes too complex due to the large amount of collapsing necessary.

**Table 13. Summary statistics for weight adjustments with all variables included: 2005**

Type of weight adjustment	Adjustment factor				Weight				Overall UWE
	Mean	Maximum	Minimum	Median	Mean	Maximum	Minimum	Median	
GEM—logistic full model	1.1509	2.0415	1.0175	1.1314	263.87	9203.55	6.54	237.89	1.6003
Logistic full model	1.1505	1.8477	1.0192	1.1320	263.78	9219.11	6.54	237.62	1.5994

NOTE: GEM = Generalized Exponential Model; UWE = unequal weighting effect.  
SOURCE: Education Longitudinal Study of 2002 (ELS:2002).

### 3. Weight Trimming

Extreme weights often occur in survey data due to small probabilities of sample selection or due to weight adjustments. These extreme weights (either very small or very large) can significantly increase the variance of estimates. One way to account for this and decrease the variance is to trim and smooth extreme weights within prespecified domains. Note that trimming weights has the potential to increase bias. However, the increase in bias is often offset by the decrease in variance due to weight trimming. As a result, this reduces the mean square error (MSE) of an estimate, defined as variance plus bias squared.

#### 3.1 Determined by GEM

There are different techniques to identify extreme weights (outliers), including using the UWE, MSE, or interquartile range (IQR). GEM uses the median  $\pm X * IQR$ , where X is any number, typically between 2 and 3. There are also different points in the weight adjustment process where weight trimming can occur. GEM has options to make adjustments for extreme weights as part of the nonresponse and as part of the poststratification. For GEM, a variable or set of variables is selected to be used to identify extreme weights within each level of the variable(s).

The variable race/ethnicity (Hispanic, Asian, Black, and White/other) was chosen for GEM to use to identify outliers. Prior to running GEM, the unweighted and weighted percentages of extreme weights were examined for all four levels of race using various values to multiply by the IQR (2.0, 2.1, 2.2, ..., 4.0). The median  $\pm 2.5$  multiplied by the IQR was used to identify 3.11 percent unweighted and 9.79 percent weighted of the students having extreme weights. Within each race category, the unweighted percentages ranged from 1.06 to 3.91, and the weighted percentages ranged from 3.07 to 12.00.

#### 3.2 Determined by Interquartile Range (IQR)

For the weighting class, logistic, and raking methods, the median  $\pm 2.5$  multiplied by the IQR was also used to identify extreme weights to be consistent with and allow comparisons to the GEM method. However, these methods could not adjust for the extreme weights while simultaneously adjusting for nonresponse. Instead, the adjustment for extreme weights was done prior to nonresponse adjustment.

#### 3.3 Results

To compare the results among the four methods, the eight-variable model with collapsed cells and the eight-variable interaction term included was used. As shown with the nonresponse models, all four adjustment methodologies do not produce identical results. Tables 14 and 15 display the results of each method. The mean adjustment factors are close for all methods except the GEM method, which was larger. However, the ranges of the adjustment factors and weights vary, with the weighting class method having the widest weight range. GEM has a much lower minimum adjustment factor than the other methods, due to the trimming adjustment being part of the nonresponse adjustment. The GEM and logistic methods have the largest maximum adjustment factor. The mean weight is identical within rounding for all of the methods, except



for the logistic method. The UWEs are also close for all four of the methods. The RRMSDs are between 0.08 and 0.11 when comparing weighting class to the other methods.

A benefit of both the logistic and GEM approaches is that extreme weight and nonresponse adjustment factors can be constrained to not be too high or too low. Nonextreme nonresponse adjustment factors typically have a lower bound of one. Without the constraints, the adjustment factors are not considered too low or too high in this example. However, for illustration, constraints were added. As seen in table 14, the constraints have minimal effect on the bounds, weights, and UWEs.

**Table 14. Summary statistics for weight adjustments with weight trimming: 2005**

Type of weight adjustment	Adjustment factor				Weight				Overall UWE
	Mean	Maximum	Minimum	Median	Mean	Maximum	Minimum	Median	
GEM—logistic	1.1774	2.0000	0.0850	1.1859	263.87	846.95	6.20	245.48	1.2867
Logistic	1.1469	2.0000	1.0003	1.1630	263.87	750.37	6.16	246.10	1.2714
Weighting class	1.1478	1.6547	1.0000	1.1248	263.87	862.10	6.20	245.18	1.2761
Raking	1.1466	1.2855	1.0395	1.1457	263.87	697.31	5.88	247.10	1.2694
GEM—logistic with tighter bounds	1.1774	2.0000	0.0848	1.1859	263.87	846.95	6.21	245.70	1.2869

NOTE: GEM = Generalized Exponential Model; UWE = unequal weighting effect.  
SOURCE: Education Longitudinal Study of 2002 (ELS:2002).

**Table 15. Relative root mean squared differences (RRMSDs) for weight adjustments with weight trimming: 2005**

Comparison	RRMSD with collapsing and interaction in models
GEM—logistic vs. weighting class	0.10916
Logistic vs. weighting class	0.09339
Logistic vs. GEM—logistic	0.05833
GEM—logistic vs. raking	0.08317
Weighting class vs. raking	0.08704
Logistic vs. raking	0.06142

NOTE: GEM = Generalized Exponential Model.  
SOURCE: Education Longitudinal Study of 2002 (ELS:2002).

## 4. Poststratification

### 4.1 Control Totals

Poststratification to control totals is done in some surveys to adjust the weights to match known population totals. The ELS:2002 student data was not poststratified, because there were no known population totals. Logistic models cannot be used for poststratification, so an exponential model was used instead. For the sake of comparing the four methods, control totals were formed using the ELS:2002 final weights. These final weights differ from the weights generated by GEM in these examples because ELS:2002 used two nonresponse models and more variables in the nonresponse models. Appendix A and the ELS:2002 Base Year Data File Users Manual provide more details. Two sets of control totals were used to compare the methods. One set of control totals was for the separate variables sex and race/ethnicity. The second set was for the cross of sex and race/ethnicity (i.e., race\*sex). Weighting class and raking used the interaction race\*sex, whereas GEM and exponential control at the margins and could use either of the two sets.

### 4.2 Results

To compare the results among the four methods, the eight-variable model with collapsed cells and the eight-variable interaction term included was used. As shown with the nonresponse models, all four adjustment methodologies do not produce identical results. Tables 16 and 17 display the results for each method. The mean adjustment factors are close, with the raking method having the smallest mean. The UWEs range from 1.59 for weighting class to 1.73 for raking. The ranges of the adjustment factors and weights are largest for raking. The weighting class method has the smallest maximum weight. The mean weight is identical for all four methods. The RRMSDs are about 0.10 when comparing weighting class to GEM-exponential. When comparing raking to the other three methods, the RRMSDs are between 0.34 and 0.35.

For all models, the mean weights were equal. For the various collapsed and uncollapsed models with and without interactions, GEM-exponential and exponential produced similar adjustment factors and an RRMSD of about zero.

**Table 16. Summary statistics for weight adjustments with postratification: 2005**

Type of weight adjustment	Adjustment factor				Weight				Overall UWE
	Mean	Minimum	Maximum	Median	Mean	Minimum	Maximum	Median	
GEM—exponential with sex and race	1.0037	0.9817	1.0489	1.0022	263.87	5.94	9642.49	237.80	1.6001
Exponential with sex and race	1.0037	0.9818	1.0491	1.0022	263.87	5.94	9642.08	237.81	1.6001
Raking	1.0009	0.2939	1.1693	1.1331	263.87	3.82	9959.32	241.38	1.7279
GEM—exponential with sex*race	1.0038	0.9847	1.0543	0.9992	263.87	5.89	9613.46	238.53	1.5994
Exponential with sex*race	1.0038	0.9847	1.0543	0.9992	263.87	5.89	9613.46	238.53	1.5994
Weighting class	1.0043	0.9829	1.0543	0.9961	263.87	5.97	9041.97	237.07	1.5853

NOTE: GEM = Generalized Exponential Model; UWE = unequal weighting effect.  
SOURCE: Education Longitudinal Study of 2002 (ELS:2002).

**Table 17. Relative root mean squared differences (RRMSDs) weight adjustments with poststratification: 2005**

Comparison	RRMSD with collapsing, interaction, and race and sex in models	RRMSD with collapsing, interaction, and race*sex in models
GEM—exponential vs. weighting class	0.10091	0.10060
Exponential vs. weighting class	0.10091	0.10060
Exponential vs. GEM—exponential	0.00008	0.00000
GEM—exponential vs. raking	0.33837	0.33841
Weighting class vs. raking	0.34685	0.34685
Exponential vs. raking	0.33837	0.33841

NOTE: GEM = Generalized Exponential Model.

SOURCE: Education Longitudinal Study of 2002 (ELS:2002).

## 5. Nonresponse Bias Analysis

### 5.1 Overview

Unit nonresponse causes bias in survey estimates when the outcomes of respondents and nonrespondents are different. For ELS:2002, student response is defined as the student completing at least a specified portion of the student questionnaire. The overall student response rate was above 85 percent overall. In addition to comparing the weight adjustment factors, weights, and UWEs across the four methods, the reduction in nonresponse bias was also analyzed. The nonresponse bias was estimated for 22 variables that were known for both respondents and nonrespondents (including the 8 variables used in the model) because one purpose of the nonresponse adjustments was to reduce or eliminate nonresponse bias for variables included in the adjustments. Variables not known for most respondents and nonrespondents could not be included in the nonresponse adjustments, and therefore nonresponse bias could not explicitly be reduced for these variables.

First, for the 22 variables, the nonresponse bias was estimated prior to weight adjustments and tested to determine if the bias was significant at the 5 percent level. After the weights were computed, remaining bias for the 22 variables was estimated and statistically tested to check if there was any remaining significant nonresponse bias.

The bias in an estimated mean based on respondents,  $\bar{y}_R$ , is the difference between this mean and the target parameter,  $\pi$ ; that is, the mean that would be estimated if a complete census of the target population was conducted. This bias can be expressed as follows:

$$B(\bar{y}_R) = \bar{y}_R - \pi$$

The estimated mean based on nonrespondents,  $\bar{y}_{NR}$ , can be computed if data for the particular variable for most of the nonrespondents is available. The estimation of  $\pi$  is as follows:

$$\hat{\pi} = (1 - \eta)\bar{y}_R + \eta\bar{y}_{NR},$$

where  $\eta$  is the weighted unit nonresponse rate. For the variables that are from the frame rather than from the sample,  $\pi$  can be estimated without sampling error. Therefore, the bias before weight adjustments can be estimated as follows:

$$\hat{B}(\bar{y}_R) = \bar{y}_R - \hat{\pi}$$

or equivalently

$$\hat{B}(\bar{y}_R) = \eta(\bar{y}_R - \bar{y}_{NR}).$$

This formula shows that the estimate of the nonresponse bias is the difference between the mean for respondents and nonrespondents multiplied by the weighted nonresponse rate. The variance of the bias was computed using Taylor Series estimation in RTI's software package SUDAAN.

The bias after weight adjustments was computed as the difference between the estimate using nonresponse-adjusted (final) weights and the estimate using the design (base) weights prior

to nonresponse adjustment. This latter estimate is an estimate of  $\pi$  because it is the estimate of the target population using the design weights.

## 5.2 Results

Table 18 summarizes the nonresponse bias before and after weight adjustments for each method. The mean and median relative bias, as well as the percent significant, are shown across all 22 variables. Statistical tests ( $t$  tests) were used to test each level of the variables for significance of the bias at the  $0.05/(c - 1)$  significance level, where  $c$  is the number of categories (levels) within the primary variable. The weight before weight adjustments did not depend on the adjustment method, so the before-weight adjustment numbers are identical across all four methods. The after-weight adjustment numbers are similar across all four methods with the GEM and logistic results almost identical. The weighting class percent significant bias is the lowest among the four methods, and the raking percent significant bias is the highest among the four methods.

**Table 18. Summary of nonresponse bias analysis by weight adjustment method: 2005**

Nonresponse bias statistics	GEM—logistic	Logistic	Weighting class	Raking
Before weight adjustments				
Mean estimated relative bias	-0.0006	-0.0006	-0.0006	-0.0006
Median estimated relative bias	-0.0003	-0.0003	-0.0003	-0.0003
Percent significant bias	35.5	35.5	35.5	35.5
After weight adjustments				
Mean estimated relative bias	0.0012	0.0012	0.0011	0.0020
Median estimated relative bias	0.0000	0.0001	-0.0002	-0.0001
Percent significant bias	5.3	5.3	2.6	6.6

NOTE: GEM = Generalized Exponential Model.  
SOURCE: Education Longitudinal Study of 2002 (ELS:2002).

## 6. Summary

### 6.1 Advantages/Disadvantages of Each Method

As described in the sections above, all four of the weight adjustment methods generally produce similar results, with more differences in weights appearing as more variables are included in the adjustments. The weighting class and raking methods get more complex as more variables are added. Generally, depending on the sample size, the weighting class approach needs collapsing as cell sizes get small. The process of collapsing cells can be tedious and time consuming. The weighting class approach allows only the interaction term that includes all variables. The raking and GEM approaches control at the margins as opposed to controlling at the cell level. The logistic method does not force the weight sums to the marginal totals, but the weight sums are usually close to the marginal totals. Many variables, including main effects and any important interaction terms (two-way, three-way, etc.) can be included in the GEM and logistic approaches. These two models can be easily reduced if the model does not converge or if non-significant variables are not desired. The output from the programs shows the variables that are causing the convergence problems and variables that are not significant.

As the survey becomes more complex, (i.e. larger sample size and more candidate variables for nonresponse adjustment) then a modeling approach may be preferred. However, if the sample size is small or if only a small number of variables are known for both respondents and nonrespondents, then a weighting class or raking approach may be preferred to the more complex modeling methods.

The GEM approach incorporates specific lower and upper bounds separately for extreme and nonextreme weights. An important application of this feature is to identify at each adjustment step an initial set of cases with extreme weights and to use specific bounds to exercise control over the final adjusted weights. Thus, there is built-in control for extreme weights.

### 6.2 Suggestions for Future Work

The work presented in this report shows the similarities and difference among four weight adjustment methods. Additional models can be run with variations, including different numbers of variables, different bounds on adjustment factors, different control totals, and different techniques for variable selection and extreme weight identification. Additionally there may be other analyses for the results to compare the methods, including looking at the mean squared error (MSE) and a receiver operating curve (ROC) analysis.



## References

- Chapman, D.W. (1976). A Survey of Non-Response Imputation Procedures. *Proceedings of the Social Statistics Section, American Statistical Association* 245-351.
- Deville, J.C., and Särndal, C-E. (1992). Calibration Estimating in Survey Sampling. *Journal of the American Statistical Association*, 87: 376–382.
- Folsom, R.E., and Singh, A.C. (2000). The Generalized Exponential Model for Sampling Weight Calibration for Extreme Values, Nonresponse, and Poststratification. *Proceedings of the Survey Research Methods Section, American Statistical Association* 598–603.
- Folsom, R.E., and Witt, M.B. (1994). Testing a New Attrition Nonresponse Adjustment Method for SIPP. *Proceedings of the Survey Research Methods Section, American Statistical Association* 428–433.
- Kalton, G., and Flores-Cervantes, I. (2003). Weighting Methods. *Journal of Official Statistics*, 19: 81-97.
- Oh, H. L., and Scheuren, F.J. (1983). Weighting Adjustment for Unit Nonresponse. In W.G. Madow, I. Olkin, and D.B. Rubin (Eds.), *Incomplete Data in Sample Surveys, Volume 2: Theory and Bibliographies* (pp 143-184). Academic Press: New York.
- Rizzo, L., Kalton, G., Brick, M., and Petroni, R. (1994). Adjusting for Panel Nonresponse in the Survey of Income and Program Participation. *Proceedings of the Survey Research Methods Section, American Statistical Association* 422–427.



# **Appendix I**

## **Average Weight Adjustment Factors**

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**Table I-1. Average weight adjustment factors used to adjust the cross-sectional weight F2QWT for nonresponse due to nonfielded cases, by selected characteristics: 2006**

Model predictor variables <sup>1</sup>	Number of responding students and "other" nonresponding students <sup>2</sup>	Weighted response rate	Average weight adjustment factor
Total	15,900	0.96	1.08
School sector			
Public	12,500	0.96	1.08
Catholic	2,000	0.96	1.04
Other private	1,400	0.95	1.15
School urbanicity			
Urban	5,400	0.94	1.11
Suburban	7,600	0.96	1.07
Rural	2,900	0.97	1.06
Census region			
Northeast	2,900	0.94	1.11
Midwest	4,000	0.96	1.07
South	5,800	0.97	1.06
West	3,200	0.96	1.11
10th-grade enrollment			
0–99	3,100	0.98	1.08
100–249	4,000	0.97	1.05
250–499	5,100	0.95	1.08
≥ 500	3,700	0.94	1.12
Type of grades within school			
K–12, PreK–10th, 1st–12th, PreK/1st–9th/12th and PreK–12 schools	1,000	0.97	1.18
Middle grades but no elementary	1,700	0.97	1.04
Only high school	13,200	0.96	1.08
Number of grades within the school			
4	12,100	0.96	1.08
> or < 4	3,800	0.95	1.10
Number of days in school year			
Less than 180 days	4,100	0.97	1.07
180 days	8,800	0.96	1.08
More than 180 days	2,900	0.94	1.11
Minutes per class period			
≤ 45	3,800	0.94	1.10
46–50	3,400	0.96	1.08
51–80	4,200	0.96	1.09
≥ 81	4,500	0.97	1.06
Class periods per day			
1–4	4,600	0.97	1.06
5–6	3,900	0.95	1.10
7	4,300	0.96	1.08
8–9	3,100	0.95	1.10

See notes at end of table.

**Table I-1. Average weight adjustment factors used to adjust the cross-sectional weight F2QWT for nonresponse due to nonfielded cases, by selected characteristics: 2006—Continued**

Model predictor variables <sup>1</sup> —Continued	Number of responding students and “other” nonresponding students <sup>2</sup>	Weighted response rate	Average weight adjustment factor
<b>IEP<sup>3</sup> percentage</b>			
≤ 5 percent	6,200	0.96	1.09
6–10 percent	4,100	0.95	1.08
11–15 percent	3,500	0.97	1.06
> 15 percent	2,100	0.95	1.12
<b>LEP<sup>4</sup> percentage</b>			
0 percent	6,800	0.96	1.07
1 percent	3,100	0.96	1.07
2–5 percent	2,700	0.94	1.09
≥ 6 percent	3,300	0.96	1.11
<b>Free or reduced-price lunch</b>			
0 percent	2,800	0.95	1.08
1–10 percent	3,600	0.94	1.09
11–30 percent	4,800	0.97	1.08
≥ 31 percent	4,700	0.96	1.08
<b>Number of full-time teachers</b>			
1–40	4,100	0.97	1.06
41–70	4,000	0.97	1.06
71–100	4,100	0.95	1.10
> 100	3,700	0.94	1.10
<b>Number of part-time teachers</b>			
0–1	4,600	0.96	1.08
2–3	4,600	0.97	1.07
4–6	3,800	0.96	1.08
≥ 7	2,800	0.94	1.10
<b>Full-time teachers certified</b>			
0–90 percent	4,100	0.95	1.09
91–99 percent	2,800	0.95	1.08
100 percent	9,000	0.96	1.08
<b>School coeducational status</b>			
Coeducational school	15,100	0.96	1.08
All-female school	370	0.93	1.06
All-male school	440	0.97	1.03
<b>Total enrollment</b>			
0–600 students	3,700	0.98	1.07
601–1,200 students	4,800	0.96	1.07
1,201–1,800 students	3,600	0.96	1.07
> 1,800 students	3,800	0.94	1.12

See notes at end of table.

**Table I-1. Average weight adjustment factors used to adjust the cross-sectional weight F2QWT for nonresponse due to nonfielded cases, by selected characteristics: 2006—Continued**

Model predictor variables <sup>1</sup> —Continued	Number of responding students and “other” nonresponding students <sup>2</sup>	Weighted response rate	Average weight adjustment factor
Asian 10th-grade enrollment			
≤ 2 percent	6,100	0.96	1.07
> 2 percent	9,800	0.96	1.09
Black or African American 10th-grade enrollment			
≤ 4 percent	5,400	0.96	1.07
> 4 percent	10,500	0.95	1.09
Hispanic or Latino 10th-grade enrollment			
≤ 3 percent	6,100	0.95	1.07
> 3 percent	9,800	0.96	1.09
All other races 10th-grade enrollment			
≤ 80 percent	8,000	0.96	1.09
> 80 percent	7,900	0.96	1.07
Sex			
Male	7,800	1.00	1.13
Female	8,000	1.00	1.04
Race/ethnicity <sup>5</sup>			
Hispanic or Latino	2,400	1.00	1.02
Asian	1,600	1.00	1.10
Black or African American	2,100	1.00	1.02
All other races	9,800	0.94	1.11

<sup>1</sup> Model predictor variables had a value of 0 or 1. Some of the listed model predictor variables were not actually in the model because they served as reference groups. For each group of variables, one of the categories (predictor variable) was used as a reference group.

<sup>2</sup> “Other” nonresponding students are students who were nonrespondents among those fielded for the second follow-up. Responding students are grouped with the “other” nonrespondents for the first nonresponse adjustment that adjusts for nonfielded sample members.

<sup>3</sup> IEP = Individualized Education Program.

<sup>4</sup> LEP = limited English proficient.

<sup>5</sup> “All other races” includes White, American Indian or Alaska Native, Pacific Islander or Native Hawaiian, and More than one race. All race categories exclude individuals of Hispanic or Latino origin.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), “Second Follow-up, 2006.”

**Table I-2. Average weight adjustment factors used to adjust the cross-sectional weight F2QWT for refusal and other nonresponse, by selected characteristics: 2006**

Model predictor variables <sup>1</sup>	Number of responding students	Weighted response rate	Average weight adjustment factor
Total	14,200	0.89	1.13
School sector			
Public	11,100	0.89	1.14
Catholic	1,800	0.92	1.08
Other private	1,300	0.90	1.13
School urbanicity			
Urban	4,800	0.88	1.14
Suburban	6,800	0.89	1.13
Rural	2,600	0.90	1.12
Census region			
Northeast	2,600	0.89	1.13
Midwest	3,600	0.90	1.11
South	5,200	0.89	1.12
West	2,800	0.87	1.18
10th-grade enrollment			
0–99	2,700	0.89	1.13
100–249	3,700	0.91	1.10
250–499	4,500	0.89	1.13
≥ 500	3,200	0.87	1.17
Type of grades within school			
K–12, PreK–10th, 1st–12th, PreK/1st–9th/12th and PreK–12 schools	930	0.90	1.14
Middle grades but no elementary	1,500	0.90	1.12
Only high school	11,700	0.89	1.13
Number of grades within the school			
4	10,800	0.88	1.13
> or < 4	3,400	0.90	1.12
Number of days in school year			
Less than 180 days	3,700	0.90	1.11
180 days	7,900	0.89	1.13
More than 180 days	2,600	0.87	1.16
Minutes per class period			
≤ 45	3,400	0.89	1.12
46–50	3,100	0.89	1.12
51–80	3,700	0.88	1.15
≥ 81	4,000	0.89	1.13
Class periods per day			
1–4	4,100	0.89	1.13
5–6	3,400	0.88	1.15
7	3,800	0.88	1.13
8–9	2,800	0.90	1.11

See notes at end of table.

**Table I-2. Average weight adjustment factors used to adjust the cross-sectional weight F2QWT for refusal and other nonresponse, by selected characteristics: 2006—Continued**

Model predictor variables <sup>1</sup> —Continued	Number of responding students	Weighted response rate	Average weight adjustment factor
<b>IEP<sup>2</sup> percentage</b>			
≤ 5 percent	5,600	0.89	1.12
6–10 percent	3,600	0.88	1.14
11–15 percent	3,100	0.89	1.13
> 15 percent	1,900	0.88	1.15
<b>LEP<sup>3</sup> percentage</b>			
0 percent	6,200	0.90	1.11
1 percent	2,800	0.90	1.11
2–5 percent	2,400	0.89	1.13
≥ 6 percent	2,800	0.85	1.20
<b>Free or reduced-price lunch</b>			
0 percent	2,600	0.91	1.10
1–10 percent	3,200	0.90	1.12
11–30 percent	4,200	0.89	1.14
≥ 31 percent	4,200	0.88	1.15
<b>Number of full-time teachers</b>			
1–40	3,700	0.90	1.12
41–70	3,600	0.89	1.12
71–100	3,600	0.88	1.14
> 100	3,300	0.88	1.14
<b>Number of part-time teachers</b>			
0–1	4,100	0.88	1.14
2–3	4,100	0.89	1.12
4–6	3,400	0.89	1.13
≥ 7	2,600	0.90	1.12
<b>Full-time teachers certified</b>			
0–90 percent	3,600	0.88	1.14
91–99 percent	2,500	0.89	1.13
100 percent	8,000	0.89	1.13
<b>School coeducational status</b>			
Coeducational school	13,400	0.89	1.13
All-female school	350	0.94	1.06
All-male school	390	0.90	1.11
<b>Total enrollment</b>			
0–600 students	3,300	0.90	1.12
601–1,200 students	4,300	0.89	1.12
1,201–1,800 students	3,200	0.89	1.13
> 1,800 students	3,300	0.87	1.16
<b>Asian 10th-grade enrollment</b>			
≤ 2 percent	5,500	0.90	1.11
> 2 percent	8,600	0.88	1.14
<b>Black or African American 10th-grade enrollment</b>			
≤ 4 percent	4,800	0.89	1.12
> 4 percent	9,300	0.89	1.13

See notes at end of table.

**Table I-2. Average weight adjustment factors used to adjust the cross-sectional weight F2QWT for refusal and other nonresponse, by selected characteristics: 2006—Continued**

Model predictor variables <sup>1</sup> —Continued	Number of responding students	Weighted response rate	Average weight adjustment factor
Hispanic or Latino 10th-grade enrollment			
≤ 3 percent	5,500	0.90	1.11
> 3 percent	8,600	0.88	1.15
All other races 10th-grade enrollment			
≤ 80 percent	7,000	0.87	1.16
> 80 percent	7,200	0.90	1.11
Sex			
Male	6,800	0.87	1.16
Female	7,300	0.91	1.10
Race/ethnicity <sup>4</sup>			
Asian	1,400	0.88	1.15
Black or African American	1,900	0.88	1.14
Hispanic or Latino	2,100	0.86	1.15
All other races	8,800	0.90	1.12
Family Composition			
Mother and Father	8,600	0.90	1.12
Mother and male guardian	1,700	0.88	1.14
Father and female guardian	420	0.84	1.19
Two guardians	220	0.82	1.22
Mother only	2,500	0.88	1.13
Father only	400	0.84	1.21
Single guardian	210	0.81	1.23
Lives with student less than half the year	140	0.87	1.15
Parental education			
Did not finish high school	850	0.86	1.16
Graduated from high school	2,800	0.86	1.16
Attended 2-year school, no degree	1,500	0.89	1.12
Graduated from 2-year school	1,500	0.90	1.12
Attended college, no 4-year degree	1,600	0.88	1.13
Graduated from college	3,200	0.90	1.12
Completed master's degree or equivalent	1,700	0.90	1.12
Completed Ph.D., M.D., other advanced degree	1,000	0.92	1.09
Mother's occupation			
No job for pay	540	0.88	1.14
Clerical	2,300	0.89	1.12
Craftsperson	320	0.89	1.12
Farmer, farm manager, or laborer	690	0.88	1.14
Homemaker	730	0.82	1.23
Manager, administrator	1,500	0.89	1.13
Military or protective service	130	0.88	1.14
Operative	580	0.89	1.12
Professional a	2,100	0.91	1.11
Professional b	550	0.91	1.10
Proprietor, owner	340	0.86	1.17
Sales	610	0.88	1.15

See notes at end of table.



**Table I-2. Average weight adjustment factors used to adjust the cross-sectional weight F2QWT for refusal and other nonresponse, by selected characteristics: 2006—Continued**

Model predictor variables <sup>1</sup> —Continued	Number of responding students	Weighted response rate	Average weight adjustment factor
<b>Mother's occupation—Continued</b>			
School teacher	960	0.93	1.09
Service	2,200	0.86	1.16
Technical	710	0.93	1.08
<b>Father's occupation</b>			
No job for pay	150	0.86	1.17
Clerical	340	0.90	1.11
Craftsperson	1,800	0.89	1.12
Farmer, farm manager	270	0.89	1.14
Homemaker	340	0.82	1.22
Laborer	1,400	0.86	1.16
Manager, administrator	2,100	0.89	1.13
Military	190	0.90	1.13
Operative	1,600	0.89	1.13
Professional a	1,600	0.91	1.11
Professional b	860	0.90	1.12
Proprietor, owner	850	0.88	1.14
Protective service	490	0.91	1.11
Sales	740	0.90	1.11
School teacher	210	0.97	1.04
Service	560	0.84	1.18
Technical	670	0.90	1.12
<b>Socioeconomic status (SES)</b>			
Lowest quartile	3,300	0.87	1.15
Second quartile	3,300	0.87	1.15
Third quartile	3,400	0.89	1.13
Highest quartile	4,100	0.92	1.09
<b>English as native language</b>			
English is not the student's native language	2,400	0.86	1.16
English is the student's native language	11,800	0.89	1.12
<b>10th-grade cohort status</b>			
Not sophomore cohort member	140	0.87	1.16
Sophomore cohort member	14,000	0.89	1.13
<b>12th-grade cohort status</b>			
Not senior cohort member	1,600	0.78	1.29
Senior cohort member	12,500	0.91	1.11
<b>Income</b>			
\$1,000 or less	210	0.89	1.13
\$1,001 to \$5,000	260	0.87	1.16
\$5,001 to \$10,000	300	0.90	1.12
\$10,001 to \$15,000	610	0.88	1.14
\$15,001 to \$20,000	680	0.88	1.14
\$20,001 to \$25,000	860	0.88	1.14
\$25,001 to \$35,000	1,600	0.87	1.15
\$35,001 to \$50,000	2,600	0.88	1.14
\$50,001 to \$75,000	2,900	0.90	1.12

See notes at end of table.

**Table I-2. Average weight adjustment factors used to adjust the cross-sectional weight F2QWT for refusal and other nonresponse, by selected characteristics: 2006—Continued**

Model predictor variables <sup>1</sup> —Continued	Number of responding students	Weighted response rate	Average weight adjustment factor
Income—Continued			
\$75,001 to \$100,000	1,900	0.89	1.13
\$100,001 to \$200,000	1,600	0.89	1.12
\$200,001 or more	530	0.93	1.09
CHAID <sup>5</sup> segments			
CHAID segment 1 = 2nd and 3rd SES quartile; sex = male; in school, in grade	2,900	0.88	1.15
CHAID segment 2 = lowest SES quartile; sex = male; in school, in grade	1,200	0.86	1.17
CHAID segment 3 = highest SES quartile; sex = male; in school, in grade	1,900	0.92	1.11
CHAID segment 4 = limited English proficiency of 0 to 5 percent; sex = female; in school, in grade	5,300	0.94	1.07
CHAID segment 5 = limited English proficiency > = 6 percent; sex = female; in school, in grade	1,200	0.89	1.13
CHAID segment 6 = income <=10,000 or 15,001-20,000 or 35,001-50,000; final F1 enrollment status is enrolled in base-year school; in school, out of grade	60	0.65	1.50
CHAID segment 7 = income of 10,001–15,000 or 20,001–35,000 or 50,001–75,000; final F1 enrollment status is enrolled in base-year school; in school, out of grade	90	0.84	1.20
CHAID segment 8 = income > 75,000; final F1 enrollment status is enrolled in base-year school; in school, out of grade	20	0.38	2.72
CHAID segment 9 = sex = male; final F1 enrollment status is graduated early or early GED; in school, out of grade	270	0.85	1.18
CHAID segment 10 = sex = female; final F1 enrollment status is graduated early or early GED; in school, out of grade	310	0.90	1.11
CHAID segment 11 = free or reduced-price lunch of >=31 percent; final F1 enrollment status is enrolled in transfer school; in school, out of grade	100	0.67	1.49
CHAID segment 12 = free or reduced-price lunch of <31 percent; final F1 enrollment status is enrolled in transfer school; in school, out of grade	90	0.48	2.06
CHAID segment 13 = income of <=20,000 or 35,001–50,000 or 200,001 or more; lowest 3 quartiles of SES; out of school (dropout or homeschooled)	560	0.85	1.21
CHAID segment 14 = income of 20,001–35,000 or 50,000–200,000; lowest 3 quartiles of SES; out of school (dropout or homeschooled)	110	0.74	1.28
CHAID segment 15 = highest SES quartile; out of school (dropout or homeschooled)	70	0.97	1.20
CHAID segment 16 = out of scope	40	0.59	1.18

<sup>1</sup> Model predictor variables had a value of 0 or 1. Some of the listed model predictor variables were not actually in the model because they served as reference groups. For each group of variables, one of the categories (predictor variable) was used as a reference group.

<sup>2</sup> IEP = Individualized Education Program.

<sup>3</sup> LEP = limited English proficient.

<sup>4</sup> "All other races" includes White, American Indian or Alaska Native, Pacific Islander or Native Hawaiian, and More than one race. All race categories exclude individuals of Hispanic or Latino origin.

<sup>5</sup> CHAID = chi-squared automatic interaction detection.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

**Table I-3. Average weight adjustment factors for calibrating the cross-sectional weight F2QWT to control totals, by selected characteristics: 2006**

Model variable <sup>1</sup> —Continued	Control total <sup>2</sup>	Average weight adjustment factor
Total	3,523,300	1.01
Census region		
Northeast	650,400	1.02
Midwest	850,100	1.01
South	1,212,200	1.01
West	810,600	1.03
School sector		
Public	3,257,900	1.02
Catholic	145,900	1.01
Other private	119,500	1.02
Sex		
Male	1,785,700	0.99
Female	1,737,600	1.04
Race/ethnicity <sup>3</sup>		
Asian	149,500	1.04
Black or African American	505,100	1.06
Hispanic or Latino	582,100	1.06
All other races	2,286,700	0.99
10th-grade cohort status		
Not a sophomore cohort member	63,900	1.18
Sophomore cohort member	3,459,400	1.01
12th-grade cohort status		
Not a senior cohort member	516,200	0.97
Senior cohort member	3,007,100	1.02
10th-grade cohort status and race/ethnicity		
Not sophomore cohort, Hispanic	20,800	1.19
Asian nonsophomore cohort member	4,800	1.16
Black nonsophomore cohort member	6,300	1.33
White/other nonsophomore cohort member	32,000	1.16
Asian sophomore cohort member	144,700	1.04
Black sophomore cohort member	498,800	1.06
Hispanic sophomore cohort member	561,300	1.06
White/other sophomore cohort member	2,254,600	0.99
Region and 10th-grade cohort status		
Nonsophomore cohort member – Northeast	13,100	1.18
Nonsophomore cohort member – Midwest	11,000	1.08
Nonsophomore cohort member – South	22,900	1.28
Nonsophomore cohort member – West	16,900	1.12
Sophomore cohort member – Northeast	637,300	1.01
Sophomore cohort member – Midwest	839,100	1.01
Sophomore cohort member – South	1,189,300	1.01
Sophomore cohort member – West	793,700	1.03

See notes at end of table.

**Table I-3. Average weight adjustment factors for calibrating the cross-sectional weight F2QWT to control totals, by selected characteristics: 2006—Continued**

Model variable <sup>1</sup> —Continued	Control total <sup>2</sup>	Average weight adjustment factor
<b>School sector and 10th-grade cohort status</b>		
Public school nonsophomore cohort member	60,500	1.18
Catholic school nonsophomore cohort member	50	1.11
Other private school nonsophomore cohort member	3,300	1.21
Public school sophomore cohort member	3,197,400	1.01
Catholic school sophomore cohort member	145,800	1.01
Other private school sophomore cohort member	116,200	1.01
<b>Sex and 10th-grade cohort status</b>		
Male nonsophomore cohort member	37,200	1.23
Female nonsophomore cohort member	26,600	1.12
Male sophomore cohort member	1,748,500	0.98
Female sophomore cohort member	1,710,900	1.04
<b>12th-grade cohort status and race/ethnicity</b>		
Not senior cohort, Hispanic	129,500	1.02
Asian nonsenior cohort member	14,000	0.96
Black nonsenior cohort member	103,200	1.02
White/other nonsenior cohort member	269,600	0.92
Asian senior cohort member	135,400	1.05
Hispanic senior cohort member	452,600	1.07
Black senior cohort member	401,900	1.07
White/other senior cohort member	2,017,100	1.00
<b>Region and 12th-grade cohort status</b>		
Nonsenior cohort member – Northeast	85,200	1.05
Nonsenior cohort member – Midwest	107,600	0.95
Nonsenior cohort member – South	197,300	0.92
Nonsenior cohort member – West	126,100	1.02
Senior cohort member – Northeast	565,100	1.01
Senior cohort member – Midwest	742,600	1.02
Senior cohort member – South	1,014,900	1.03
Senior cohort member – West	684,500	1.03
<b>School sector and 12th-grade cohort status</b>		
Public school nonsenior cohort member	502,800	0.97
Catholic school nonsenior cohort member	3,500	0.94
Other private school nonsenior cohort member	9,900	1.01
Public school senior cohort member	2,755,100	1.02
Catholic school senior cohort member	142,300	1.01
Other private school senior cohort member	109,600	1.02
<b>Sex and 12th-grade cohort status</b>		
Male nonsenior cohort member	287,100	0.96
Female nonsenior cohort member	229,100	0.98
Male senior cohort member	1,498,600	0.99
Female senior cohort member	1,508,500	1.05

<sup>1</sup> Model variables had a value of 0 or 1.

<sup>2</sup> The control totals were calculated using the first follow-up expanded weight sums.

<sup>3</sup> "All other races" includes White, American Indian or Alaska Native, Pacific Islander or Native Hawaiian, and More than one race. All race categories exclude individuals of Hispanic or Latino origin.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

**Table I-4. Average weight adjustment factors used to adjust the cross-sectional transcript weight F2QTSCWT for nonresponse due to gatekeepers, by selected characteristics: 2006**

Model predictor variables <sup>1</sup>	Number of responding students and "other" nonresponding students <sup>2</sup>	Weighted response rate	Average weight adjustment factor
Total	13,600	0.96	1.04
School sector			
Public	10,600	0.96	1.04
Catholic	1,800	0.97	1.03
Other private	1,200	0.94	1.07
School urbanicity			
Urban	4,600	0.96	1.04
Suburban	6,500	0.96	1.04
Rural	2,400	0.94	1.06
Census Region			
Northeast	2,500	0.94	1.06
Midwest	3,500	0.96	1.04
South	4,900	0.95	1.05
West	2,800	0.98	1.02
10th-grade enrollment			
0–99	2,600	0.96	1.05
100–249	3,500	0.95	1.05
250–499	4,400	0.96	1.04
≥ 500	3,100	0.96	1.04
Type of grades within school			
K–12, PreK–10th, 1st–12th, PreK/1st–9th/12th and PreK–12 schools	870	0.96	1.04
Middle grades but no elementary	1,400	0.98	1.02
Only high school	11,300	0.96	1.05
Number of grades within the school			
4	10,300	0.95	1.05
> or < 4	3,200	0.98	1.02
Number of days in school year			
Less than 180 days	3,600	0.96	1.04
180 days	7,500	0.95	1.05
More than 180 days	2,500	0.97	1.04
Minutes per class period			
≤ 45	3,200	0.93	1.07
46–50	2,900	0.96	1.04
51–80	3,700	0.97	1.03
≥ 81	3,800	0.96	1.04
Class periods per day			
1–4	3,900	0.96	1.05
5–6	3,400	0.98	1.02
7	3,600	0.93	1.07
8–9	2,700	0.97	1.03

See notes at end of table.

**Table I-4. Average weight adjustment factors used to adjust the cross-sectional transcript weight F2QTSCWT for nonresponse due to gatekeepers, by selected characteristics: 2006—Continued**

Model predictor variables <sup>1</sup> —Continued	Number of responding students and “other” nonresponding students <sup>2</sup>	Weighted response rate	Average weight adjustment factor
<b>IEP<sup>3</sup> percentage</b>			
≤ 5 percent	5,300	0.96	1.04
6–10 percent	3,400	0.95	1.05
11–15 percent	3,000	0.97	1.03
> 15 percent	1,800	0.94	1.06
<b>LEP<sup>4</sup> percentage</b>			
0 percent	5,900	0.97	1.04
1 percent	2,700	0.93	1.07
2–5 percent	2,200	0.95	1.05
≥ 6 percent	2,700	0.97	1.02
<b>Free or reduced-price lunch</b>			
0 percent	2,400	0.94	1.06
1–10 percent	3,100	0.94	1.06
11–30 percent	4,100	0.97	1.04
≥ 31 percent	4,000	0.97	1.03
<b>Number of full-time teachers</b>			
1–40	3,500	0.95	1.06
41–70	3,500	0.97	1.03
71–100	3,500	0.95	1.05
> 100	3,100	0.96	1.04
<b>Number of part-time teachers</b>			
0–1	3,900	0.96	1.04
2–3	4,000	0.97	1.03
4–6	3,300	0.95	1.05
≥ 7	2,400	0.95	1.06
<b>Full-time teachers certified</b>			
0–90 percent	3,400	0.96	1.04
91–99 percent	2,400	0.94	1.06
100 percent	7,700	0.96	1.04
<b>School coeducational status</b>			
Coeducational school	12,900	0.96	1.05
All-female school	320	0.95	1.05
All-male school	390	1.00	1.00
<b>Total enrollment</b>			
0–600 students	3,200	0.97	1.04
601–1,200 students	4,100	0.96	1.05
1,201–1,800 students	3,100	0.95	1.05
> 1,800 students	3,200	0.96	1.03
<b>Asian 10th-grade enrollment</b>			
≤ 2 percent	5,300	0.95	1.05
> 2 percent	8,300	0.96	1.04

See notes at end of table.

**Table I-4. Average weight adjustment factors used to adjust the cross-sectional transcript weight F2QTSCWT for nonresponse due to gatekeepers, by selected characteristics: 2006—Continued**

Model predictor variables <sup>1</sup> —Continued	Number of responding students and “other” nonresponding students <sup>2</sup>	Weighted response rate	Average weight adjustment factor
Black or African American 10th-grade enrollment			
≤ 4 percent	4,600	0.94	1.06
> 4 percent	9,000	0.97	1.04
Hispanic or Latino 10th-grade enrollment			
≤ 3 percent	5,400	0.97	1.03
> 3 percent	8,200	0.95	1.05
All other races 10th-grade enrollment			
≤ 80 percent	6,700	0.97	1.03
> 80 percent	6,900	0.95	1.05
Sex			
Male	6,600	0.95	1.05
Female	7,000	0.96	1.04
Race/ethnicity <sup>5</sup>			
Asian	1,400	0.97	1.03
Black or African American	1,800	0.95	1.06
Hispanic or Latino	2,000	0.98	1.03
All other races	8,400	0.95	1.05
Family composition			
Mother and Father	8,300	0.96	1.04
Mother and male guardian	1,600	0.95	1.06
Father and female guardian	400	0.97	1.03
Two guardians	210	0.97	1.04
Mother only	2,400	0.95	1.05
Father only	390	0.95	1.04
Single guardian	200	0.96	1.04
Lives with student less than half the year	130	0.98	1.02
Parental education			
Did not finish high school	820	0.97	1.03
Graduated from high school	2,700	0.96	1.04
Attended 2-year school, no degree	1,500	0.96	1.04
Graduated from 2-year school	1,400	0.96	1.04
Attended college, no 4-year degree	1,500	0.95	1.05
Graduated from college	3,100	0.96	1.04
Completed master’s degree or equivalent	1,700	0.95	1.05
Completed Ph.D., M.D., other advanced degree	970	0.96	1.04

See notes at end of table.

**Table I-4. Average weight adjustment factors used to adjust the cross-sectional transcript weight F2QTSCWT for nonresponse due to gatekeepers, by selected characteristics: 2006—Continued**

Model predictor variables <sup>1</sup> —Continued	Number of responding students and “other” nonresponding students <sup>2</sup>	Weighted response rate	Average weight adjustment factor
<b>Mother’s occupation</b>			
No job for pay	520	0.97	1.03
Clerical	2,200	0.95	1.05
Craftsperson	310	0.96	1.04
Farmer, farm manager or laborer	660	0.95	1.05
Homemaker	690	0.95	1.05
Manager, administrator	1,400	0.96	1.04
Military or protective service	120	0.91	1.09
Operative	570	0.97	1.03
Professional a	2,000	0.96	1.04
Professional b	540	0.97	1.03
Proprietor, owner	320	0.94	1.06
Sales	580	0.96	1.04
School teacher	910	0.95	1.05
Service	2,100	0.96	1.04
Technical	680	0.96	1.04
<b>Father’s occupation</b>			
No job for pay	140	0.95	1.06
Clerical	320	0.93	1.07
Craftsperson	1,700	0.95	1.05
Farmer, farm manager	260	0.97	1.03
Homemaker	320	0.94	1.07
Laborer	1,400	0.97	1.03
Manager, administrator	2,000	0.96	1.04
Military	180	0.97	1.04
Operative	1,500	0.96	1.04
Professional a	1,500	0.95	1.05
Professional b	820	0.95	1.05
Proprietor, owner	810	0.94	1.06
Protective service	470	0.97	1.03
Sales	720	0.97	1.03
School teacher	210	0.98	1.02
Service	540	0.94	1.06
Technical	650	0.97	1.03
<b>Socioeconomic status (SES)</b>			
Lowest quartile	3,200	0.96	1.04
Second quartile	3,200	0.96	1.04
Third quartile	3,300	0.95	1.05
Highest quartile	3,900	0.96	1.04
<b>English as native language</b>			
English is not the student’s native language	2,300	0.98	1.03
English is the student’s native language	11,200	0.95	1.05
<b>10th-grade cohort status</b>			
Not sophomore cohort member	140	1.00	1.01
Sophomore cohort member	13,400	0.96	1.04

See notes at end of table.



**Table I-4. Average weight adjustment factors used to adjust the cross-sectional transcript weight F2QTSCWT for nonresponse due to gatekeepers, by selected characteristics: 2006—Continued**

Model predictor variables <sup>1</sup> —Continued	Number of responding students and “other” nonresponding students <sup>2</sup>	Weighted response rate	Average weight adjustment factor
12th-grade cohort status			
Not senior cohort member	1,500	0.93	1.08
Senior cohort member	12,100	0.96	1.04
Income			
\$1,000 or less	210	0.98	1.02
\$1,001 to \$5,000	250	0.93	1.08
\$5,001 to \$10,000	290	0.96	1.05
\$10,001 to \$15,000	580	0.95	1.04
\$15,001 to \$20,000	650	0.96	1.04
\$20,001 to \$25,000	820	0.94	1.06
\$25,001 to \$35,000	1,600	0.96	1.04
\$35,001 to \$50,000	2,500	0.96	1.05
\$50,001 to \$75,000	2,800	0.96	1.05
\$75,001 to \$100,000	1,900	0.96	1.04
\$100,001 to \$200,000	1,600	0.97	1.03
\$200,001 or more	500	0.95	1.05
Enrollment status			
In school in grade	12,000	0.96	1.04
In school out of grade	870	0.91	1.08
Out of school	690	0.95	1.07
Out of scope	40	1.00	1.05
CHAID <sup>6</sup> segments			
CHAID segment 1 = race is Black or African American, non-Hispanic or multiracial, non-Hispanic; language spoken at home is English, Spanish, or other language; total enrollment is 601–1,200	680	0.94	1.06
CHAID segment 2 = race is American Indian/Alaska Native, non-Hispanic, Hispanic, no race specified, Hispanic, race specified, White, non-Hispanic; language spoken at home is English, Spanish, or other language; total enrollment is 601–1,200	3,000	0.96	1.04
CHAID segment 3 = race is Asian/Hawaiian pacific islander, non-Hispanic; language spoken at home is English, Spanish, or other language; total enrollment is 601–1,200	130	0.99	1.01
CHAID segment 4 = language spoken at home is -8 or other European or West/South Asian; total enrollment is 601–1,200	80	0.98	1.03
CHAID segment 5 = mother’s job is in no job for pay, craftsperson, farmer, laborer, homemaker, manager, military or protective service, operative, professional b, proprietor, sales, school teacher, technical; language spoken at home is unknown or pacific Asian/Southeast Asian; total enrollment is 601–1,200	130	0.91	1.07
CHAID segment 6 = mother’s job is in clerical, professional a, service; language spoken at home is unknown or Pacific Asian/Southeast Asian; total enrollment is 601–1,200	90	0.92	1.13

See notes at end of table.

**Table I-4. Average weight adjustment factors used to adjust the cross-sectional transcript weight F2QTSCWT for nonresponse due to gatekeepers, by selected characteristics: 2006—Continued**

Model predictor variables <sup>1</sup> —Continued	Number of responding students and “other” nonresponding students <sup>2</sup>	Weighted response rate	Average weight adjustment factor
CHAID segment 7 = father’s job is in no job for pay, farmer, homemaker, manager, military, professional a, professional b, sales, school teacher, service, technical; family composition is father and female guardian, two guardians, or father only; total enrollment is <=600 or 1,201–1,800	210	0.94	1.06
CHAID segment 8 = father’s job is in management; family composition is father and female guardian, two guardians, or father only; total enrollment is <=600 or 1,201–1,800	70	0.98	1.02
CHAID segment 9 = father’s job is in clerical, craftsperson, operative, proprietor, protective service; family composition is father and female guardian, two guardians, or father only; total enrollment is <=600 or 1,201–1,800	190	0.99	1.02
CHAID segment 10 = limited English proficiency of 1–5 percent; family composition of mom and dad, mom and male guardian, or mother only; total enrollment is <=600 or 1,201–1,800	1,900	0.93	1.07
CHAID segment 11 = limited English proficiency of 0 percent; family composition of mom and dad, mom and male guardian, or mother only; total enrollment is <=600 or 1,201–1,800	3,000	0.96	1.04
CHAID segment 12 = limited English proficiency of >= 6 percent; family composition of mom and dad, mom and male guardian, or mother only; total enrollment is <=600 or 1,201–1,800	740	0.99	1.01
CHAID segment 13 = total enrollment is <=600 or 1,201–1,800; family composition is single guardian or lives with student less than half the year	150	0.99	1.01
CHAID segment 14 = number of full time teachers is 71–100; father’s job in clerical, craftsperson, homemaker, laborer, manager, operative, professional a, professional b, sales; total enrollment is >=1,800	360	0.96	1.04
CHAID segment 15 = number of full time teachers <=70; father’s job in clerical, craftsperson, homemaker, laborer, manager, operative, professional a, professional b, sales; total enrollment is >=1,800	70	1.00	1.00
CHAID segment 16 = number of full time teachers > 100; father’s job in clerical, craftsperson, homemaker, laborer, manager, operative, professional a, professional b, sales; total enrollment is >=1,800	1,100	0.96	1.04
CHAID segment 17 = income is 5,001–10,000, 20,001–75,000; father’s job is in farming, proprietor, school teacher, service, or technical; total enrollment is >=1,800	970	0.96	1.03
CHAID segment 18 = income is <= 1,000, 10,001–20,000; father’s job is in farming, proprietor, school teacher, service, or technical; total enrollment is >=1,800	120	0.98	1.02

See notes at end of table.

**Table I-4. Average weight adjustment factors used to adjust the cross-sectional transcript weight F2QTSCWT for nonresponse due to gatekeepers, by selected characteristics: 2006—Continued**

Model predictor variables <sup>1</sup> —Continued	Number of responding students and “other” nonresponding students <sup>2</sup>	Weighted response rate	Average weight adjustment factor
CHAID segment 19 = income is 100,001–200,000; father’s job is in farming, proprietor, school teacher, service, or technical; total enrollment is >=1,800	300	0.96	1.03
CHAID segment 20 = income is 1,001–5,000, 75,001–100,000, or 200,001 or more; father’s job is in farming, proprietor, school teacher, service, or technical; total enrollment is >=1,800	50	0.96	1.03
CHAID segment 21 = parental education is did not finish high school, 2-year school with no degree, or 4-year college with no degree; father’s job is in military or protective service; total enrollment is >=1,800	50	0.95	1.04
CHAID segment 22 = parental education is graduated from high school, graduated from a 2-year school, graduated from college, completed master’s degree, or completed Ph.D., M.D., or other advanced degree; father’s job is in military or protective service; total enrollment is >= 1,800	100	0.95	1.05
CHAID segment 23 = father has no job for pay; total enrolment is >= 1,800	60	0.96	1.03

<sup>1</sup> Model predictor variables had a value of 0 or 1. Some of the listed model predictor variables were not actually in the model because they served as reference groups. For each group of variables, one of the categories (predictor variable) was used as a reference group.

<sup>2</sup> “Other” nonresponding students are students who refused to allow transcript information to be combined with ELS:2002 first follow-up data. Responding students are grouped with the “other” nonrespondents for the first nonresponse adjustment that adjusts gatekeeper refusal.

<sup>3</sup> IEP = Individualized Education Program.

<sup>4</sup> LEP = limited English proficient.

<sup>5</sup> “All other races” includes White, American Indian or Alaska Native, Pacific Islander or Native Hawaiian, and More than one race. All race categories exclude individuals of Hispanic or Latino origin.

<sup>6</sup> CHAID = chi-squared automatic interaction detection.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), “Second Follow-up, 2006.”

**Table I-5. Average weight adjustment factors used to adjust the cross-sectional transcript weight F2QTSCWT for other nonresponse, by selected characteristics: 2006**

Model predictor variables <sup>1</sup> —Continued	Number of responding students	Weighted response rate	Average weight adjustment factor
Total	13,000	0.95	1.05
School sector			
Public	10,100	0.95	1.05
Catholic	1,700	0.98	1.02
Other private	1,200	0.96	1.03
School urbanicity			
Urban	4,300	0.91	1.08
Suburban	6,300	0.97	1.03
Rural	2,400	0.97	1.03
Census Region			
Northeast	2,300	0.90	1.12
Midwest	3,400	0.97	1.03
South	4,700	0.96	1.04
West	2,700	0.97	1.03
10th-grade enrollment			
0–99	2,500	0.96	1.04
100–249	3,500	0.99	1.02
250–499	4,300	0.96	1.04
≥ 500	2,800	0.92	1.10
Type of grades within school			
K–12, PreK–10th, 1st–12th, PreK/1st–9th/12th and PreK–12 schools	830	0.97	1.03
Middle grades but no elementary	1,400	0.95	1.04
Only high school	10,800	0.95	1.05
Number of grades within the school			
4	9,900	0.95	1.05
> or < 4	3,100	0.96	1.04
Number of days in school year			
Less than 180 days	3,500	0.96	1.04
180 days	7,200	0.95	1.05
More than 180 days	2,400	0.95	1.06
Minutes per class period			
≤ 45	3,000	0.90	1.10
46–50	2,800	0.97	1.03
51–80	3,500	0.96	1.04
≥ 81	3,700	0.97	1.03
Class periods per day			
1–4	3,800	0.97	1.04
5–6	3,200	0.96	1.04
7	3,400	0.94	1.06
8–9	2,600	0.94	1.06
IEP <sup>2</sup> percentage			
≤ 5 percent	5,100	0.96	1.04
6–10 percent	3,300	0.95	1.06
11–15 percent	2,900	0.96	1.04
> 15 percent	1,700	0.93	1.08

See notes at end of table.

**Table I-5. Average weight adjustment factors used to adjust the cross-sectional transcript weight F2QTSCWT for other nonresponse, by selected characteristics: 2006—Continued**

Model predictor variables <sup>1</sup>	Number of responding students	Weighted response rate	Average weight adjustment factor
LEP <sup>3</sup> percentage			
0 percent	5,800	0.97	1.03
1 percent	2,600	0.97	1.03
2–5 percent	2,100	0.94	1.07
≥ 6 percent	2,500	0.93	1.08
Free or reduced-price lunch			
0 percent	2,300	0.98	1.03
1–10 percent	3,000	0.97	1.04
11–30 percent	4,000	0.96	1.04
≥ 31 percent	3,700	0.92	1.08
Number of full-time teachers			
1–40	3,400	0.97	1.04
41–70	3,400	0.97	1.03
71–100	3,300	0.96	1.05
> 100	2,900	0.93	1.08
Number of part-time teachers			
0–1	3,600	0.92	1.09
2–3	3,900	0.97	1.03
4–6	3,200	0.97	1.03
≥ 7	2,300	0.97	1.03
Full-time teachers certified			
0–90 percent	3,300	0.92	1.06
91–99 percent	2,300	0.95	1.06
100 percent	7,400	0.96	1.04
School coeducational status			
Coeducational school	12,300	0.95	1.05
All-female school	300	0.92	1.09
All-male school	390	0.99	1.01
Total enrollment			
0–600 students	3,100	0.97	1.04
601–1,200 students	4,000	0.97	1.03
1,201–1,800 students	3,000	0.96	1.04
> 1,800 students	2,900	0.92	1.09
Asian 10th-grade enrollment			
≤ 2 percent	5,100	0.95	1.04
> 2 percent	7,900	0.95	1.05
Black or African American 10th-grade enrollment			
≤ 4 percent	4,500	0.98	1.02
> 4 percent	8,500	0.94	1.06
Hispanic or Latino 10th-grade enrollment			
≤ 3 percent	5,200	0.97	1.03
> 3 percent	7,800	0.94	1.06
All other races 10th-grade enrollment			
≤ 80 percent	6,300	0.93	1.07
> 80 percent	6,700	0.98	1.03

See notes at end of table.

**Table I-5. Average weight adjustment factors used to adjust the cross-sectional transcript weight F2QTSCWT for other nonresponse, by selected characteristics: 2006—Continued**

Model predictor variables <sup>1</sup>	Number of responding students	Weighted response rate	Average weight adjustment factor
<b>Sex</b>			
Male	6,300	0.95	1.05
Female	6,700	0.95	1.05
<b>Race/ethnicity<sup>4</sup></b>			
Asian	1,300	0.92	1.09
Black or African American	1,700	0.92	1.07
Hispanic or Latino	1,900	0.91	1.09
All other races	8,200	0.97	1.03
<b>Family composition</b>			
Mother and father	8,000	0.96	1.04
Mother and male guardian	1,500	0.95	1.06
Father and female guardian	370	0.93	1.07
Two guardians	200	0.93	1.07
Mother only	2,300	0.93	1.07
Father only	380	0.96	1.04
Single guardian	190	0.94	1.05
Lives with student less than half the year	130	0.96	1.04
<b>Parental education</b>			
Did not finish high school	770	0.92	1.08
Graduated from high school	2,500	0.95	1.05
Attended 2-year school, no degree	1,400	0.95	1.05
Graduated from 2-year school	1,400	0.96	1.04
Attended college, no 4-year degree	1,400	0.94	1.06
Graduated from college	3,000	0.96	1.04
Completed master's degree or equivalent	1,600	0.95	1.05
Completed Ph.D., M.D., other advanced degree	930	0.96	1.04
<b>Mother's Occupation</b>			
No job for pay	490	0.94	1.07
Clerical	2,100	0.95	1.04
Craftsperson	300	0.96	1.04
Farmer, farm manager or laborer	630	0.95	1.06
Homemaker	650	0.94	1.06
Manager, administrator	1,400	0.96	1.04
Military or protective service	110	0.94	1.07
Operative	540	0.95	1.05
Professional a	1,900	0.96	1.04
Professional b	510	0.94	1.07
Proprietor, owner	310	0.98	1.04
Sales	550	0.95	1.06
School teacher	880	0.97	1.03
Service	2,000	0.94	1.06
Technical	650	0.95	1.05

See notes at end of table.

**Table I-5. Average weight adjustment factors used to adjust the cross-sectional transcript weight F2QTSCWT for other nonresponse, by selected characteristics: 2006—Continued**

Model predictor variables <sup>1</sup>	Number of responding students	Weighted response rate	Average weight adjustment factor
<b>Father's occupation</b>			
No job for pay	130	0.92	1.10
Clerical	300	0.93	1.07
Craftsperson	1,600	0.95	1.05
Farmer, farm manager	250	0.96	1.03
Homemaker	310	0.97	1.03
Laborer	1,300	0.94	1.06
Manager, administrator	1,900	0.95	1.05
Military	170	0.95	1.06
Operative	1,500	0.95	1.04
Professional a	1,400	0.97	1.04
Professional b	790	0.97	1.03
Proprietor, owner	780	0.96	1.04
Protective service	450	0.95	1.07
Sales	680	0.95	1.05
School teacher	200	0.94	1.06
Service	510	0.94	1.05
Technical	620	0.96	1.05
<b>Socioeconomic status (SES)</b>			
Lowest quartile	3,000	0.94	1.07
Second quartile	3,000	0.95	1.05
Third quartile	3,100	0.95	1.05
Highest quartile	3,800	0.97	1.03
<b>English as native language</b>			
English is not the student's native language	2,200	0.91	1.10
English is the student's native language	10,800	0.96	1.04
<b>10th-grade cohort status</b>			
Not sophomore cohort member	130	0.96	1.05
Sophomore cohort member	12,900	0.95	1.05
<b>12th-grade cohort status</b>			
Not senior cohort member	1,300	0.87	1.14
Senior cohort member	11,700	0.97	1.04
<b>Income</b>			
\$1,000 or less	200	0.94	1.06
\$1,001 to \$5,000	230	0.91	1.11
\$5,001 to \$10,000	270	0.92	1.09
\$10,001 to \$15,000	540	0.92	1.08
\$15,001 to \$20,000	610	0.93	1.07
\$20,001 to \$25,000	770	0.93	1.07
\$25,001 to \$35,000	1,500	0.96	1.05
\$35,001 to \$50,000	2,400	0.95	1.05
\$50,001 to \$75,000	2,700	0.96	1.04
\$75,001 to \$100,000	1,800	0.96	1.04
\$100,001 to \$200,000	1,500	0.97	1.03
\$200,001 or more	480	0.97	1.04

See notes at end of table.

**Table I-5. Average weight adjustment factors used to adjust the cross-sectional transcript weight F2QTSCWT for other nonresponse, by selected characteristics: 2006—Continued**

Model predictor variables <sup>1</sup>	Number of responding students	Weighted response rate	Average weight adjustment factor
<b>Enrollment Status</b>			
In school in grade	11,600	0.97	1.04
In school out of grade	780	0.90	1.11
Out of school	590	0.85	1.17
Out of scope	30	0.85	1.23
<b>CHAID<sup>5</sup> segments</b>			
CHAID segment 1 = mother's job is in proprietor; language spoken at home is English; F1 enrollment status – spring 2004 of enrolled base-year school	190	1.00	1.01
CHAID segment 2 = mother's job is in manager, professional a, school teacher, service; language spoken at home is English; F1 enrollment status – spring 2004 of enrolled base-year school	4,200	0.99	1.01
CHAID segment 3 = mother's job is in no job for pay, farmer, military; language spoken at home is English; F1 enrollment status – spring 2004 of enrolled base-year school	160	1.00	1.00
CHAID segment 4 = mother's job is in clerical, craftsperson, laborer, operative, technical; language spoken at home is English; F1 enrollment status – spring 2004 of enrolled base-year school	2,500	0.98	1.02
CHAID segment 5 = mother's job is in homemaker, professional b, protective service, sales; language spoken at home is English; F1 enrollment status – spring 2004 of enrolled base-year school	1,100	0.97	1.03
CHAID segment 6 = language spoken at home is -8 or other European; F1 enrollment status – spring 2004 of enrolled base-year school	90	1.00	1.00
CHAID segment 7 = father's job is in craftsperson, manager, operative, sales; language spoken at home is unknown, Spanish, West/South Asian, or other language; F1 enrollment status – spring 2004 of enrolled base-year school	480	0.94	1.07
CHAID segment 8 = father's job is in clerical, no job for pay, laborer, military, professional a, proprietor, protective service, school teacher, service, or technical; language spoken at home is unknown, Spanish, West/South Asian, or other language; F1 enrollment status – spring 2004 of enrolled base-year school	510	0.89	1.14
CHAID segment 9 = father's job is in farmer, homemaker, professional b; language spoken at home is unknown, Spanish, West/South Asian, or other language; F1 enrollment status – spring 2004 of enrolled base-year school	130	1.00	1.00
CHAID segment 10 = number of minutes per class period is >=81; language spoken at home is pacific Asian/Southeast Asian; F1 enrollment status – spring 2004 of enrolled base-year school	100	1.00	1.00

See notes at end of table.



**Table I-5. Average weight adjustment factors used to adjust the cross-sectional transcript weight F2QTSCWT for other nonresponse, by selected characteristics: 2006—Continued**

Model predictor variables <sup>1</sup>	Number of responding students	Weighted response rate	Average weight adjustment factor
CHAID segment 11 = number of minutes per class period is 46–80; language spoken at home is Pacific Asian/Southeast Asian; F1 enrollment status – spring 2004 of enrolled base-year school	320	0.98	1.02
CHAID segment 12 = number of minutes per class period is <= 45; language spoken at home is Pacific Asian/Southeast Asian; F1 enrollment status – spring 2004 of enrolled base-year school	100	0.83	1.19
CHAID segment 13 = father's job in clerical, homemaker, military, professional a, professional b, protective service, sales, service; minutes per class period is 46 or more; F1 enrollment status – spring 2004 of enrolled transfer school or graduated early or early GED	460	0.97	1.04
CHAID segment 14 = father's job is in craftsperson, laborer, manager, operative, proprietor, technical; minutes per class period is 46 or more; F1 enrollment status – spring 2004 of enrolled transfer school or graduated early or early GED	820	0.92	1.08
CHAID segment 15 = father's job is in no job for pay, farmer, school teacher; minutes per class period is 46 or more; F1 enrollment status – spring 2004 of enrolled transfer school or graduated early or early GED	50	1.00	1.00
CHAID segment 16 = 10th-grade enrollment of <100 or >=250; minutes per class period is <=45; F1 enrollment status – spring 2004 of enrolled transfer school or graduated early or early GED	200	0.74	1.29
CHAID segment 17 = 10th-grade enrollment of 100–249; minutes per class period is <=45; F1 enrollment status – spring 2004 of enrolled transfer school or graduated early or early GED	80	1.00	1.01
CHAID segment 18 = family composition of father only, single guardian, or lives with student less than half the year; 10th-grade enrollment of 0–99 or 250–499; F1 enrollment status – spring 2004 of unknown, dropped out, homeschooled, or out of scope	50	1.00	1.00
CHAID segment 19 = family composition of mother and father, mother and male guardian, father and female guardian, two guardians, or mother only; 10th-grade enrollment of 0–99 or 250–499; F1 enrollment status – spring 2004 of unknown, dropped out, homeschooled, or out of scope	730	0.87	1.16
CHAID segment 20 = income of 5,001–10,000, 25,001–100,000; 10th-grade enrollment of 100–249; F1 enrollment status – spring 2004 of unknown, dropped out, homeschooled, or out of scope	200	0.93	1.07
CHAID segment 21 = income of <=5,000, 10,001–25,000, or >=100,001; 10th-grade enrollment of 100–249; F1 enrollment status – spring 2004 of unknown, dropped out, homeschooled, or out of scope	110	1.00	1.00

See notes at end of table.

**Table I-5. Average weight adjustment factors used to adjust the cross-sectional transcript weight F2QTSCWT for other nonresponse, by selected characteristics: 2006—Continued**

Model predictor variables <sup>1</sup>	Number of responding students	Weighted response rate	Average weight adjustment factor
CHAID segment 22 = Hispanic or Latino 10th-grade enrollment <=3 percent; 10th-grade enrollment of >=500; F1 enrollment status – spring 2004 of unknown, dropped out, homeschooled, or out of scope	40	0.58	1.70
CHAID segment 23 = Hispanic or Latino 10th-grade enrollment > 3 percent ; 10th-grade enrollment of >=500; F1 enrollment status – spring 2004 of unknown, dropped out, homeschooled, or out of scope	350	0.85	1.17

<sup>1</sup> Model predictor variables had a value of 0 or 1. Some of the listed model predictor variables were not actually in the model because they served as reference groups. For each group of variables, one of the categories (predictor variable) was used as a reference group.

<sup>2</sup> IEP = Individualized Education Program.

<sup>3</sup> LEP = limited English proficient.

<sup>4</sup> "All other races" includes White, American Indian or Alaska Native, Pacific Islander or Native Hawaiian, and More than one race. All race categories exclude individuals of Hispanic or Latino origin.

<sup>5</sup> CHAID = chi-squared automatic interaction detection.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

**Table I-6. Average weight adjustment factors for calibrating the cross-sectional transcript weight F2QTSCWT to control totals, by selected characteristics: 2006**

Model variable <sup>1</sup>	Control total <sup>2</sup>	Average weight adjustment factor
Total	3,409,400	1.00
Census region		
Northeast	633,100	1.01
Midwest	824,400	1.00
South	1,175,800	1.00
West	776,000	1.00
School sector		
Public	3,148,000	1.00
Catholic	144,000	1.00
Other private	117,400	1.00
Sex		
Male	1,702,500	1.00
Female	1,706,900	1.00
Race/ethnicity <sup>3</sup>		
Asian	145,100	1.00
Black or African American	488,500	1.00
Hispanic or Latino	559,000	1.01
All other races	2,216,800	1.00
10th-grade cohort status		
Not a sophomore cohort member	49,300	1.00
Sophomore cohort member	3,360,100	1.00
12th-grade cohort status		
Not a senior cohort member	477,300	1.02
Senior cohort member	2,932,100	1.00
10th-grade cohort status and race/ethnicity		
Not sophomore cohort, Hispanic	17,300	1.03
Asian nonsophomore cohort member	4,100	0.99
Black nonsophomore cohort member	5,500	0.95
White/other nonsophomore cohort member	22,300	1.00
Hispanic sophomore cohort member	541,700	1.01
Asian sophomore cohort member	141,000	1.00
Black sophomore cohort member	483,000	1.00
White/other sophomore cohort member	2,194,500	1.00
Region and 10th-grade cohort status		
Nonsophomore cohort member – Northeast	11,300	1.00
Nonsophomore cohort member – Midwest	6,700	0.97
Nonsophomore cohort member – South	18,800	1.03
Nonsophomore cohort member – West	12,600	0.99
Sophomore cohort member – Northeast	621,900	1.01
Sophomore cohort member – Midwest	817,700	1.00
Sophomore cohort member – South	1,157,000	1.00
Sophomore cohort member – West	763,500	1.00
School sector and 10th-grade cohort status		
Public school nonsophomore cohort member	46,300	1.00
Catholic school nonsophomore cohort member	50	0.99
Other private school nonsophomore cohort member	2,900	1.03
Public school sophomore cohort member	3,101,700	1.00
Catholic school sophomore cohort member	143,900	1.00
Other private school sophomore cohort member	114,500	1.00

See notes at end of table.

**Table I-6. Average weight adjustment factors for calibrating the cross-sectional transcript weight F2QTSCWT to control totals, by selected characteristics: 2006—Continued**

Model variable <sup>1</sup>	Control total <sup>2</sup>	Average weight adjustment factor
<b>Sex and 10th-grade cohort status</b>		
Male nonsophomore cohort member	28,400	1.04
Female nonsophomore cohort member	20,900	0.96
Male sophomore cohort member	1,674,100	1.00
Female sophomore cohort member	1,686,000	1.00
<b>12th-grade cohort status and race/ethnicity</b>		
Not senior cohort, Hispanic	116,900	0.98
Asian nonsenior cohort member	12,700	1.10
Black nonsenior cohort member	98,100	1.07
White/other nonsenior cohort member	249,500	1.01
Asian senior cohort member	132,400	1.00
Black senior cohort member	390,300	0.99
Hispanic senior cohort member	442,000	1.01
White/other senior cohort member	1,967,300	1.00
<b>Region and 12th-grade cohort status</b>		
Nonsenior cohort member – Northeast	78,400	1.13
Nonsenior cohort member – Midwest	99,600	1.04
Nonsenior cohort member – South	184,500	0.98
Nonsenior cohort member – West	114,800	1.01
Senior cohort member – Northeast	554,700	1.00
Senior cohort member – Midwest	724,800	1.00
Senior cohort member – South	991,300	1.00
Senior cohort member – West	661,300	1.00
<b>School sector and 12th-grade cohort status</b>		
Public school nonsenior cohort member	464,400	1.01
Catholic school nonsenior cohort member	3,400	0.96
Other private school nonsenior cohort member	9,500	1.15
Public school senior cohort member	2,683,600	1.00
Catholic school senior cohort member	140,600	1.00
Other private school senior cohort member	107,900	1.00
<b>Sex and 12th-grade cohort status</b>		
Male nonsenior cohort member	259,700	1.04
Female nonsenior cohort member	217,600	1.00
Male senior cohort member	1,442,800	1.00
Female senior cohort member	1,489,300	1.00

<sup>1</sup> Model variables had a value of 0 or 1.

<sup>2</sup> The control totals were calculated using the second follow-up weight sums calculated from F2QWT.

<sup>3</sup> "All other races" includes White, American Indian or Alaska Native, Pacific Islander or Native Hawaiian, and More than one race. All race categories exclude individuals of Hispanic or Latino origin.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

**Table I-7. Average weight adjustment factors used to adjust the panel weight F2F1WT for nonresponse due to nonfielded cases, by selected characteristics: 2006**

Model predictor variables <sup>1</sup>	Number of responding students and "other" nonresponding students <sup>2</sup>	Weighted response rate	Average weight adjustment factor
Total	15,800	0.96	1.08
School sector			
Public	12,400	0.96	1.08
Catholic	2,000	0.96	1.04
Other private	1,400	0.95	1.15
School urbanicity			
Urban	5,400	0.94	1.11
Suburban	7,600	0.96	1.07
Rural	2,900	0.97	1.06
Census region			
Northeast	2,900	0.94	1.12
Midwest	4,000	0.95	1.07
South	5,800	0.97	1.06
West	3,200	0.96	1.11
10th-grade enrollment			
0–99	3,100	0.98	1.08
100–249	4,000	0.97	1.05
250–499	5,100	0.95	1.08
≥ 500	3,700	0.94	1.12
Type of grades within school			
K–12, PreK–10th, 1st–12th, PreK/1st–9th/12th and PreK–12 schools	1,000	0.97	1.18
Middle grades but no elementary	1,700	0.97	1.04
Only high school	13,100	0.96	1.08
Number of grades within the school			
4	12,100	0.96	1.08
> or < 4	3,700	0.95	1.10
Number of days in school year			
Less than 180 days	4,100	0.97	1.07
180 days	8,800	0.96	1.08
More than 180 days	2,900	0.94	1.11
Minutes per class period			
≤ 45	3,800	0.94	1.10
46–50	3,400	0.96	1.08
51–80	4,200	0.96	1.09
≥ 81	4,500	0.97	1.06
Class periods per day			
1–4	4,600	0.97	1.06
5–6	3,900	0.95	1.10
7	4,300	0.96	1.08
8–9	3,100	0.95	1.10

See notes at end of table.

**Table I-7. Average weight adjustment factors used to adjust the panel weight F2F1WT for nonresponse due to non-fielded cases, by selected characteristics: 2006—Continued**

Model predictor variables <sup>1</sup> —Continued	Number of responding students and “other” nonresponding students <sup>2</sup>	Weighted response rate	Average weight adjustment factor
IEP <sup>3</sup> percentage			
≤ 5 percent	6,100	0.95	1.09
6–10 percent	4,100	0.95	1.08
11–15 percent	3,500	0.97	1.06
> 15 percent	2,100	0.95	1.12
LEP <sup>4</sup> percentage			
0 percent	6,800	0.96	1.07
1 percent	3,100	0.96	1.07
2–5 percent	2,600	0.94	1.09
≥ 6 percent	3,200	0.95	1.12
Free or reduced-price lunch			
0 percent	2,800	0.95	1.08
1–10 percent	3,600	0.94	1.09
11–30 percent	4,700	0.97	1.08
≥ 31 percent	4,700	0.96	1.08
Number of full-time teachers			
1–40	4,100	0.97	1.06
41–70	4,000	0.97	1.06
71–100	4,100	0.95	1.10
> 100	3,700	0.94	1.10
Number of part-time teachers			
0–1	4,600	0.96	1.08
2–3	4,600	0.97	1.07
4–6	3,800	0.96	1.08
≥ 7	2,800	0.94	1.10
Full-time teachers certified			
0–90 percent	4,000	0.95	1.09
91–99 percent	2,800	0.95	1.08
100 percent	8,900	0.96	1.08
School coeducational status			
Coeducational school	15,000	0.96	1.08
All-female school	370	0.93	1.06
All-male school	430	0.97	1.03
Total enrollment			
0–600 students	3,700	0.98	1.07
601–1,200 students	4,700	0.96	1.07
1,201–1,800 students	3,600	0.96	1.07
> 1,800 students	3,800	0.94	1.12
Asian 10th-grade enrollment			
≤ 2 percent	6,100	0.96	1.07
> 2 percent	9,700	0.96	1.09

See notes at end of table.

**Table I-7. Average weight adjustment factors used to adjust the panel weight F2F1WT for nonresponse due to nonfielded cases, by selected characteristics: 2006—Continued**

Model predictor variables <sup>1</sup> —Continued	Number of responding students and “other” nonresponding students <sup>2</sup>	Weighted response rate	Average weight adjustment factor
Black or African American 10th-grade enrollment			
≤ 4 percent	5,400	0.96	1.07
> 4 percent	10,400	0.95	1.09
Hispanic or Latino 10th-grade enrollment			
≤ 3 percent	6,100	0.95	1.07
> 3 percent	9,700	0.96	1.09
All other races 10th-grade enrollment			
≤ 80 percent	7,900	0.95	1.09
> 80 percent	7,900	0.96	1.07
Sex			
Male	7,800	0.95	1.09
Female	8,000	0.96	1.08
Race/ethnicity <sup>5</sup>			
Asian	1,600	1.00	1.11
Black or African American	2,100	1.00	1.02
Hispanic or Latino	2,300	1.00	1.02
All other races	9,800	0.94	1.11

<sup>1</sup> Model predictor variables had a value of 0 or 1. Some of the listed model predictor variables were not actually in the model because they served as reference groups. For each group of variables, one of the categories (predictor variable) was used as a reference group.

<sup>2</sup> “Other” nonresponding students are students who were nonrespondents among those sample members fielded for the second follow-up. Responding students are grouped with the “other” nonrespondents for the first nonresponse adjustment that adjusts nonfielded cases.

<sup>3</sup> IEP = Individualized Education Program.

<sup>4</sup> LEP = limited English proficient.

<sup>5</sup> “All other races” includes White, American Indian or Alaska Native, Pacific Islander or Native Hawaiian, and More than one race. All race categories exclude individuals of Hispanic or Latino origin.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), “Second Follow-up, 2006.”

**Table I-8. Average weight adjustment factors used to adjust the panel weight for F2F1WT refusal nonresponse, by selected characteristics: 2006**

Model predictor variables <sup>1</sup>	Number of responding students	Weighted response rate	Average weight adjustment factor
Total	13,400	0.84	1.19
School sector			
Public	10,400	0.84	1.20
Catholic	1,800	0.90	1.11
Other private	1,200	0.87	1.17
School urbanicity			
Urban	4,500	0.82	1.20
Suburban	6,400	0.84	1.18
Rural	2,400	0.86	1.17
Census Region			
Northeast	2,500	0.85	1.18
Midwest	3,400	0.85	1.16
South	4,800	0.84	1.18
West	2,700	0.82	1.24
10th-grade enrollment			
0–99	2,600	0.86	1.17
100–249	3,500	0.87	1.14
250–499	4,300	0.84	1.20
≥ 500	3,000	0.81	1.24
Type of grades within school			
K–12, PreK–10th, 1st–12th, PreK/1st–9th/12th and PreK–12 schools	900	0.88	1.17
Middle grades but no elementary	1,400	0.85	1.17
Only high school	11,100	0.84	1.19
Number of grades within the school			
4	10,200	0.84	1.19
> or < 4	3,200	0.85	1.18
Number of days in school year			
Less than 180 days	3,500	0.85	1.16
180 days	7,400	0.84	1.19
More than 180 days	2,400	0.82	1.22
Minutes per class period			
≤ 45	3,200	0.85	1.17
46–50	2,900	0.85	1.17
51–80	3,500	0.83	1.21
≥ 81	3,700	0.83	1.20
Class periods per day			
1–4	3,800	0.84	1.19
5–6	3,200	0.83	1.21
7	3,600	0.84	1.19
8–9	2,700	0.87	1.15

See notes at end of table.



**Table I-8. Average weight adjustment factors used to adjust the panel weight for F2F1WT refusal nonresponse, by selected characteristics: 2006—Continued**

Model predictor variables <sup>1</sup> —Continued	Number of responding students	Weighted response rate	Average weight adjustment factor
IEP <sup>2</sup> percentage			
≤ 5 percent	5,300	0.85	1.16
6–10 percent	3,400	0.84	1.20
11–15 percent	2,900	0.83	1.20
> 15 percent	1,800	0.83	1.22
LEP <sup>3</sup> percentage			
0 percent	5,900	0.86	1.15
1 percent	2,600	0.85	1.18
2–5 percent	2,200	0.84	1.20
≥ 6 percent	2,600	0.80	1.26
Free or reduced-price lunch			
0 percent	2,500	0.87	1.14
1–10 percent	3,100	0.86	1.17
11–30 percent	3,900	0.83	1.20
≥ 31 percent	3,900	0.82	1.22
Number of full-time teachers			
1–40	3,500	0.86	1.16
41–70	3,400	0.85	1.17
71–100	3,400	0.83	1.21
> 100	3,000	0.83	1.21
Number of part-time teachers			
0–1	3,800	0.82	1.21
2–3	3,900	0.85	1.18
4–6	3,200	0.84	1.19
≥ 7	2,400	0.86	1.17
Full-time teachers certified			
0–90 percent	3,400	0.84	1.18
91–99 percent	2,400	0.83	1.20
100 percent	7,600	0.84	1.19
School coeducational status			
Coeducational school	12,700	0.84	1.19
All-female school	340	0.92	1.08
All-male school	380	0.88	1.14
Total enrollment			
0–600 students	3,200	0.87	1.16
601–1,200 students	4,100	0.85	1.17
1,201–1,800 students	3,000	0.83	1.20
> 1,800 students	3,100	0.82	1.22
Asian 10th-grade enrollment			
≤ 2 percent	5,200	0.84	1.17
> 2 percent	8,200	0.84	1.20

See notes at end of table.

**Table I-8. Average weight adjustment factors used to adjust the panel weight for F2F1WT refusal nonresponse, by selected characteristics: 2006—Continued**

Model predictor variables <sup>1</sup> —Continued	Number of responding students	Weighted response rate	Average weight adjustment factor
Black or African American 10th-grade enrollment			
≤ 4 percent	4,600	0.85	1.18
> 4 percent	8,800	0.84	1.19
Hispanic or Latino 10th-grade enrollment			
≤ 3 percent	5,200	0.86	1.16
> 3 percent	8,100	0.83	1.20
All other races 10th-grade enrollment			
≤ 80 percent	6,500	0.82	1.22
> 80 percent	6,800	0.86	1.16
Sex			
Male	6,500	0.82	1.22
Female	6,900	0.86	1.16
Race/ethnicity <sup>4</sup>			
Asian	1,300	0.84	1.20
Black or African American	1,700	0.82	1.21
Hispanic or Latino	1,900	0.82	1.21
All other races	8,400	0.85	1.18
Family composition			
Mother and father	8,200	0.87	1.16
Mother and male guardian	1,500	0.81	1.23
Father and female guardian	380	0.76	1.30
Two guardians	200	0.73	1.34
Mother only	2,300	0.82	1.21
Father only	380	0.78	1.29
Single guardian	200	0.76	1.31
Lives with student less than half the year	130	0.81	1.22
Parental education			
Did not finish high school	790	0.81	1.23
Graduated from high school	2,600	0.81	1.24
Attended 2-year school, no degree	1,400	0.84	1.19
Graduated from 2-year school	1,400	0.85	1.18
Attended college, no 4-year degree	1,500	0.82	1.21
Graduated from college	3,100	0.86	1.16
Completed master's degree or equivalent	1,700	0.88	1.14
Completed Ph.D., M.D., other advanced degree	970	0.88	1.14
Mother's occupation			
No job for pay	510	0.84	1.20
Clerical	2,200	0.84	1.18
Craftsperson	300	0.83	1.21
Farmer, farm manager or laborer	640	0.82	1.22
Homemaker	660	0.75	1.33
Manager, administrator	1,400	0.84	1.19
Military or protective service	120	0.84	1.19

See notes at end of table.

**Table I-8. Average weight adjustment factors used to adjust the panel weight for F2F1WT refusal nonresponse, by selected characteristics: 2006—Continued**

Model predictor variables <sup>1</sup> —Continued	Number of responding students	Weighted response rate	Average weight adjustment factor
Mother's occupation—Continued			
Operative	550	0.83	1.20
Professional a	2,000	0.87	1.14
Professional b	520	0.86	1.17
Proprietor, owner	310	0.80	1.24
Sales	580	0.83	1.20
School teacher	930	0.91	1.11
Service	2,000	0.82	1.22
Technical	670	0.88	1.14
Father's occupation			
No job for pay	140	0.80	1.25
Clerical	320	0.84	1.18
Craftsperson	1,700	0.84	1.19
Farmer, farm manager	260	0.87	1.17
Homemaker	310	0.75	1.33
Laborer	1,400	0.82	1.22
Manager, administrator	2,000	0.84	1.18
Military	170	0.83	1.20
Operative	1,500	0.83	1.20
Professional a	1,500	0.86	1.15
Professional b	830	0.87	1.16
Proprietor, owner	800	0.84	1.18
Protective service	460	0.86	1.16
Sales	700	0.86	1.17
School teacher	210	0.96	1.04
Service	530	0.79	1.26
Technical	630	0.83	1.20
Socioeconomic status (SES)			
Lowest quartile	3,100	0.81	1.23
Second quartile	3,100	0.82	1.22
Third quartile	3,200	0.83	1.20
Highest quartile	4,000	0.89	1.13
English as native Language			
English is not the student's native language	2,300	0.82	1.21
English is the student's native language	11,100	0.84	1.18
10th-grade cohort status			
Not sophomore cohort member	140	0.87	1.16
Sophomore cohort member	13,200	0.84	1.19
12th-grade cohort status			
Not senior cohort member	1,300	0.66	1.50
Senior cohort member	12,000	0.87	1.15

See notes at end of table.

**Table I-8. Average weight adjustment factors used to adjust the panel weight for F2F1WT refusal nonresponse, by selected characteristics: 2006—Continued**

Model predictor variables <sup>1</sup> —Continued	Number of responding students	Weighted response rate	Average weight adjustment factor
<b>Income</b>			
\$1,000 or less	200	0.83	1.20
\$1,001 to \$5,000	240	0.78	1.27
\$5,001 to \$10,000	280	0.83	1.22
\$10,001 to \$15,000	550	0.81	1.23
\$15,001 to \$20,000	620	0.81	1.23
\$20,001 to \$25,000	810	0.83	1.21
\$25,001 to \$35,000	1,500	0.81	1.23
\$35,001 to \$50,000	2,500	0.84	1.19
\$50,001 to \$75,000	2,800	0.86	1.16
\$75,001 to \$100,000	1,800	0.84	1.18
\$100,001 to \$200,000	1,600	0.86	1.16
\$200,001 or more	500	0.89	1.12
<b>CHAID5 segments</b>			
CHAID segment 1 = parental education of attended 2-year school, no degree, graduated from 2- year school, attended college, no 4-year degree, graduated from college, completed Ph.D., M.D., or other advanced degree; individualized education program <= 15 percent; and public school in Midwest or public school in South or private school in West	3,200	0.85	1.18
CHAID segment 2 = parental education of did not finish high school, graduated high school, or completed master's degree; individualized education program <= 15 percent; and public school in Midwest or public school in South or private school in West	1,900	0.82	1.22
CHAID segment 3 = <= 6 class periods per day; individualized education program > 15 percent; and public school in Midwest or public school in South or private school in West	490	0.81	1.24
CHAID segment 4 = > 6 class periods per day; individualized education program > 15 percent; and public school in Midwest or public school in South or private school in West	380	0.83	1.20
CHAID segment 5 = 0 or 1 part-time teachers; 1–4 or 7 class periods per day; public school in Northeast or West	420	0.81	1.24
CHAID segment 6 = > 1 part-time teachers; 1–4 or 7 class periods per day; public school in Northeast or West	1,200	0.84	1.20
CHAID segment 7 = individualized education program <=10 percent or > 15 percent; 5–6 or 8–9 class periods per day; public school in Northeast or West	1,800	0.83	1.23
CHAID segment 8 = individualized education program 11–15 percent; 5–6 or 8–9 class periods per day; public school in Northeast or West	590	0.81	1.24
CHAID segment 9 = grades within school are K–12, PreK–10th, 1st–12th, PreK/1st–9th/12th and PreK–12 schools and only high school; family composition of mother and father, mother and male guardian, mother only, or father only; public school in Midwest or private school in Midwest or private school in South	2,400	0.88	1.13

See notes at end of table.

**Table I-8. Average weight adjustment factors used to adjust the panel weight for F2F1WT refusal nonresponse, by selected characteristics: 2006—Continued**

Model predictor variables <sup>1</sup> —Continued	Number of responding students	Weighted response rate	Average weight adjustment factor
CHAID segment 10 = grades within school are middle grades but no elementary; family composition of mother and father, mother and male guardian, mother only, or father only; public school in Midwest or private school in Midwest or private school in South	220	0.88	1.13
CHAID segment 11 = family composition of single guardian or two guardians; public school in Midwest or private school in Midwest or private school in South	40	0.86	1.15
CHAID segment 12 = family composition of father and female guardian, lives with student less than half the year, or male guardian only; public school in Midwest or private school in Midwest or private school in South	80	0.86	1.13
CHAID segment 13 = Black 10th-grade enrollment > 4 percent; limited English proficiency of 0, 1, or >= 6 percent; private school in Northeast	220	0.87	1.17
CHAID segment 14 = Black 10th-grade enrollment <= 4 percent; limited English proficiency of 0, 1, or >= 6 percent; private school in Northeast	370	0.89	1.12
CHAID segment 15 = limited English proficiency of 2–5 percent; private school in Northeast	60	0.87	1.16

<sup>1</sup> Model predictor variables had a value of 0 or 1. Some of the listed model predictor variables were not actually in the model because they served as reference groups. For each group of variables, one of the categories (predictor variable) was used as a reference group.

<sup>2</sup> IEP = Individualized Education Program.

<sup>3</sup> LEP = limited English proficient.

<sup>4</sup> “All other races” includes White, American Indian or Alaska Native, Pacific Islander or Native Hawaiian, and More than one race. All race categories exclude individuals of Hispanic or Latino origin.

<sup>5</sup> CHAID = chi-squared automatic interaction detection.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), “Second Follow-up, 2006.”

**Table I-9. Average weight adjustment factors for calibrating the panel weight F2F1WT to control totals, by selected characteristics: 2006**

Model variable <sup>1</sup>	Control total <sup>2</sup>	Average weight adjustment factor
Total	3,523,300	1.02
Census region		
Northeast	650,400	1.01
Midwest	850,100	1.01
South	1,212,200	1.01
West	810,600	1.03
School sector		
Public	3,257,900	1.02
Catholic	145,900	1.01
Other private	119,500	1.02
Sex		
Male	1,785,700	0.99
Female	1,737,600	1.04
Race/ethnicity <sup>3</sup>		
Asian	149,500	1.05
Black or African American	505,100	1.06
Hispanic or Latino	582,100	1.07
All other races	2,286,700	0.99
10th-grade cohort status		
Not a sophomore cohort member	63,900	1.14
Sophomore cohort member	3,459,400	1.01
12th-grade cohort status		
Not a senior cohort member	516,200	0.97
Senior cohort member	3,007,100	1.02
10th-grade cohort status and race/ethnicity		
Not sophomore cohort, Hispanic	20,800	1.17
Asian nonsophomore cohort member	4,800	1.12
Black nonsophomore cohort member	6,300	1.28
White/other nonsophomore cohort member	32,000	1.11
Hispanic sophomore cohort member	561,300	1.06
Asian sophomore cohort member	144,700	1.04
Black sophomore cohort member	498,800	1.06
White/other sophomore cohort member	2,254,600	0.99
Region and 10th-grade cohort status		
Nonsophomore cohort member – Northeast	13,100	1.15
Nonsophomore cohort member – Midwest	11,000	1.05
Nonsophomore cohort member – South	22,900	1.21
Nonsophomore cohort member – West	16,900	1.09
Sophomore cohort member – Northeast	637,300	1.01
Sophomore cohort member – Midwest	839,100	1.01
Sophomore cohort member – South	1,189,300	1.01
Sophomore cohort member – West	793,700	1.03
School sector and 10th-grade cohort status		
Public school nonsophomore cohort member	60,500	1.14
Catholic school nonsophomore cohort member	50	1.12
Other private school nonsophomore cohort member	3,300	1.18

See notes at end of table.

**Table I-9. Average weight adjustment factors for calibrating the panel weight F2F1WT to control totals, by selected characteristics: 2006—Continued**

Model variable <sup>1</sup> —Continued	Control total <sup>2</sup>	Average weight adjustment factor
Public school sophomore cohort member	3,197,400	1.01
Catholic school sophomore cohort member	145,800	1.01
Other private school sophomore cohort member	116,200	1.02
<b>Sex and 10th-grade cohort status</b>		
Male nonsophomore cohort member	37,200	1.20
Female nonsophomore cohort member	26,600	1.08
Male sophomore cohort member	1,748,500	0.98
Female sophomore cohort member	1,710,900	1.04
<b>12th-grade cohort status and race/ethnicity</b>		
Not senior cohort, Hispanic	129,500	0.97
Asian nonsenior cohort member	14,000	0.95
Black nonsenior cohort member	103,200	1.01
White/other nonsenior cohort member	269,600	0.95
Hispanic senior cohort member	452,600	1.09
Asian senior cohort member	135,400	1.06
Black senior cohort member	401,900	1.07
White/other senior cohort member	2,017,100	0.99
<b>Region and 12th-grade cohort status</b>		
Nonsenior cohort member – Northeast	85,200	1.05
Nonsenior cohort member – Midwest	107,600	0.96
Nonsenior cohort member – South	197,300	0.93
Nonsenior cohort member – West	126,100	1.00
Senior cohort member – Northeast	565,100	1.01
Senior cohort member – Midwest	742,600	1.01
Senior cohort member – South	1,014,900	1.02
Senior cohort member – West	684,500	1.03
<b>School sector and 12th-grade cohort status</b>		
Public school nonsenior cohort member	502,800	0.97
Catholic school nonsenior cohort member	3,500	1.09
Other private school nonsenior cohort member	9,900	0.96
Public school senior cohort member	2,755,100	1.02
Catholic school senior cohort member	142,300	1.01
Other private school senior cohort member	109,600	1.02
<b>Sex and 12th-grade cohort status</b>		
Male nonsenior cohort member	287,100	0.95
Female nonsenior cohort member	229,100	0.99
Male senior cohort member	1,498,600	0.99
Female senior cohort member	1,508,500	1.05

<sup>1</sup> Model variables had a value of 0 or 1.

<sup>2</sup> The control totals were calculated using the first follow-up expanded weight sums

<sup>3</sup> "All other races" includes White, American Indian or Alaska Native, Pacific Islander or Native Hawaiian, and More than one race. All race categories exclude individuals of Hispanic or Latino origin.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

**Table I-10. Average weight adjustment factors used to adjust the panel weight F2BYWT for nonresponse due to nonfielded cases, by selected characteristics: 2006**

Model predictor variables <sup>1</sup>	Number of responding students and "other" nonresponding students <sup>2</sup>	Weighted response rate	Average weight adjustment factor
Total	15,700	0.96	1.08
School sector			
Public	12,300	0.96	1.08
Catholic	2,000	0.96	1.04
Other private	1,400	0.95	1.14
School urbanicity			
Urban	5,300	0.95	1.10
Suburban	7,500	0.96	1.07
Rural	2,900	0.98	1.06
Census region			
Northeast	2,900	0.94	1.11
Midwest	3,900	0.96	1.07
South	5,700	0.97	1.05
West	3,200	0.96	1.11
10th-grade enrollment			
0–99	3,100	0.98	1.08
100–249	4,000	0.98	1.05
250–499	5,000	0.95	1.08
≥ 500	3,600	0.95	1.11
Type of grades within school			
K–12, PreK–10th, 1st–12th, PreK/1st–9th/12th and PreK–12 schools	1,000	0.97	1.18
Middle grades but no elementary	1,700	0.98	1.04
Only high school	13,100	0.96	1.08
Number of grades within the school			
4	12,000	0.96	1.07
> or < 4	3,700	0.96	1.10
Number of days in school year			
Less than 180 days	4,100	0.97	1.07
180 days	8,700	0.96	1.08
More than 180 days	2,900	0.94	1.10
Minutes per class period			
≤ 45	3,700	0.94	1.10
46–50	3,400	0.96	1.08
51–80	4,200	0.96	1.09
≥ 81	4,400	0.97	1.06
Class periods per day			
1–4	4,500	0.97	1.06
5–6	3,900	0.95	1.10
7	4,300	0.96	1.08
8–9	3,000	0.95	1.10

See notes at end of table.



**Table I-10. Average weight adjustment factors used to adjust the panel weight F2BYWT for nonresponse due to nonfielded cases, by selected characteristics: 2006—Continued**

Model predictor variables <sup>1</sup> —Continued	Number of responding students and “other” nonresponding students <sup>2</sup>	Weighted response rate	Average weight adjustment factor
<b>IEP<sup>3</sup> percentage</b>			
≤ 5 percent	6,100	0.96	1.09
6–10 percent	4,000	0.95	1.07
11–15 percent	3,500	0.97	1.06
> 15 percent	2,100	0.96	1.11
<b>LEP<sup>4</sup> percentage</b>			
0 percent	6,800	0.96	1.07
1 percent	3,100	0.96	1.07
2–5 percent	2,600	0.95	1.09
≥ 6 percent	3,200	0.96	1.11
<b>Free or reduced-price lunch</b>			
0 percent	2,800	0.95	1.08
1–10 percent	3,600	0.95	1.09
11–30 percent	4,700	0.97	1.08
≥ 31 percent	4,700	0.96	1.08
<b>Number of full-time teachers</b>			
1–40	4,100	0.97	1.06
41–70	4,000	0.97	1.06
71–100	4,000	0.96	1.10
> 100	3,600	0.95	1.10
<b>Number of part-time teachers</b>			
0–1	4,600	0.96	1.08
2–3	4,500	0.97	1.07
4–6	3,800	0.96	1.08
≥ 7	2,800	0.94	1.10
<b>Full-time teachers certified</b>			
0–90 percent	4,000	0.96	1.09
91–99 percent	2,800	0.96	1.08
100 percent	8,900	0.96	1.08
<b>School coeducational status</b>			
Coeducational school	14,900	0.96	1.08
All-female school	370	0.93	1.06
All-male school	430	0.97	1.03
<b>Total enrollment</b>			
0–600 students	3,700	0.98	1.06
601–1,200 students	4,700	0.96	1.07
1,201–1,800 students	3,600	0.96	1.07
> 1,800 students	3,700	0.95	1.11
<b>Asian 10th-grade enrollment</b>			
≤ 2 percent	6,100	0.96	1.06
> 2 percent	9,700	0.96	1.09

See notes at end of table.

**Table I-10. Average weight adjustment factors used to adjust the panel weight F2BYWT for nonresponse due to nonfielded cases, by selected characteristics: 2006**

Model predictor variables <sup>1</sup>	Number of responding students and "other" nonresponding students <sup>2</sup>	Weighted response rate	Average weight adjustment factor
Black or African American 10th-grade enrollment			
≤ 4 percent	5,300	0.97	1.07
> 4 percent	10,400	0.96	1.08
Hispanic or Latino 10th-grade enrollment			
≤ 3 percent	6,100	0.96	1.07
> 3 percent	9,700	0.96	1.09
All other races 10th-grade enrollment			
≤ 80 percent	7,900	0.96	1.09
> 80 percent	7,900	0.96	1.07
Sex			
Male	7,800	0.96	1.08
Female	8,000	0.96	1.08
Race/ethnicity <sup>5</sup>			
Asian	1,600	1.00	1.11
Black or African American	2,100	1.00	1.02
Hispanic or Latino	2,300	1.00	1.02
All other races	9,700	0.94	1.10

<sup>1</sup> Model predictor variables had a value of 0 or 1. Some of the listed model predictor variables were not actually in the model because they served as reference groups. For each group of variables, one of the categories (predictor variable) was used as a reference group.

<sup>2</sup> "Other" nonresponding students are students who were nonrespondents among those sample members fielded for the second follow-up. Responding students are grouped with the "other" nonrespondents for the first nonresponse adjustment that adjusts nonfielded cases.

<sup>3</sup> IEP = Individualized Education Program.

<sup>4</sup> LEP = limited English proficient.

<sup>5</sup> "All other races" includes White, American Indian or Alaska Native, Pacific Islander or Native Hawaiian, and More than one race. All race categories exclude individuals of Hispanic or Latino origin.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

**Table I-11. Average weight adjustment factors used to adjust the panel weight F2BYWT for refusal nonresponse, by selected characteristics: 2006**

Model predictor variables <sup>1</sup>	Number of responding students	Weighted response rate	Average weight adjustment factor
Total	14,000	0.89	1.13
School sector			
Public	10,900	0.89	1.14
Catholic	1,800	0.92	1.09
Other private	1,300	0.90	1.14
School urbanicity			
Urban	4,700	0.88	1.14
Suburban	6,700	0.89	1.13
Rural	2,600	0.90	1.12
Census region			
Northeast	2,600	0.89	1.13
Midwest	3,600	0.90	1.11
South	5,100	0.89	1.12
West	2,800	0.87	1.18
10th-grade enrollment			
0–99	2,700	0.89	1.13
100–249	3,700	0.91	1.10
250–499	4,500	0.89	1.13
≥ 500	3,100	0.87	1.17
Type of grades within school			
K–12, PreK–10th, 1st–12th, PreK/1st–9th/12th and PreK–12 schools	920	0.90	1.14
Middle grades but no elementary	1,500	0.90	1.11
Only high school	11,600	0.89	1.13
Number of grades within the school			
4	10,700	0.88	1.13
> or < 4	3,300	0.90	1.12
Number of days in school year			
Less than 180 days	3,700	0.90	1.11
180 days	7,800	0.89	1.13
More than 180 days	2,600	0.87	1.15
Minutes per class period			
≤ 45	3,400	0.90	1.12
46–50	3,000	0.89	1.12
51–80	3,700	0.88	1.14
≥ 81	3,900	0.89	1.13
Class periods per day			
1–4	4,100	0.89	1.12
5–6	3,400	0.88	1.15
7	3,800	0.89	1.13
8–9	2,700	0.90	1.11

See notes at end of table.

**Table I-11. Average weight adjustment factors used to adjust the panel weight F2BYWT for refusal nonresponse, by selected characteristics: 2006—Continued**

Model predictor variables <sup>1</sup> —Continued	Number of responding students	Weighted response rate	Average weight adjustment factor
IEP <sup>2</sup> percentage			
≤ 5 percent	5,500	0.89	1.12
6–10 percent	3,600	0.88	1.14
11–15 percent	3,100	0.89	1.13
> 15 percent	1,900	0.89	1.14
LEP <sup>3</sup> percentage			
0 percent	6,100	0.91	1.11
1 percent	2,800	0.90	1.11
2–5 percent	2,300	0.89	1.13
≥ 6 percent	2,700	0.85	1.20
Free or reduced-price lunch			
0 percent	2,500	0.91	1.11
1–10 percent	3,200	0.90	1.12
11–30 percent	4,200	0.89	1.13
≥ 31 percent	4,100	0.88	1.15
Number of full-time teachers			
1–40	3,700	0.90	1.12
41–70	3,600	0.90	1.12
71–100	3,600	0.89	1.14
> 100	3,200	0.88	1.14
Number of part-time teachers			
0–1	4,000	0.88	1.14
2–3	4,100	0.89	1.12
4–6	3,400	0.89	1.13
≥ 7	2,500	0.90	1.12
Full-time teachers certified			
0–90 percent	3,600	0.88	1.14
91–99 percent	2,500	0.89	1.13
100 percent	7,900	0.89	1.13
School coeducational status			
Coeducational school	13,300	0.89	1.13
All-female school	350	0.94	1.06
All-male school	390	0.91	1.10
Total enrollment			
0–600 students	3,300	0.90	1.12
601–1,200 students	4,300	0.90	1.12
1,201–1,800 students	3,200	0.89	1.13
> 1,800 students	3,300	0.87	1.16
Asian 10th-grade enrollment			
≤ 2 percent	5,500	0.90	1.11
> 2 percent	8,600	0.88	1.14

See notes at end of table.

**Table I-11. Average weight adjustment factors used to adjust the panel weight F2BYWT for refusal nonresponse, by selected characteristics: 2006—Continued**

Model predictor variables <sup>1</sup> —Continued	Number of responding students	Weighted response rate	Average weight adjustment factor
Black or African American 10th-grade enrollment			
≤ 4 percent	4,800	0.89	1.12
> 4 percent	9,200	0.89	1.13
Hispanic or Latino 10th-grade enrollment			
≤ 3 percent	5,500	0.91	1.10
> 3 percent	8,500	0.88	1.15
All other races 10th-grade enrollment			
≤ 80 percent	6,900	0.87	1.15
> 80 percent	7,100	0.91	1.11
Sex			
Male	6,800	0.87	1.16
Female	7,300	0.91	1.10
Race/ethnicity <sup>4</sup>			
Asian	1,400	0.88	1.15
Black or African American	1,900	0.88	1.14
Hispanic or Latino	2,000	0.86	1.15
All other races	8,800	0.90	1.12
Family composition			
Mother and father	8,500	0.90	1.12
Mother and male guardian	1,600	0.88	1.14
Father and female guardian	410	0.84	1.19
Two guardians	220	0.81	1.22
Mother only	2,500	0.88	1.13
Father only	400	0.84	1.21
Single guardian	200	0.81	1.24
Lives with student less than half the year	130	0.87	1.14
Parental education			
Did not finish high school	840	0.86	1.17
Graduated from high school	2,700	0.86	1.16
Attended 2-year school, no degree	1,500	0.89	1.12
Graduated from 2-year school	1,400	0.90	1.12
Attended college, no 4-year degree	1,600	0.88	1.13
Graduated from college	3,200	0.90	1.12
Completed master's degree or equivalent	1,700	0.91	1.12
Completed Ph.D., M.D., other advanced degree	1,000	0.93	1.09
Mother's occupation			
No job for pay	540	0.88	1.15
Clerical	2,300	0.89	1.12
Craftsperson	320	0.90	1.12
Farmer, farm manager or laborer	680	0.88	1.15
Homemaker	690	0.81	1.24
Manager, administrator	1,500	0.89	1.12
Military or protective service	130	0.88	1.14

See notes at end of table.

**Table I-11. Average weight adjustment factors used to adjust the panel weight F2BYWT for refusal nonresponse, by selected characteristics: 2006—Continued**

Model predictor variables <sup>1</sup> —Continued	Number of responding students	Weighted response rate	Average weight adjustment factor
Mother's occupation—Continued			
Operative	580	0.89	1.12
Professional a	2,100	0.91	1.11
Professional b	550	0.91	1.10
Proprietor, owner	330	0.86	1.17
Sales	610	0.88	1.15
School teacher	950	0.93	1.08
Service	2,100	0.87	1.16
Technical	700	0.93	1.08
Father's occupation			
No job for pay	150	0.86	1.18
Clerical	340	0.90	1.11
Craftsperson	1,800	0.89	1.13
Farmer, farm manager	270	0.90	1.13
Homemaker	330	0.82	1.22
Laborer	1,400	0.86	1.16
Manager, administrator	2,100	0.89	1.13
Military	190	0.90	1.12
Operative	1,600	0.89	1.13
Professional a	1,600	0.91	1.11
Professional b	860	0.90	1.12
Proprietor, owner	850	0.88	1.14
Protective service	480	0.91	1.11
Sales	730	0.91	1.11
School teacher	210	0.97	1.04
Service	560	0.85	1.18
Technical	660	0.90	1.11
Socioeconomic status (SES)			
Lowest quartile	3,300	0.87	1.15
Second quartile	3,300	0.87	1.15
Third quartile	3,400	0.89	1.13
Highest quartile	4,100	0.92	1.09
English as native Language			
English is not the student's native language	2,300	0.86	1.16
English is the student's native language	11,700	0.89	1.12
12th-grade cohort status			
Not senior cohort member	1,600	0.78	1.29
Senior cohort member	12,400	0.91	1.11

See notes at end of table.

**Table I-11. Average weight adjustment factors used to adjust the panel weight F2BYWT for refusal nonresponse, by selected characteristics: 2006—Continued**

Model predictor variables <sup>1</sup> —Continued	Number of responding students	Weighted response rate	Average weight adjustment factor
<b>Income</b>			
\$1,000 or less	210	0.89	1.13
\$1,001 to \$5,000	260	0.87	1.16
\$5,001 to \$10,000	290	0.90	1.12
\$10,001 to \$15,000	600	0.88	1.14
\$15,001 to \$20,000	670	0.88	1.14
\$20,001 to \$25,000	850	0.88	1.14
\$25,001 to \$35,000	1,600	0.87	1.15
\$35,001 to \$50,000	2,600	0.88	1.14
\$50,001 to \$75,000	2,900	0.90	1.11
\$75,001 to \$100,000	1,900	0.89	1.13
\$100,001 to \$200,000	1,600	0.89	1.13
\$200,001 or more	520	0.94	1.07
<b>CHAID5 segments</b>			
CHAID segment 1 = 2nd and 3rd SES quartile; limited English proficiency of 0–5 percent; in school, in grade	4,900	0.91	1.10
CHAID segment 2 = lowest SES quartile; limited English proficiency of 0–5 percent; in school, in grade	1,800	0.89	1.13
CHAID segment 3 = highest SES quartile; limited English proficiency of 0–5 percent; in school, in grade	3,400	0.94	1.07
CHAID segment 4 = limited English proficiency $\geq$ 6 percent; Asian 10th-grade enrollment $\leq$ 2 percent; in school, in grade	630	0.90	1.10
CHAID segment 5 = limited English proficiency $\geq$ 6 percent; Asian 10th-grade enrollment $>$ 2 percent; in school, in grade	1,600	0.86	1.19
CHAID segment 6 = income $\leq$ 10,000 or 15,001–20,000 or 35,001–50,000; final F1 enrollment status is enrolled in base-year school; in school, out of grade	60	0.66	1.50
CHAID segment 7 = income of 10,001–15,000 or 20,001–35,000 or 50,001–75,000; final F1 enrollment status is enrolled in base-year school; in school, out of grade	80	0.84	1.20
CHAID segment 8 = income $>$ 75,000; final F1 enrollment status is enrolled in base-year school; in school, out of grade	20	0.38	1.38
CHAID segment 9 = sex = male; final F1 enrollment status is graduated early or early GED; in school, out of grade	270	0.85	1.18
CHAID segment 10 = sex = female; final F1 enrollment status is graduated early or early GED; in school, out of grade	310	0.90	1.11
CHAID segment 11 = free or reduced-price lunch of $\geq$ 31 percent; final F1 enrollment status is enrolled in transfer school; in school, out of grade	100	0.66	1.48
CHAID segment 12 = free or reduced-price lunch of $<$ 31 percent; final F1 enrollment status is enrolled in transfer school; in school, out of grade	90	0.48	2.06
CHAID segment 13 = number of days in school year of $\leq$ 180 days; lowest 3 quartiles of SES; out of school (dropout or homeschooled)	560	0.85	1.23

See notes at end of table.

**Table I-11. Average weight adjustment factors used to adjust the panel weight F2BYWT for refusal nonresponse, by selected characteristics: 2006—Continued**

Model predictor variables <sup>1</sup> —Continued	Number of responding students	Weighted response rate	Average weight adjustment factor
CHAID segment 14 = number of days in school year of > 180 days; lowest three quartiles of SES; out of school (dropout or homeschooled)	110	0.74	1.36
CHAID segment 15 = highest SES quartile; out of school (dropout or homeschooled)	70	0.97	1.04
CHAID segment 16 = out of scope	40	0.59	1.72

<sup>1</sup> Model predictor variables had a value of 0 or 1. Some of the listed model predictor variables were not actually in the model because they served as reference groups. For each group of variables, one of the categories (predictor variable) was used as a reference group.

<sup>2</sup> IEP = Individualized Education Program.

<sup>3</sup> LEP = limited English proficient.

<sup>4</sup> "All other races" includes White, American Indian or Alaska Native, Pacific Islander or Native Hawaiian, and More than one race. All race categories exclude individuals of Hispanic or Latino origin.

<sup>5</sup> CHAID = chi-squared automatic interaction detection.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

**Table I-12. Average weight adjustment factors for calibrating the panel weight F2BYWT to control totals, by selected characteristics: 2006**

Model variable <sup>1</sup>	Control total <sup>2</sup>	Average weight adjustment factor
Total	3,459,400	1.01
Census region		
Northeast	637,300	1.02
Midwest	839,100	1.01
South	1,189,300	1.01
West	793,700	1.03
School sector		
Public	3,197,400	1.01
Catholic	145,800	1.01
Other private	116,200	1.01
Sex		
Male	1,748,500	0.99
Female	1,710,900	1.04
Race/ethnicity <sup>3</sup>		
Asian	144,700	1.04
Black or African American	498,800	1.05
Hispanic or Latino	561,300	1.06
All other races	2,254,600	0.99

<sup>1</sup> Model variables had a value of 0 or 1.

<sup>2</sup> The control totals were calculated using the first follow-up expanded weight sums.

<sup>3</sup> "All other races" includes White, American Indian or Alaska Native, Pacific Islander or Native Hawaiian, and More than one race. All race categories exclude individuals of Hispanic or Latino origin.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."



**Appendix J**  
**Standard Errors and Design Effects**

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Table J-1. Student design effects, by item, using second follow-up questionnaire weight—All: 2006

Survey item (or composite variable)	Variable	Estimate	Design		Simple random		N	DEFF	DEFT
			standard error	standard error	standard error	sample			
Ever dropped out	F2EVERDO=1	13.1	0.46	0.28	14,100	2.62	1.62	1.62	
Fall 2003–summer 2004 high school graduate	F2HSSTAT=1	82.6	0.56	0.32	14,100	3.08	1.76	1.76	
Received GED or other equivalency	F2HSSTAT=6	3.8	0.21	0.16	14,100	1.71	1.31	1.31	
Ever applied to a postsecondary school	F2EVRRAPP=1	77.8	0.58	0.35	14,000	2.75	1.66	1.66	
Meet with advisor about academic plans often	F2B18B=3	24.2	0.50	0.42	10,500	1.42	1.19	1.19	
Participate in other extracurricular activities often	F2B18C=3	24.3	0.53	0.42	10,500	1.62	1.27	1.27	
Postsecondary education paid with grants/scholarships	F2B25A=1	55.1	0.70	0.49	10,500	2.06	1.44	1.44	
Expect to finish college, but not advanced degree	F2STEXP=6	31.6	0.48	0.39	14,100	1.49	1.22	1.22	
Ever held a job since leaving high school	F2EVRJOB=1	92.6	0.27	0.22	14,000	1.52	1.23	1.23	
First job is working for an employer	F2C07=1	88.1	0.60	0.50	4,200	1.43	1.19	1.19	
Current employer offers health insurance	F2C21=1	66.6	0.99	0.80	3,500	1.53	1.24	1.24	
At age 30 expects to have a job as a laborer	F2OCC30=5	1.0	0.12	0.10	10,500	1.61	1.27	1.27	
At age 30 expects to have a job as a manager	F2OCC30=6	13.6	0.43	0.33	10,500	1.62	1.27	1.27	
At age 30 expects to have a job in the military	F2OCC30=7	1.1	0.12	0.10	10,500	1.51	1.23	1.23	
At age 30 expects to have a professional job (group a)	F2OCC30=9	29.6	0.60	0.45	10,500	1.82	1.35	1.35	
At age 30 expects to have a sales job	F2OCC30=13	2.5	0.18	0.15	10,500	1.42	1.19	1.19	
At age 30 expects to have a job as a school teacher	F2OCC30=14	5.4	0.28	0.22	10,500	1.61	1.27	1.27	
College degree but not advanced degree needed for job at age 30	F2C41=6	39.2	0.54	0.42	13,600	1.67	1.29	1.29	
Respondent's current marital status is single	F2D01=1	94.7	0.27	0.19	14,000	2.09	1.44	1.44	
Respondent's current marital status is married	F2D01=2	4.8	0.26	0.18	14,000	2.01	1.42	1.42	
Number of friends or roommates living with respondent	F2D08C	0.7	0.02	0.01	14,000	2.56	1.60	1.60	
Number of siblings living with respondent	F2D08D	0.6	0.01	0.01	14,000	2.77	1.66	1.66	
Respondent lives in school provided housing in spring 2006	F2D07=1	31.1	0.79	0.50	8,500	2.48	1.57	1.57	
Respondent performed community service in past 2 years	F2D09=1	40.9	0.58	0.42	14,000	1.96	1.40	1.40	
Volunteered with school/community organizations	F2D10B=1	28.1	0.79	0.57	6,100	1.88	1.37	1.37	
Volunteered with church-related group	F2D10D=1	46.2	0.83	0.64	6,100	1.68	1.30	1.30	
Voted in 2004 Presidential election	F2D13=1	49.6	0.66	0.42	14,000	2.42	1.55	1.55	
Respondent served in military	F2D14=1	2.9	0.18	0.14	14,000	1.60	1.26	1.26	
Respondent's parent/guardian divorced in last 2 years	F2D15A=1	7.6	0.27	0.22	14,000	1.46	1.21	1.21	
Respondent's parent/guardian lost job in last 2 years	F2D15B=1	14.2	0.37	0.29	14,000	1.60	1.26	1.26	
Summary statistics									
Mean						1.90	1.37	1.37	
Minimum						1.42	1.19	1.19	
Median						1.67	1.29	1.29	
Maximum						3.08	1.76	1.76	
Standard Deviation						0.48	0.17	0.17	

NOTE: DEFF = design effect; DEFT = root design effect; N = sample size. GED = General Educational Development credential.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, Restricted-Use Data File, 2006."

**Table J-2. Student design effects, by item, using second follow-up questionnaire weight—Male: 2006**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Ever dropped out	F2EVERDO=1	15.4	0.62	0.44	6,800	2.02	1.42
Fall 2003—summer 2004 high school graduate	F2HSSTAT=1	79.7	0.72	0.49	6,800	2.20	1.48
Received GED or other equivalency	F2HSSTAT=6	4.5	0.32	0.25	6,800	1.59	1.26
Ever applied to a postsecondary school	F2EVRAP=1	73.5	0.74	0.54	6,800	1.90	1.38
Meet with advisor about academic plans often	F2B18B=3	20.0	0.69	0.58	4,800	1.45	1.20
Participate in other extracurricular activities often	F2B18G=3	23.2	0.77	0.61	4,800	1.62	1.27
Postsecondary education paid with grants/scholarships	F2B25A=1	50.3	0.99	0.72	4,800	1.89	1.37
Expect to finish college, but not advanced degree	F2STEXP=6	32.9	0.67	0.57	6,800	1.37	1.17
Ever held a job since leaving high school	F2EVRJOB=1	93.2	0.36	0.31	6,800	1.40	1.18
First job is working for an employer	F2C07=1	84.8	0.87	0.75	2,300	1.35	1.16
Current employer offers health insurance	F2C21=1	69.8	1.25	1.04	2,000	1.46	1.21
At age 30 expects to have a job as a laborer	F2OCC30=5	1.8	0.25	0.19	5,000	1.66	1.29
At age 30 expects to have a job as a manager	F2OCC30=6	17.0	0.66	0.53	5,000	1.52	1.23
At age 30 expects to have a job in the military	F2OCC30=7	2.0	0.24	0.20	5,000	1.47	1.21
At age 30 expects to have a professional job (group a)	F2OCC30=9	26.2	0.80	0.62	5,000	1.62	1.27
At age 30 expects to have a sales job	F2OCC30=13	3.0	0.27	0.24	5,000	1.30	1.14
At age 30 expects to have a job as a school teacher	F2OCC30=14	1.9	0.25	0.19	5,000	1.67	1.29
College degree but not advanced degree needed for job at age 30	F2C41=6	38.7	0.77	0.60	6,600	1.65	1.28
Respondent's current marital status is single	F2D01=1	96.7	0.27	0.22	6,800	1.59	1.26
Respondent's current marital status is married	F2D01=2	2.9	0.25	0.20	6,800	1.49	1.22
Number of friends or roommates living with respondent	F2D08C	0.7	0.02	0.01	6,800	2.05	1.43
Number of siblings living with respondent	F2D08D	0.6	0.02	0.01	6,800	2.12	1.46
Respondent lives in school provided housing in spring 2006	F2D07=1	31.5	1.04	0.75	3,800	1.92	1.39
Respondent performed community service in past 2 years	F2D09=1	37.5	0.74	0.59	6,800	1.60	1.26
Volunteered with school/community organizations	F2D10B=1	24.9	1.02	0.83	2,700	1.52	1.23
Volunteered with church-related group	F2D10D=1	45.7	1.18	0.96	2,700	1.53	1.24
Voted in 2004 Presidential election	F2D13=1	47.4	0.84	0.61	6,800	1.90	1.38
Respondent served in military	F2D14=1	4.9	0.33	0.26	6,800	1.58	1.26
Respondent's parent/guardian divorced in last 2 years	F2D15A=1	7.0	0.38	0.31	6,800	1.46	1.21
Respondent's parent/guardian lost job in last 2 years	F2D15B=1	13.2	0.52	0.41	6,800	1.62	1.27
<b>Summary statistics</b>							
Mean						1.65	1.28
Minimum						1.30	1.14
Median						1.59	1.26
Maximum						2.20	1.48
Standard Deviation						0.24	0.09

NOTE: DEFF = design effect; DEFT = root design effect; N = sample size. GED = General Educational Development credential.  
 SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, Restricted-Use Data File, 2006."

Table J-3. Student design effects, by item, using second follow-up questionnaire weight—Female: 2006

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Ever dropped out	F2EVERDO=1	10.9	0.52	0.36	7,300	2.03	1.42
Fall 2003—summer 2004 high school graduate	F2HSSTAT=1	85.6	0.67	0.41	7,300	2.63	1.62
Received GED or other equivalency	F2HSSTAT=6	3.1	0.27	0.20	7,300	1.79	1.34
Ever applied to a postsecondary school	F2EVRRAPP=1	82.1	0.67	0.45	7,300	2.19	1.48
Meet with advisor about academic plans often	F2B18B=3	27.8	0.70	0.59	5,700	1.39	1.18
Participate in other extracurricular activities often	F2B18G=3	25.2	0.72	0.58	5,700	1.58	1.26
Postsecondary education paid with grants/scholarships	F2B25A=1	59.3	0.83	0.65	5,700	1.64	1.28
Expect to finish college, but not advanced degree	F2STEXP=6	30.3	0.69	0.54	7,300	1.64	1.28
Ever held a job since leaving high school	F2EVRJOB=1	92.0	0.39	0.32	7,300	1.48	1.22
First job is working for an employer	F2C07=1	92.4	0.73	0.61	1,900	1.40	1.19
Current employer offers health insurance	F2C21=1	62.2	1.46	1.23	1,600	1.40	1.18
At age 30 expects to have a job as a laborer	F2OCC30=5	0.1	0.07	0.05	5,500	1.84	1.36
At age 30 expects to have a job as a manager	F2OCC30=6	10.3	0.50	0.41	5,500	1.49	1.22
At age 30 expects to have a job in the military	F2OCC30=7	0.2	0.07	0.07	5,500	1.16	1.08
At age 30 expects to have a professional job (group a)	F2OCC30=9	32.8	0.77	0.63	5,500	1.49	1.22
At age 30 expects to have a sales job	F2OCC30=13	2.0	0.24	0.19	5,500	1.60	1.26
At age 30 expects to have a job as a school teacher	F2OCC30=14	8.7	0.47	0.38	5,500	1.56	1.25
College degree but not advanced degree needed for job at age 30	F2C41=6	39.7	0.73	0.58	7,100	1.59	1.26
Respondent's current marital status is single	F2D01=1	92.7	0.41	0.30	7,200	1.83	1.35
Respondent's current marital status is married	F2D01=2	6.7	0.40	0.29	7,200	1.82	1.35
Number of friends or roommates living with respondent	F2D08C	0.8	0.02	0.02	7,200	2.21	1.49
Number of siblings living with respondent	F2D08D	0.6	0.02	0.01	7,200	2.11	1.45
Respondent lives in school provided housing in spring 2006	F2D07=1	30.7	0.97	0.68	4,700	2.06	1.43
Respondent performed community service in past 2 years	F2D09=1	44.4	0.78	0.58	7,200	1.78	1.34
Volunteered with school/community organizations	F2D10B=1	30.9	1.05	0.79	3,400	1.76	1.33
Volunteered with church-related group	F2D10D=1	46.7	1.07	0.86	3,400	1.56	1.25
Voted in 2004 Presidential election	F2D13=1	51.8	0.86	0.59	7,200	2.12	1.46
Respondent served in military	F2D14=1	1.0	0.14	0.12	7,300	1.34	1.16
Respondent's parent/guardian divorced in last 2 years	F2D15A=1	8.2	0.38	0.32	7,200	1.38	1.17
Respondent's parent/guardian lost job in last 2 years	F2D15B=1	15.1	0.53	0.42	7,200	1.58	1.26
Summary statistics							
Mean						1.71	1.30
Minimum						1.16	1.08
Median						1.62	1.27
Maximum						2.63	1.62
Standard Deviation						0.32	0.12

NOTE: DEFF = design effect; DEFT = root design effect; N = sample size; GED = General Educational Development credential.  
 SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, Restricted-Use Data File, 2006."

**Table J-4. Student design effects, by item, using second follow-up questionnaire weight—American Indian or Alaska Native: 2006**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Ever dropped out	F2EVERDO=1	22.6	4.86	3.90	120	1.56	1.25
Fall 2003–summer 2004 high school graduate	F2HSSTAT=1	68.9	5.50	4.32	120	1.62	1.27
Received GED or other equivalency	F2HSSTAT=6	8.9	3.25	2.66	120	1.49	1.22
Ever applied to a postsecondary school	F2EVRAPP=1	68.2	6.08	4.40	110	1.91	1.38
Meet with advisor about academic plans often	F2B18B=3	27.8	5.18	5.83	60	0.79	0.89
Participate in other extracurricular activities often	F2B18G=3	32.6	6.60	6.15	60	1.15	1.07
Postsecondary education paid with grants/scholarships	F2B25A=1	65.1	7.90	6.21	60	1.62	1.27
Expect to finish college, but not advanced degree	F2STEXP=6	31.2	5.28	4.32	120	1.50	1.22
Ever held a job since leaving high school	F2EVRJOB=1	91.8	3.07	2.60	110	1.40	1.18
First job is working for an employer	F2C07=1	79.7	5.20	5.33	60	0.95	0.98
Current employer offers health insurance	F2C21=1	56.2	11.29	8.51	40	1.76	1.33
At age 30 expects to have a job as a laborer	F2OCC30=5	1.6	1.55	1.43	80	1.18	1.09
At age 30 expects to have a job as a manager	F2OCC30=6	13.2	3.83	3.91	80	0.96	0.98
At age 30 expects to have a job in the military	F2OCC30=7	4.7	3.44	2.45	80	1.96	1.40
At age 30 expects to have a professional job (group a)	F2OCC30=9	25.1	5.22	5.01	80	1.09	1.04
At age 30 expects to have a sales job	F2OCC30=13	3.9	2.65	2.24	80	1.40	1.18
At age 30 expects to have a job as a school teacher	F2OCC30=14	6.5	2.69	2.85	80	0.90	0.95
College degree but not advanced degree needed for job at age 30	F2C41=6	38.1	6.82	4.88	100	1.95	1.40
Respondent's current marital status is single	F2D01=1	87.9	4.12	3.08	110	1.79	1.34
Respondent's current marital status is married	F2D01=2	12.1	4.12	3.08	110	1.79	1.34
Number of friends or roommates living with respondent	F2D08C	0.4	0.08	0.08	110	0.93	0.97
Number of siblings living with respondent	F2D08D	0.8	0.13	0.11	110	1.37	1.17
Respondent lives in school provided housing in spring 2006	F2D07=1	22.8	6.33	6.55	40	0.93	0.97
Respondent performed community service in past 2 years	F2D09=1	32.4	5.10	4.42	110	1.33	1.15
Volunteered with school/community organizations	F2D10B=1	26.0	6.81	7.21	40	0.89	0.94
Volunteered with church-related group	F2D10D=1	31.8	9.22	7.66	40	1.45	1.20
Voted in 2004 Presidential election	F2D13=1	45.7	6.19	4.71	110	1.73	1.31
Respondent served in military	F2D14=1	2.9	1.80	1.59	110	1.29	1.13
Respondent's parent/guardian divorced in last 2 years	F2D15A=1	10.3	4.09	2.88	110	2.02	1.42
Respondent's parent/guardian lost job in last 2 years	F2D15B=1	21.3	3.81	3.87	110	0.97	0.98
Summary statistics							
Mean						1.39	1.17
Minimum						0.79	0.89
Median						1.40	1.18
Maximum						2.02	1.42
Standard Deviation						0.37	0.16

NOTE: DEFF = design effect; DEFT = root design effect; N = sample size. GED = General Educational Development credential.  
 SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, Restricted-Use Data File, 2006."

Table J-5. Student design effects, by item, using second follow-up questionnaire weight—Asian: 2006

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Ever dropped out	F2EVERDO=1	8.6	1.09	0.75	1,400	2.12	1.46
Fall 2003–summer 2004 high school graduate	F2HSSTAT=1	87.8	1.28	0.87	1,400	2.17	1.47
Received GED or other equivalency	F2HSSTAT=6	1.9	0.42	0.37	1,400	1.28	1.13
Ever applied to a postsecondary school	F2EVRAPP=1	87.5	1.14	0.88	1,400	1.67	1.29
Meet with advisor about academic plans often	F2B18B=3	19.0	1.27	1.14	1,200	1.23	1.11
Participate in other extracurricular activities often	F2B18G=3	27.9	1.75	1.30	1,200	1.81	1.34
Postsecondary education paid with grants/scholarships	F2B25A=1	58.6	1.81	1.44	1,200	1.59	1.26
Expect to finish college, but not advanced degree	F2STEXP=6	30.3	1.40	1.22	1,400	1.30	1.14
Ever held a job since leaving high school	F2EVRJOB=1	79.8	1.21	1.07	1,400	1.28	1.13
First job is working for an employer	F2C07=1	85.8	2.76	2.35	220	1.39	1.18
Current employer offers health insurance	F2C21=1	62.4	4.13	3.59	180	1.32	1.15
At age 30 expects to have a job as a laborer	F2OCC30=5	0.4	0.21	0.19	990	1.24	1.12
At age 30 expects to have a job as a manager	F2OCC30=6	13.8	1.34	1.10	990	1.48	1.22
At age 30 expects to have a job in the military	F2OCC30=7	0.5	0.22	0.22	990	0.98	0.99
At age 30 expects to have a professional job (group a)	F2OCC30=9	35.2	1.62	1.52	990	1.13	1.06
At age 30 expects to have a sales job	F2OCC30=13	1.4	0.35	0.38	990	0.83	0.91
At age 30 expects to have a job as a school teacher	F2OCC30=14	2.5	0.55	0.49	990	1.26	1.12
College degree but not advanced degree needed for job at age 30	F2C41=6	37.0	1.68	1.31	1,400	1.65	1.28
Respondent's current marital status is single	F2D01=1	96.9	0.58	0.46	1,400	1.59	1.26
Respondent's current marital status is married	F2D01=2	2.9	0.57	0.45	1,400	1.59	1.26
Number of friends or roommates living with respondent	F2D08C	0.9	0.05	0.04	1,400	1.81	1.35
Number of siblings living with respondent	F2D08D	0.9	0.06	0.04	1,400	2.45	1.56
Respondent lives in school provided housing in spring 2006	F2D07=1	30.4	1.77	1.42	1,100	1.56	1.25
Respondent performed community service in past 2 years	F2D09=1	47.7	1.88	1.34	1,400	1.96	1.40
Volunteered with school/community organizations	F2D10B=1	39.3	2.46	1.88	680	1.71	1.31
Volunteered with church-related group	F2D10D=1	42.4	2.09	1.91	670	1.20	1.10
Voted in 2004 Presidential election	F2D13=1	32.7	1.77	1.26	1,400	1.98	1.41
Respondent served in military	F2D14=1	1.2	0.36	0.30	1,400	1.50	1.22
Respondent's parent/guardian divorced in last 2 years	F2D15A=1	5.2	0.68	0.59	1,400	1.33	1.15
Respondent's parent/guardian lost job in last 2 years	F2D15B=1	13.6	1.12	0.92	1,400	1.48	1.22
Summary statistics							
Mean						1.53	1.23
Minimum						0.83	0.91
Median						1.49	1.22
Maximum						2.45	1.56
Standard Deviation						0.36	0.15

NOTE: DEFF = design effect; DEFT = root design effect; N = sample size; GED = General Educational Development credential.  
 SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, Restricted-Use Data File, 2006."

**Table J-6. Student design effects, by item, using second follow-up questionnaire weight—Black or African American: 2006**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Ever dropped out	F2EVERDO=1	20.7	1.39	0.94	1,900	2.19	1.48
Fall 2003–summer 2004 high school graduate	F2HSSTAT=1	72.8	1.56	1.03	1,900	2.29	1.51
Received GED or other equivalency	F2HSSTAT=6	4.5	0.60	0.48	1,900	1.56	1.25
Ever applied to a postsecondary school	F2EVRAPP=1	75.3	1.31	1.00	1,900	1.71	1.31
Meet with advisor about academic plans often	F2B18B=3	34.3	1.55	1.35	1,200	1.32	1.15
Participate in other extracurricular activities often	F2B18G=3	21.5	1.40	1.17	1,200	1.42	1.19
Postsecondary education paid with grants/scholarships	F2B25A=1	66.6	1.53	1.34	1,200	1.29	1.14
Expect to finish college, but not advanced degree	F2STEXP=6	30.7	1.29	1.07	1,900	1.47	1.21
Ever held a job since leaving high school	F2EVRJOB=1	90.9	0.74	0.67	1,900	1.22	1.10
First job is working for an employer	F2C07=1	88.5	1.34	1.19	720	1.27	1.13
Current employer offers health insurance	F2C21=1	70.4	2.20	1.98	540	1.24	1.11
At age 30 expects to have a job as a laborer	F2OCC30=5	0.9	0.32	0.25	1,500	1.63	1.28
At age 30 expects to have a job as a manager	F2OCC30=6	16.1	1.17	0.95	1,500	1.53	1.24
At age 30 expects to have a job in the military	F2OCC30=7	0.7	0.23	0.22	1,500	1.09	1.04
At age 30 expects to have a professional job (group a)	F2OCC30=9	30.9	1.37	1.19	1,500	1.33	1.15
At age 30 expects to have a sales job	F2OCC30=13	2.6	0.52	0.41	1,500	1.56	1.25
At age 30 expects to have a job as a school teacher	F2OCC30=14	3.6	0.58	0.48	1,500	1.46	1.21
College degree but not advanced degree needed for job at age 30	F2C41=6	38.2	1.49	1.15	1,800	1.68	1.30
Respondent's current marital status is single	F2D01=1	97.5	0.38	0.37	1,900	1.06	1.03
Respondent's current marital status is married	F2D01=2	2.2	0.37	0.34	1,900	1.13	1.06
Number of friends or roommates living with respondent	F2D08C	0.5	0.03	0.02	1,800	1.27	1.13
Number of siblings living with respondent	F2D08D	0.7	0.03	0.03	1,800	1.46	1.21
Respondent lives in school provided housing in spring 2006	F2D07=1	33.0	1.88	1.57	900	1.43	1.20
Respondent performed community service in past 2 years	F2D09=1	38.8	1.35	1.13	1,900	1.41	1.19
Volunteered with school/community organizations	F2D10B=1	27.9	1.75	1.63	750	1.14	1.07
Volunteered with church-related group	F2D10D=1	57.7	2.11	1.80	760	1.37	1.17
Voted in 2004 Presidential election	F2D13=1	48.4	1.45	1.16	1,800	1.54	1.24
Respondent served in military	F2D14=1	2.5	0.43	0.36	1,900	1.41	1.19
Respondent's parent/guardian divorced in last 2 years	F2D15A=1	9.0	0.74	0.67	1,800	1.22	1.11
Respondent's parent/guardian lost job in last 2 years	F2D15B=1	13.6	0.98	0.80	1,800	1.52	1.23
<b>Summary statistics</b>							
Mean						1.44	1.20
Minimum						1.06	1.03
Median						1.42	1.19
Maximum						2.29	1.51
Standard Deviation						0.28	0.11

NOTE: DEFF = design effect; DEFT = root design effect; N = sample size. GED = General Educational Development credential.  
 SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, Restricted-Use Data File, 2006."



**Table J-7. Student design effects, by item, using second follow-up questionnaire weight—Hispanic or Latino: 2006**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Ever dropped out	F2EVERDO=1	20.6	1.16	0.89	2,100	1.67	1.29
Fall 2003–summer 2004 high school graduate	F2HSSTAT=1	71.7	1.35	0.99	2,100	1.85	1.36
Received GED or other equivalency	F2HSSTAT=6	4.3	0.66	0.45	2,100	2.18	1.48
Ever applied to a postsecondary school	F2EVRAPP=1	69.5	1.48	1.02	2,000	2.08	1.44
Meet with advisor about academic plans often	F2B18B=3	25.4	1.39	1.22	1,300	1.30	1.14
Participate in other extracurricular activities often	F2B18G=3	15.1	1.12	1.00	1,300	1.26	1.12
Postsecondary education paid with grants/scholarships	F2B25A=1	52.9	1.70	1.40	1,300	1.48	1.21
Expect to finish college, but not advanced degree	F2STEXP=6	31.8	1.20	1.03	2,100	1.35	1.16
Ever held a job since leaving high school	F2EVRJOB=1	88.1	0.93	0.72	2,000	1.68	1.30
First job is working for an employer	F2C07=1	87.4	1.25	1.14	850	1.20	1.10
Current employer offers health insurance	F2C21=1	65.9	1.97	1.83	670	1.16	1.08
At age 30 expects to have a job as a laborer	F2OCC30=5	1.3	0.38	0.29	1,500	1.71	1.31
At age 30 expects to have a job as a manager	F2OCC30=6	13.3	0.90	0.88	1,500	1.05	1.02
At age 30 expects to have a job in the military	F2OCC30=7	0.5	0.20	0.18	1,500	1.15	1.07
At age 30 expects to have a professional job (group a)	F2OCC30=9	26.6	1.44	1.14	1,500	1.59	1.26
At age 30 expects to have a sales job	F2OCC30=13	2.6	0.50	0.41	1,500	1.45	1.20
At age 30 expects to have a job as a school teacher	F2OCC30=14	4.4	0.68	0.53	1,500	1.65	1.28
College degree but not advanced degree needed for job at age 30	F2C41=6	37.3	1.28	1.10	2,000	1.37	1.17
Respondent's current marital status is single	F2D01=1	91.8	0.69	0.61	2,000	1.27	1.13
Respondent's current marital status is married	F2D01=2	7.4	0.65	0.58	2,000	1.25	1.12
Number of friends or roommates living with respondent	F2D08C	0.4	0.02	0.02	2,000	1.05	1.02
Number of siblings living with respondent	F2D08D	1.1	0.04	0.03	2,000	2.05	1.43
Respondent lives in school provided housing in spring 2006	F2D07=1	14.7	1.46	1.16	930	1.58	1.26
Respondent performed community service in past 2 years	F2D09=1	29.9	1.09	1.02	2,000	1.14	1.07
Volunteered with school/community organizations	F2D10B=1	25.0	2.04	1.67	680	1.50	1.22
Volunteered with church-related group	F2D10D=1	48.0	2.51	1.92	680	1.70	1.30
Voted in 2004 Presidential election	F2D13=1	32.7	1.30	1.04	2,000	1.56	1.25
Respondent served in military	F2D14=1	2.6	0.41	0.35	2,000	1.37	1.17
Respondent's parent/guardian divorced in last 2 years	F2D15A=1	9.3	0.74	0.64	2,000	1.33	1.15
Respondent's parent/guardian lost job in last 2 years	F2D15B=1	14.8	0.92	0.79	2,000	1.36	1.17
<b>Summary statistics</b>							
Mean						1.48	1.21
Minimum						1.05	1.02
Median						1.41	1.19
Maximum						2.18	1.48
Standard Deviation						0.30	0.12

NOTE: DEFF = design effect; DEFT = root design effect; N = sample size. GED = General Educational Development credential.  
 SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, Restricted-Use Data File, 2006."

**Table J-8. Student design effects, by item, using second follow-up questionnaire weight—White: 2006**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Ever dropped out	F2EVERDO=1	9.3	0.46	0.32	8,000	2.05	1.43
Fall 2003—summer 2004 high school graduate	F2HSSTAT=1	88.2	0.54	0.36	8,000	2.29	1.51
Received GED or other equivalency	F2HSSTAT=6	3.4	0.25	0.20	8,000	1.52	1.23
Ever applied to a postsecondary school	F2EVRAPP=1	80.3	0.64	0.45	8,000	2.07	1.44
Meet with advisor about academic plans often	F2B18B=3	22.2	0.62	0.52	6,300	1.41	1.19
Participate in other extracurricular activities often	F2B18G=3	26.2	0.71	0.56	6,300	1.63	1.28
Postsecondary education paid with grants/scholarships	F2B25A=1	53.0	0.89	0.63	6,300	2.00	1.42
Expect to finish college, but not advanced degree	F2STEXP=6	31.9	0.62	0.52	8,000	1.44	1.20
Ever held a job since leaving high school	F2EVRJOB=1	95.2	0.28	0.24	8,000	1.36	1.17
First job is working for an employer	F2C07=1	88.4	0.85	0.70	2,100	1.48	1.22
Current employer offers health insurance	F2C21=1	65.6	1.29	1.09	1,900	1.39	1.18
At age 30 expects to have a job as a laborer	F2OCC30=5	1.0	0.16	0.13	5,900	1.67	1.29
At age 30 expects to have a job as a manager	F2OCC30=6	13.1	0.52	0.44	5,900	1.38	1.18
At age 30 expects to have a job in the military	F2OCC30=7	1.2	0.17	0.14	5,900	1.45	1.20
At age 30 expects to have a professional job (group a)	F2OCC30=9	29.5	0.84	0.59	5,900	2.02	1.42
At age 30 expects to have a sales job	F2OCC30=13	2.5	0.24	0.20	5,900	1.39	1.18
At age 30 expects to have a job as a school teacher	F2OCC30=14	6.5	0.39	0.32	5,900	1.46	1.21
College degree but not advanced degree needed for job at age 30	F2C41=6	40.3	0.69	0.56	7,800	1.52	1.23
Respondent's current marital status is single	F2D01=1	94.8	0.37	0.25	8,000	2.29	1.51
Respondent's current marital status is married	F2D01=2	4.7	0.35	0.24	8,000	2.22	1.49
Number of friends or roommates living with respondent	F2D08C	0.9	0.02	0.02	8,000	2.19	1.48
Number of siblings living with respondent	F2D08D	0.4	0.01	0.01	8,000	1.93	1.39
Respondent lives in school provided housing in spring 2006	F2D07=1	33.6	0.99	0.66	5,200	2.27	1.51
Respondent performed community service in past 2 years	F2D09=1	44.0	0.72	0.56	8,000	1.70	1.30
Volunteered with school/community organizations	F2D10B=1	28.4	0.99	0.74	3,700	1.76	1.33
Volunteered with church-related group	F2D10D=1	44.6	0.99	0.82	3,700	1.45	1.20
Voted in 2004 Presidential election	F2D13=1	56.1	0.81	0.56	8,000	2.11	1.45
Respondent served in military	F2D14=1	3.1	0.25	0.19	8,000	1.61	1.27
Respondent's parent/guardian divorced in last 2 years	F2D15A=1	6.8	0.36	0.28	8,000	1.64	1.28
Respondent's parent/guardian lost job in last 2 years	F2D15B=1	13.9	0.48	0.39	8,000	1.55	1.25
Summary statistics							
Mean						1.74	1.31
Minimum						1.36	1.17
Median						1.63	1.28
Maximum						2.29	1.51
Standard Deviation						0.33	0.12

NOTE: DEFF = design effect; DEFT = root design effect; N = sample size. GED = General Educational Development credential.  
 SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, Restricted-Use Data File, 2006."

**Table J-9. Student design effects, by item, using second follow-up questionnaire weight—More than one race: 2006**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Ever dropped out	F2EVERDO=1	15.1	1.79	1.38	670	1.67	1.29
Fall 2003—summer 2004 high school graduate	F2HSSTAT=1	77.6	1.99	1.61	670	1.52	1.23
Received GED or other equivalency	F2HSSTAT=6	5.5	1.15	0.88	670	1.71	1.31
Ever applied to a postsecondary school	F2EVRAPP=1	76.6	2.25	1.64	660	1.87	1.37
Meet with advisor about academic plans often	F2B18B=3	25.2	2.83	2.02	460	1.95	1.40
Participate in other extracurricular activities often	F2B18G=3	27.4	2.56	2.08	460	1.52	1.23
Postsecondary education paid with grants/scholarships	F2B25A=1	53.7	2.85	2.32	460	1.51	1.23
Expect to finish college, but not advanced degree	F2STEXP=6	31.6	2.38	1.79	670	1.76	1.33
Ever held a job since leaving high school	F2EVRJOB=1	90.8	1.41	1.12	660	1.58	1.26
First job is working for an employer	F2C07=1	89.8	2.35	2.03	220	1.34	1.16
Current employer offers health insurance	F2C21=1	71.9	3.93	3.20	200	1.50	1.23
At age 30 expects to have a job as a laborer	F2OCC30=5	0.7	0.35	0.37	500	0.91	0.95
At age 30 expects to have a job as a manager	F2OCC30=6	11.8	1.79	1.44	500	1.55	1.24
At age 30 expects to have a job in the military	F2OCC30=7	2.3	0.86	0.67	500	1.65	1.28
At age 30 expects to have a professional job (group a)	F2OCC30=9	31.8	2.71	2.08	500	1.71	1.31
At age 30 expects to have a sales job	F2OCC30=13	2.0	0.79	0.63	500	1.56	1.25
At age 30 expects to have a job as a school teacher	F2OCC30=14	3.5	0.94	0.82	500	1.29	1.14
College degree but not advanced degree needed for job at age 30	F2C41=6	36.4	2.67	1.90	650	1.98	1.41
Respondent's current marital status is single	F2D01=1	94.6	1.13	0.88	660	1.65	1.28
Respondent's current marital status is married	F2D01=2	4.8	1.07	0.83	660	1.65	1.28
Number of friends or roommates living with respondent	F2D08C	0.8	0.07	0.06	660	1.60	1.26
Number of siblings living with respondent	F2D08D	0.6	0.05	0.04	660	1.61	1.27
Respondent lives in school provided housing in spring 2006	F2D07=1	36.1	3.84	2.58	350	2.21	1.49
Respondent performed community service in past 2 years	F2D09=1	41.8	2.42	1.92	660	1.60	1.27
Volunteered with school/community organizations	F2D10B=1	22.1	2.90	2.45	290	1.40	1.19
Volunteered with church-related group	F2D10D=1	37.0	3.77	2.83	290	1.78	1.33
Voted in 2004 Presidential election	F2D13=1	45.6	2.56	1.94	660	1.75	1.32
Respondent served in military	F2D14=1	5.5	1.13	0.89	660	1.62	1.27
Respondent's parent/guardian divorced in last 2 years	F2D15A=1	9.5	1.43	1.14	660	1.58	1.26
Respondent's parent/guardian lost job in last 2 years	F2D15B=1	16.0	1.85	1.42	660	1.68	1.30
Summary statistics							
Mean						1.62	1.27
Minimum						0.91	0.95
Median						1.62	1.27
Maximum						2.21	1.49
Standard Deviation						0.23	0.09

NOTE: DEFF = design effect; DEFT = root design effect; N = sample size. GED = General Educational Development credential.  
 SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, Restricted-Use Data File, 2006."

**Table J-10. Student design effects, by item, using second follow-up questionnaire weight—Public: 2006**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Ever dropped out	F2EVERDO=1	13.9	0.49	0.33	11,100	2.25	1.50
Fall 2003—summer 2004 high school graduate	F2HSSTAT=1	81.6	0.60	0.37	11,100	2.64	1.62
Received GED or other equivalency	F2HSSTAT=6	4.0	0.23	0.19	11,100	1.47	1.21
Ever applied to a postsecondary school	F2EVRAPP=1	76.5	0.62	0.41	10,900	2.37	1.54
Meet with advisor about academic plans often	F2B18B=3	23.8	0.54	0.49	7,600	1.25	1.12
Participate in other extracurricular activities often	F2B18G=3	23.1	0.57	0.48	7,600	1.41	1.19
Postsecondary education paid with grants/scholarships	F2B25A=1	55.6	0.76	0.57	7,600	1.79	1.34
Expect to finish college, but not advanced degree	F2STEXP=6	31.6	0.51	0.44	11,100	1.32	1.15
Ever held a job since leaving high school	F2EVRJOB=1	92.7	0.29	0.25	10,900	1.34	1.16
First job is working for an employer	F2C07=1	88.2	0.61	0.52	3,900	1.38	1.18
Current employer offers health insurance	F2C21=1	66.7	1.01	0.84	3,200	1.46	1.21
At age 30 expects to have a job as a laborer	F2OCC30=5	1.0	0.13	0.11	8,200	1.37	1.17
At age 30 expects to have a job as a manager	F2OCC30=6	13.6	0.46	0.38	8,200	1.46	1.21
At age 30 expects to have a job in the military	F2OCC30=7	1.1	0.13	0.12	8,200	1.33	1.15
At age 30 expects to have a professional job (group a)	F2OCC30=9	29.3	0.64	0.50	8,200	1.65	1.28
At age 30 expects to have a sales job	F2OCC30=13	2.5	0.19	0.17	8,200	1.26	1.12
At age 30 expects to have a job as a school teacher	F2OCC30=14	5.4	0.30	0.25	8,200	1.43	1.20
College degree but not advanced degree needed for job at age 30	F2C41=6	38.9	0.58	0.47	10,600	1.47	1.21
Respondent's current marital status is single	F2D01=1	94.4	0.29	0.22	10,900	1.79	1.34
Respondent's current marital status is married	F2D01=2	5.1	0.28	0.21	10,900	1.72	1.31
Number of friends or roommates living with respondent	F2D08C	0.7	0.02	0.01	10,900	2.31	1.52
Number of siblings living with respondent	F2D08D	0.6	0.02	0.01	10,900	2.42	1.56
Respondent lives in school provided housing in spring 2006	F2D07=1	29.3	0.86	0.59	5,900	2.10	1.45
Respondent performed community service in past 2 years	F2D09=1	39.7	0.62	0.47	10,900	1.75	1.32
Volunteered with school/community organizations	F2D10B=1	27.4	0.86	0.67	4,400	1.63	1.28
Volunteered with church-related group	F2D10D=1	46.1	0.89	0.75	4,400	1.40	1.18
Voted in 2004 Presidential election	F2D13=1	48.6	0.70	0.48	10,900	2.12	1.46
Respondent served in military	F2D14=1	3.0	0.19	0.16	10,900	1.39	1.18
Respondent's parent/guardian divorced in last 2 years	F2D15A=1	7.7	0.29	0.26	10,900	1.29	1.13
Respondent's parent/guardian lost job in last 2 years	F2D15B=1	14.5	0.40	0.34	10,900	1.42	1.19
Summary statistics							
Mean						1.67	1.28
Minimum						1.25	1.12
Median						1.46	1.21
Maximum						2.64	1.62
Standard Deviation						0.40	0.15

NOTE: DEFF = design effect; DEFT = root design effect; N = sample size. GED = General Educational Development credential.  
 SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, Restricted-Use Data File, 2006."

Table J-11. Student design effects, by item, using second follow-up questionnaire weight—Catholic: 2006

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Ever dropped out	F2EVERDO=1	2.5	0.61	0.36	1,800	2.78	1.67
Fall 2003 – Summer 2004 high school graduate	F2HSSTAT=1	97.2	0.58	0.38	1,800	2.24	1.50
Received GED or other equivalency	F2HSSTAT=6	1.2	0.30	0.26	1,800	1.36	1.17
Ever applied to a postsecondary school	F2EVAPP=1	95.3	0.62	0.50	1,800	1.56	1.25
Meet with advisor about academic plans often	F2B18B=3	28.6	1.26	1.10	1,700	1.32	1.15
Participate in other extracurricular activities often	F2B18G=3	32.3	1.51	1.13	1,700	1.78	1.33
Postsecondary education paid with grants/scholarships	F2B25A=1	51.4	1.64	1.22	1,700	1.82	1.35
Expect to finish college, but not advanced degree	F2STEXP=6	34.1	1.20	1.11	1,800	1.16	1.08
Ever held a job since leaving high school	F2EVRJOB=1	93.2	0.85	0.59	1,800	2.07	1.44
First job is working for an employer	F2C07=1	81.3	2.91	3.01	170	0.94	0.97
Current employer offers health insurance	F2C21=1	65.4	4.25	3.43	190	1.53	1.24
At age 30 expects to have a job as a laborer	F2OCC30=5	0.2	0.18	0.13	1,300	1.80	1.34
At age 30 expects to have a job as a manager	F2OCC30=6	15.5	1.07	0.99	1,300	1.16	1.08
At age 30 expects to have a job in the military	F2OCC30=7	0.8	0.26	0.24	1,300	1.23	1.11
At age 30 expects to have a professional job (group a)	F2OCC30=9	35.9	1.50	1.31	1,300	1.31	1.14
At age 30 expects to have a sales job	F2OCC30=13	2.3	0.46	0.41	1,300	1.28	1.13
At age 30 expects to have a job as a school teacher	F2OCC30=14	4.9	0.66	0.59	1,300	1.28	1.13
College degree but not advanced degree needed for job at age 30	F2C41=6	44.3	1.62	1.18	1,800	1.89	1.37
Respondent's current marital status is single	F2D01=1	99.5	0.18	0.16	1,800	1.16	1.08
Respondent's current marital status is married	F2D01=2	0.4	0.16	0.14	1,800	1.27	1.13
Number of friends or roommates living with respondent	F2D08C	1.1	0.06	0.04	1,800	2.75	1.66
Number of siblings living with respondent	F2D08D	0.5	0.03	0.02	1,800	1.97	1.40
Respondent lives in school provided housing in spring 2006	F2D07=1	43.5	2.07	1.27	1,500	2.65	1.63
Respondent performed community service in past 2 years	F2D09=1	51.5	1.51	1.18	1,800	1.65	1.29
Volunteered with school/community organizations	F2D10B=1	35.3	1.94	1.56	940	1.54	1.24
Volunteered with church-related group	F2D10D=1	40.8	1.97	1.61	930	1.49	1.22
Voted in 2004 Presidential election	F2D13=1	64.5	1.60	1.13	1,800	2.02	1.42
Respondent served in military	F2D14=1	1.6	0.40	0.29	1,800	1.86	1.36
Respondent's parent/guardian divorced in last 2 years	F2D15A=1	6.7	0.58	0.59	1,800	0.96	0.98
Respondent's parent/guardian lost job in last 2 years	F2D15B=1	10.3	0.71	0.72	1,800	0.98	0.99
Summary statistics							
Mean						1.63	1.26
Minimum						0.94	0.97
Median						1.54	1.24
Maximum						2.78	1.67
Standard Deviation						0.51	0.19

NOTE: DEFF = design effect; DEFT = root design effect; N = sample size. GED = General Educational Development credential.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, Restricted-Use Data File, 2006."

**Table J-12. Student design effects, by item, using second follow-up questionnaire weight—Other private: 2006**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Ever dropped out	F2EVERDO=1	6.3	1.24	0.68	1,300	3.37	1.84
Fall 2003–summer 2004 high school graduate	F2HSSTAT=1	91.9	1.61	0.76	1,300	4.43	2.11
Received GED or other equivalency	F2HSSTAT=6	2.1	0.61	0.40	1,300	2.31	1.52
Ever applied to a postsecondary school	F2EVRAPP=1	92.1	1.33	0.75	1,300	3.11	1.76
Meet with advisor about academic plans often	F2B18B=3	26.8	1.48	1.30	1,200	1.29	1.14
Participate in other extracurricular activities often	F2B18G=3	37.3	2.05	1.42	1,200	2.09	1.44
Postsecondary education paid with grants/scholarships	F2B25A=1	50.4	2.33	1.47	1,200	2.52	1.59
Expect to finish college, but not advanced degree	F2STEXP=6	29.7	2.35	1.28	1,300	3.39	1.84
Ever held a job since leaving high school	F2EVRJOB=1	88.9	1.38	0.88	1,300	2.48	1.58
First job is working for an employer	F2C07=1	83.9	4.05	2.92	160	1.93	1.39
Current employer offers health insurance	F2C21=1	62.9	4.40	3.77	170	1.36	1.17
At age 30 expects to have a job as a laborer	F2OCC30=5	0.1	0.07	0.09	920	0.64	0.80
At age 30 expects to have a job as a manager	F2OCC30=6	12.3	1.31	1.08	920	1.47	1.21
At age 30 expects to have a job in the military	F2OCC30=7	1.0	0.39	0.32	920	1.44	1.20
At age 30 expects to have a professional job (group a)	F2OCC30=9	30.6	1.75	1.52	920	1.32	1.15
At age 30 expects to have a sales job	F2OCC30=13	2.2	0.55	0.49	920	1.29	1.14
At age 30 expects to have a job as a school teacher	F2OCC30=14	4.0	0.72	0.64	920	1.27	1.13
College degree but not advanced degree needed for job at age 30	F2C41=6	39.5	2.10	1.39	1,200	2.29	1.51
Respondent's current marital status is single	F2D01=1	97.1	0.77	0.47	1,300	2.71	1.65
Respondent's current marital status is married	F2D01=2	2.6	0.73	0.45	1,300	2.71	1.65
Number of friends or roommates living with respondent	F2D08C	1.0	0.06	0.04	1,300	2.76	1.66
Number of siblings living with respondent	F2D08D	0.4	0.06	0.03	1,300	4.30	2.07
Respondent lives in school provided housing in spring 2006	F2D07=1	46.6	3.39	1.57	1,000	4.67	2.16
Respondent performed community service in past 2 years	F2D09=1	59.8	1.77	1.37	1,300	1.66	1.29
Volunteered with school/community organizations	F2D10B=1	33.8	2.51	1.73	750	2.11	1.45
Volunteered with church-related group	F2D10D=1	54.3	4.00	1.82	750	4.83	2.20
Voted in 2004 Presidential election	F2D13=1	59.4	2.74	1.38	1,300	3.96	1.99
Respondent served in military	F2D14=1	2.1	0.52	0.40	1,300	1.66	1.29
Respondent's parent/guardian divorced in last 2 years	F2D15A=1	4.7	0.75	0.59	1,300	1.60	1.26
Respondent's parent/guardian lost job in last 2 years	F2D15B=1	10.7	0.77	0.87	1,300	0.78	0.89
<b>Summary statistics</b>							
Mean						2.39	1.50
Minimum						0.64	0.80
Median						2.20	1.48
Maximum						4.83	2.20
Standard Deviation						1.17	0.38

NOTE: DEFF = design effect; DEFT = root design effect; N = sample size. GED = General Educational Development credential.  
 SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, Restricted-Use Data File, 2006."

**Table J-13. Student design effects, by item, using second follow-up questionnaire weight—Low socioeconomic status (SES): 2006**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Ever dropped out	F2EVERDO=1	23.9	1.00	0.74	3,300	1.81	1.35
Fall 2003—summer 2004 high school graduate	F2HSSTAT=1	69.7	1.08	0.80	3,300	1.83	1.35
Received GED or other equivalency	F2HSSTAT=6	5.4	0.51	0.39	3,300	1.68	1.29
Ever applied to a postsecondary school	F2EVRAPP=1	63.5	1.09	0.85	3,200	1.67	1.29
Meet with advisor about academic plans often	F2B18B=3	25.8	1.22	1.05	1,700	1.36	1.17
Participate in other extracurricular activities often	F2B18G=3	14.1	0.93	0.84	1,700	1.23	1.11
Postsecondary education paid with grants/scholarships	F2B25A=1	62.2	1.49	1.16	1,700	1.63	1.28
Expect to finish college, but not advanced degree	F2STEXP=6	28.2	0.98	0.78	3,300	1.57	1.25
Ever held a job since leaving high school	F2EVRJOB=1	89.9	0.88	0.53	3,200	1.63	1.28
First job is working for an employer	F2C07=1	88.4	0.89	0.80	1,600	1.26	1.12
Current employer offers health insurance	F2C21=1	67.7	1.61	1.34	1,200	1.44	1.20
At age 30 expects to have a job as a laborer	F2OCC30=5	1.5	0.29	0.25	2,400	1.35	1.16
At age 30 expects to have a job as a manager	F2OCC30=6	14.5	0.76	0.72	2,400	1.14	1.07
At age 30 expects to have a job in the military	F2OCC30=7	0.9	0.22	0.20	2,400	1.31	1.15
At age 30 expects to have a professional job (group a)	F2OCC30=9	26.1	0.94	0.89	2,400	1.11	1.05
At age 30 expects to have a sales job	F2OCC30=13	2.5	0.40	0.32	2,400	1.61	1.27
At age 30 expects to have a job as a school teacher	F2OCC30=14	3.9	0.49	0.39	2,400	1.51	1.23
College degree but not advanced degree needed for job at age 30	F2C41=6	34.5	1.03	0.85	3,100	1.47	1.21
Respondent's current marital status is single	F2D01=1	91.7	0.56	0.48	3,200	1.34	1.16
Respondent's current marital status is married	F2D01=2	7.6	0.53	0.47	3,200	1.32	1.15
Number of friends or roommates living with respondent	F2D08C	0.4	0.02	0.02	3,200	1.13	1.06
Number of siblings living with respondent	F2D08D	0.9	0.03	0.02	3,200	1.76	1.33
Respondent lives in school provided housing in spring 2006	F2D07=1	17.9	1.34	1.10	1,200	1.48	1.22
Respondent performed community service in past 2 years	F2D09=1	28.9	0.90	0.80	3,300	1.29	1.14
Volunteered with school/community organizations	F2D10B=1	22.1	1.56	1.32	980	1.39	1.18
Volunteered with church-related group	F2D10D=1	50.8	2.06	1.59	980	1.67	1.29
Voted in 2004 Presidential election	F2D13=1	34.2	1.16	0.83	3,200	1.93	1.39
Respondent served in military	F2D14=1	2.3	0.29	0.26	3,300	1.21	1.10
Respondent's parent/guardian divorced in last 2 years	F2D15A=1	9.0	0.57	0.50	3,200	1.30	1.14
Respondent's parent/guardian lost job in last 2 years	F2D15B=1	16.3	0.79	0.65	3,200	1.47	1.21
Summary statistics							
Mean						1.46	1.21
Minimum						1.11	1.05
Median						1.45	1.21
Maximum						1.93	1.39
Standard Deviation						0.22	0.09

NOTE: DEFF = design effect; DEFT = root design effect; N = sample size. GED = General Educational Development credential.  
 SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, Restricted-Use Data File, 2006."

**Table J-14. Student design effects, by item, using second follow-up questionnaire weight—Middle socioeconomic status (SES): 2006**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Ever dropped out	F2EVERDO=1	12.0	0.55	0.40	6,700	1.95	1.40
Fall 2003—summer 2004 high school graduate	F2HSSTAT=1	83.7	0.68	0.45	6,700	2.29	1.51
Received GED or other equivalency	F2HSSTAT=6	3.9	0.29	0.24	6,700	1.53	1.24
Ever applied to a postsecondary school	F2EVRAPP=1	77.7	0.70	0.51	6,700	1.92	1.38
Meet with advisor about academic plans often	F2B18B=3	23.6	0.71	0.60	5,000	1.40	1.18
Participate in other extracurricular activities often	F2B18G=3	21.4	0.68	0.58	5,000	1.38	1.17
Postsecondary education paid with grants/scholarships	F2B25A=1	55.0	0.91	0.71	4,900	1.67	1.29
Expect to finish college, but not advanced degree	F2STEXP=6	34.4	0.70	0.58	6,700	1.48	1.22
Ever held a job since leaving high school	F2EVRJOB=1	93.5	0.33	0.30	6,700	1.21	1.10
First job is working for an employer	F2C07=1	87.8	0.85	0.71	2,100	1.42	1.19
Current employer offers health insurance	F2C21=1	68.4	1.30	1.08	1,900	1.45	1.21
At age 30 expects to have a job as a laborer	F2OCC30=5	0.9	0.16	0.13	5,100	1.48	1.22
At age 30 expects to have a job as a manager	F2OCC30=6	13.7	0.60	0.48	5,100	1.56	1.25
At age 30 expects to have a job in the military	F2OCC30=7	1.2	0.18	0.16	5,100	1.29	1.14
At age 30 expects to have a professional job (group a)	F2OCC30=9	29.1	0.78	0.64	5,100	1.49	1.22
At age 30 expects to have a sales job	F2OCC30=13	2.4	0.25	0.22	5,100	1.38	1.17
At age 30 expects to have a job as a school teacher	F2OCC30=14	5.7	0.43	0.33	5,100	1.73	1.32
College degree but not advanced degree needed for job at age 30	F2C41=6	40.0	0.71	0.61	6,500	1.35	1.16
Respondent's current marital status is single	F2D01=1	94.4	0.36	0.28	6,700	1.64	1.28
Respondent's current marital status is married	F2D01=2	5.1	0.34	0.27	6,700	1.60	1.27
Number of friends or roommates living with respondent	F2D08C	0.7	0.02	0.01	6,700	1.83	1.35
Number of siblings living with respondent	F2D08D	0.6	0.02	0.01	6,700	1.86	1.36
Respondent lives in school provided housing in spring 2006	F2D07=1	27.2	0.96	0.72	3,800	1.78	1.33
Respondent performed community service in past 2 years	F2D09=1	39.2	0.74	0.60	6,700	1.52	1.23
Volunteered with school/community organizations	F2D10B=1	26.8	1.06	0.85	2,700	1.59	1.26
Volunteered with church-related group	F2D10D=1	46.7	1.10	0.95	2,700	1.35	1.16
Voted in 2004 Presidential election	F2D13=1	49.7	0.79	0.61	6,700	1.65	1.28
Respondent served in military	F2D14=1	3.7	0.29	0.23	6,700	1.63	1.28
Respondent's parent/guardian divorced in last 2 years	F2D15A=1	7.9	0.40	0.33	6,700	1.44	1.20
Respondent's parent/guardian lost job in last 2 years	F2D15B=1	14.8	0.54	0.43	6,700	1.56	1.25
<b>Summary statistics</b>							
Mean						1.58	1.25
Minimum						1.21	1.10
Median						1.54	1.24
Maximum						2.29	1.51
Standard Deviation						0.23	0.09

NOTE: DEFF = design effect; DEFT = root design effect; N = sample size. GED = General Educational Development credential.  
 SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, Restricted-Use Data File, 2006."



**Table J-15. Student design effects, by item, using second follow-up questionnaire weight—High socioeconomic status (SES): 2006**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Ever dropped out	F2EVERDO=1	4.6	0.44	0.33	4,100	1.80	1.34
Fall 2003—summer 2004 high school graduate	F2HSSTAT=1	93.4	0.48	0.39	4,100	1.50	1.22
Received GED or other equivalency	F2HSSTAT=6	2.1	0.29	0.22	4,100	1.67	1.29
Ever applied to a postsecondary school	F2EVRAP=1	92.2	0.59	0.42	4,100	1.98	1.41
Meet with advisor about academic plans often	F2B18B=3	24.1	0.88	0.70	3,800	1.60	1.27
Participate in other extracurricular activities often	F2B18G=3	34.3	0.95	0.77	3,800	1.52	1.23
Postsecondary education paid with grants/scholarships	F2B25A=1	51.4	1.15	0.81	3,800	1.99	1.41
Expect to finish college, but not advanced degree	F2STEXP=6	29.5	0.93	0.71	4,100	1.69	1.30
Ever held a job since leaving high school	F2EVRJOB=1	93.3	0.44	0.39	4,100	1.24	1.11
First job is working for an employer	F2C07=1	88.1	1.76	1.54	450	1.31	1.14
Current employer offers health insurance	F2C21=1	54.8	3.05	2.39	440	1.63	1.28
At age 30 expects to have a job as a laborer	F2OCC30=5	0.6	0.22	0.15	3,000	2.20	1.48
At age 30 expects to have a job as a manager	F2OCC30=6	12.6	0.79	0.60	3,000	1.70	1.30
At age 30 expects to have a job in the military	F2OCC30=7	1.0	0.21	0.18	3,000	1.38	1.18
At age 30 expects to have a professional job (group a)	F2OCC30=9	34.1	1.25	0.86	3,000	2.10	1.45
At age 30 expects to have a sales job	F2OCC30=13	2.6	0.38	0.29	3,000	1.69	1.30
At age 30 expects to have a job as a school teacher	F2OCC30=14	6.2	0.56	0.44	3,000	1.63	1.28
College degree but not advanced degree needed for job at age 30	F2C41=6	42.1	1.04	0.78	4,000	1.76	1.33
Respondent's current marital status is single	F2D01=1	98.4	0.25	0.20	4,100	1.62	1.27
Respondent's current marital status is married	F2D01=2	1.5	0.24	0.19	4,100	1.66	1.29
Number of friends or roommates living with respondent	F2D08C	1.2	0.03	0.02	4,100	1.74	1.32
Number of siblings living with respondent	F2D08D	0.4	0.02	0.01	4,100	1.95	1.40
Respondent lives in school provided housing in spring 2006	F2D07=1	41.8	1.30	0.84	3,400	2.37	1.54
Respondent performed community service in past 2 years	F2D09=1	56.2	1.05	0.78	4,100	1.83	1.35
Volunteered with school/community organizations	F2D10B=1	33.1	1.27	0.96	2,400	1.75	1.32
Volunteered with church-related group	F2D10D=1	43.3	1.41	1.01	2,400	1.92	1.39
Voted in 2004 Presidential election	F2D13=1	64.7	1.08	0.75	4,100	2.06	1.44
Respondent served in military	F2D14=1	2.2	0.33	0.23	4,100	2.08	1.44
Respondent's parent/guardian divorced in last 2 years	F2D15A=1	5.7	0.46	0.36	4,100	1.59	1.26
Respondent's parent/guardian lost job in last 2 years	F2D15B=1	10.7	0.67	0.48	4,100	1.89	1.37
Summary statistics							
Mean						1.76	1.32
Minimum						1.24	1.11
Median						1.72	1.31
Maximum						2.37	1.54
Standard Deviation						0.26	0.10

NOTE: DEFF = design effect; DEFT = root design effect; N = sample size. GED = General Educational Development credential.  
 SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, Restricted-Use Data File, 2006."

**Table J-16. Student design effects, by item, using second follow-up questionnaire weight—Postsecondary enrolled: 2006**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Ever dropped out	F2EVERDO=1	4.3	0.27	0.20	10,500	1.81	1.35
Fall 2003–summer 2004 high school graduate	F2HSSTAT=1	93.3	0.36	0.24	10,500	2.14	1.46
Received GED or other equivalency	F2HSSTAT=6	2.0	0.18	0.14	10,500	1.73	1.32
Ever applied to a postsecondary school	F2EVRAP=1	95.3	0.28	0.21	10,500	1.85	1.36
Meet with advisor about academic plans often	F2B18B=3	24.2	0.50	0.42	10,500	1.42	1.19
Participate in other extracurricular activities often	F2B18G=3	24.3	0.53	0.42	10,500	1.62	1.27
Postsecondary education paid with grants/scholarships	F2B25A=1	55.1	0.70	0.49	10,500	2.06	1.44
Expect to finish college, but not advanced degree	F2STEXP=6	34.7	0.60	0.46	10,500	1.67	1.29
Ever held a job since leaving high school	F2EVRJOB=1	92.8	0.31	0.25	10,500	1.50	1.22
First job is working for an employer	F2C07=1	89.0	1.19	0.98	1,000	1.47	1.21
Current employer offers health insurance	F2C21=1	63.0	1.55	1.32	1,300	1.37	1.17
At age 30 expects to have a job as a laborer	F2OCC30=5	0.4	0.09	0.07	8,000	1.78	1.34
At age 30 expects to have a job as a manager	F2OCC30=6	12.4	0.47	0.37	8,000	1.64	1.28
At age 30 expects to have a job in the military	F2OCC30=7	0.9	0.14	0.11	8,000	1.70	1.31
At age 30 expects to have a professional job (group a)	F2OCC30=9	33.2	0.70	0.53	8,000	1.78	1.33
At age 30 expects to have a sales job	F2OCC30=13	2.4	0.22	0.17	8,000	1.66	1.29
At age 30 expects to have a job as a school teacher	F2OCC30=14	6.2	0.34	0.27	8,000	1.59	1.26
College degree but not advanced degree needed for job at age 30	F2C41=6	43.2	0.62	0.49	10,300	1.59	1.26
Respondent's current marital status is single	F2D01=1	96.8	0.23	0.17	10,500	1.73	1.31
Respondent's current marital status is married	F2D01=2	3.0	0.22	0.17	10,500	1.71	1.31
Number of friends or roommates living with respondent	F2D08C	0.9	0.02	0.01	10,500	2.40	1.55
Number of siblings living with respondent	F2D08D	0.5	0.01	0.01	10,500	2.33	1.53
Respondent lives in school provided housing in spring 2006	F2D07=1	31.1	0.79	0.50	8,500	2.48	1.57
Respondent performed community service in past 2 years	F2D09=1	48.6	0.65	0.49	10,500	1.79	1.34
Volunteered with school/community organizations	F2D10B=1	31.3	0.87	0.64	5,300	1.88	1.37
Volunteered with church-related group	F2D10D=1	44.9	0.88	0.68	5,300	1.65	1.29
Voted in 2004 Presidential election	F2D13=1	57.6	0.66	0.48	10,500	1.89	1.38
Respondent served in military	F2D14=1	2.1	0.19	0.14	10,500	1.76	1.33
Respondent's parent/guardian divorced in last 2 years	F2D15A=1	7.0	0.31	0.25	10,500	1.53	1.24
Respondent's parent/guardian lost job in last 2 years	F2D15B=1	13.9	0.45	0.34	10,500	1.80	1.34
Summary statistics							
Mean						1.78	1.33
Minimum						1.37	1.17
Median						1.73	1.32
Maximum						2.48	1.57
Standard Deviation						0.27	0.10

NOTE: DEFF = design effect; DEFT = root design effect; N = sample size. GED = General Educational Development credential.  
 SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, Restricted-Use Data File, 2006."

**Table J-17. Student design effects, by item, using second follow-up questionnaire weight—Never postsecondary enrolled: 2006**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Ever dropped out	F2EVERDO=1	33.6	1.08	0.80	3,500	1.82	1.35
Fall 2003–summer 2004 high school graduate	F2HSSTAT=1	59.5	1.15	0.83	3,500	1.92	1.39
Received GED or other equivalency	F2HSSTAT=6	8.2	0.56	0.46	3,500	1.49	1.22
Ever applied to a postsecondary school	F2EVRAPP=1	35.3	1.03	0.81	3,500	1.61	1.27
Meet with advisor about academic plans often	F2B18B=3	†	†	†	0	†	†
Participate in other extracurricular activities often	F2B18G=3	†	†	†	0	†	†
Postsecondary education paid with grants/scholarships	F2B25A=1	†	†	†	0	†	†
Expect to finish college, but not advanced degree	F2STEXP=6	24.3	0.86	0.72	3,500	1.41	1.19
Ever held a job since leaving high school	F2EVRJOB=1	92.0	0.54	0.46	3,500	1.37	1.17
First job is working for an employer	F2C07=1	87.8	0.69	0.58	3,200	1.42	1.19
Current employer offers health insurance	F2C21=1	68.6	1.15	1.00	2,100	1.32	1.15
At age 30 expects to have a job as a laborer	F2OCC30=5	2.6	0.38	0.33	2,400	1.37	1.17
At age 30 expects to have a job as a manager	F2OCC30=6	16.5	0.87	0.76	2,400	1.31	1.14
At age 30 expects to have a job in the military	F2OCC30=7	1.6	0.28	0.25	2,400	1.25	1.12
At age 30 expects to have a professional job (group a)	F2OCC30=9	20.2	1.01	0.82	2,400	1.51	1.23
At age 30 expects to have a sales job	F2OCC30=13	2.8	0.39	0.34	2,400	1.37	1.17
At age 30 expects to have a job as a school teacher	F2OCC30=14	3.1	0.45	0.36	2,400	1.60	1.27
College degree but not advanced degree needed for job at age 30	F2C41=6	29.0	0.93	0.80	3,200	1.35	1.16
Respondent's current marital status is single	F2D01=1	89.7	0.59	0.52	3,400	1.31	1.15
Respondent's current marital status is married	F2D01=2	9.3	0.57	0.50	3,400	1.31	1.15
Number of friends or roommates living with respondent	F2D08C	0.4	0.02	0.01	3,400	1.38	1.18
Number of siblings living with respondent	F2D08D	0.8	0.03	0.02	3,400	1.77	1.33
Respondent lives in school provided housing in spring 2006	F2D07=1	†	†	†	0	†	†
Respondent performed community service in past 2 years	F2D09=1	22.5	0.85	0.71	3,400	1.42	1.19
Volunteered with school/community organizations	F2D10B=1	12.6	1.36	1.18	800	1.34	1.16
Volunteered with church-related group	F2D10D=1	53.4	2.07	1.77	800	1.37	1.17
Voted in 2004 Presidential election	F2D13=1	30.4	0.96	0.78	3,400	1.49	1.22
Respondent served in military	F2D14=1	5.0	0.42	0.37	3,400	1.30	1.14
Respondent's parent/guardian divorced in last 2 years	F2D15A=1	9.1	0.58	0.49	3,400	1.38	1.18
Respondent's parent/guardian lost job in last 2 years	F2D15B=1	14.7	0.66	0.60	3,400	1.20	1.10
Summary statistics							
Mean						1.44	1.20
Minimum						1.20	1.10
Median						1.38	1.17
Maximum						1.92	1.39
Standard Deviation						0.18	0.07

† Not applicable.

NOTE: DEFF = design effect; DEFT = root design effect; N = sample size. GED = General Educational Development credential.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, Restricted-Use Data File, 2006."

**Table J-18. Student design effects, by item, using first follow-up to second follow-up panel weight—All: 2006**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Ever dropped out	F2EVERDO=1	12.4	0.45	0.29	13,400	2.46	1.57
Fall 2003–summer 2004 high school graduate	F2HSSTAT=1	83.5	0.56	0.32	13,400	3.01	1.73
Received GED or other equivalency	F2HSSTAT=6	3.7	0.22	0.16	13,400	1.87	1.37
Ever applied to a postsecondary school	F2EVRAPP=1	78.7	0.57	0.36	13,300	2.58	1.61
Meet with advisor about academic plans often	F2B18B=3	24.1	0.50	0.43	10,100	1.39	1.18
Participate in other extracurricular activities often	F2B18G=3	24.3	0.54	0.43	10,100	1.58	1.26
Postsecondary education paid with grants/scholarships	F2B25A=1	55.4	0.71	0.49	10,100	2.08	1.44
Expect to finish college, but not advanced degree	F2STEXP=6	31.7	0.49	0.40	13,400	1.48	1.22
Ever held a job since leaving high school	F2EVRJOB=1	92.5	0.27	0.23	13,300	1.44	1.20
First job is working for an employer	F2C07=1	88.3	0.63	0.53	3,700	1.42	1.19
Current employer offers health insurance	F2C21=1	66.9	1.04	0.83	3,200	1.56	1.25
At age 30 expects to have a job as a laborer	F2OCC30=5	1.0	0.12	0.10	9,900	1.55	1.25
At age 30 expects to have a job as a manager	F2OCC30=6	13.5	0.44	0.34	9,900	1.62	1.27
At age 30 expects to have a job in the military	F2OCC30=7	1.1	0.13	0.10	9,900	1.59	1.26
At age 30 expects to have a professional job (group a)	F2OCC30=9	29.6	0.63	0.46	9,900	1.86	1.36
At age 30 expects to have a sales job	F2OCC30=13	2.5	0.19	0.16	9,900	1.51	1.23
At age 30 expects to have a job as a school teacher	F2OCC30=14	5.4	0.28	0.23	9,900	1.55	1.24
College degree but not advanced degree needed for job at age 30	F2C41=6	39.2	0.56	0.43	12,900	1.69	1.30
Respondent's current marital status is single	F2D01=1	95.0	0.28	0.19	13,200	2.23	1.49
Respondent's current marital status is married	F2D01=2	4.6	0.27	0.18	13,200	2.19	1.48
Number of friends or roommates living with respondent	F2D08C	0.7	0.02	0.01	13,200	2.52	1.59
Number of siblings living with respondent	F2D08D	0.6	0.01	0.01	13,200	2.72	1.65
Respondent lives in school provided housing in spring 2006	F2D07=1	31.2	0.80	0.51	8,200	2.45	1.56
Respondent performed community service in past 2 years	F2D09=1	41.4	0.59	0.43	13,200	1.93	1.39
Volunteered with school/community organizations	F2D10B=1	28.2	0.80	0.59	5,900	1.88	1.37
Volunteered with church-related group	F2D10D=1	46.5	0.84	0.65	5,900	1.66	1.29
Voted in 2004 Presidential election	F2D13=1	50.1	0.67	0.43	13,200	2.36	1.54
Respondent served in military	F2D14=1	2.8	0.18	0.14	13,200	1.61	1.27
Respondent's parent/guardian divorced in last 2 years	F2D15A=1	7.5	0.28	0.23	13,200	1.46	1.21
Respondent's parent/guardian lost job in last 2 years	F2D15B=1	14.1	0.39	0.30	13,200	1.70	1.30
<b>Summary statistics</b>							
Mean						1.90	1.37
Minimum						1.39	1.18
Median						1.69	1.30
Maximum						3.01	1.73
Standard Deviation						0.45	0.16

NOTE: DEFF = design effect; DEFT = root design effect; N = sample size. GED = General Educational Development credential.  
 SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, Restricted-Use Data File, 2006."

**Table J-19. Student design effects, by item, using first follow-up to second follow-up panel weight—Male: 2006**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Ever dropped out	F2EVERDO=1	14.6	0.63	0.44	6,500	2.03	1.42
Fall 2003—summer 2004 high school graduate	F2HSSTAT=1	80.6	0.71	0.49	6,500	2.07	1.44
Received GED or other equivalency	F2HSSTAT=6	4.3	0.33	0.25	6,500	1.67	1.29
Ever applied to a postsecondary school	F2EVRAPP=1	74.5	0.72	0.55	6,400	1.76	1.33
Meet with advisor about academic plans often	F2B18B=3	20.0	0.71	0.59	4,600	1.44	1.20
Participate in other extracurricular activities often	F2B18G=3	23.2	0.79	0.62	4,600	1.62	1.27
Postsecondary education paid with grants/scholarships	F2B25A=1	50.5	1.01	0.74	4,600	1.88	1.37
Expect to finish college, but not advanced degree	F2STEXP=6	33.1	0.69	0.59	6,500	1.41	1.19
Ever held a job since leaving high school	F2EVRJOB=1	93.1	0.37	0.32	6,400	1.38	1.17
First job is working for an employer	F2C07=1	85.3	0.90	0.78	2,100	1.34	1.16
Current employer offers health insurance	F2C21=1	69.8	1.32	1.09	1,800	1.47	1.21
At age 30 expects to have a job as a laborer	F2OCC30=5	1.8	0.25	0.19	4,700	1.61	1.27
At age 30 expects to have a job as a manager	F2OCC30=6	16.7	0.66	0.55	4,700	1.46	1.21
At age 30 expects to have a job in the military	F2OCC30=7	2.0	0.25	0.20	4,700	1.48	1.22
At age 30 expects to have a professional job (group a)	F2OCC30=9	26.5	0.83	0.64	4,700	1.68	1.29
At age 30 expects to have a sales job	F2OCC30=13	2.9	0.29	0.25	4,700	1.43	1.19
At age 30 expects to have a job as a school teacher	F2OCC30=14	2.0	0.27	0.20	4,700	1.69	1.30
College degree but not advanced degree needed for job at age 30	F2C41=6	38.8	0.79	0.62	6,200	1.61	1.27
Respondent's current marital status is single	F2D01=1	97.0	0.27	0.21	6,400	1.67	1.29
Respondent's current marital status is married	F2D01=2	2.6	0.25	0.20	6,400	1.58	1.26
Number of friends or roommates living with respondent	F2D08C	0.7	0.02	0.02	6,400	2.06	1.44
Number of siblings living with respondent	F2D08D	0.6	0.02	0.01	6,400	2.18	1.47
Respondent lives in school provided housing in spring 2006	F2D07=1	31.5	1.07	0.76	3,700	1.96	1.40
Respondent performed community service in past 2 years	F2D09=1	38.0	0.78	0.61	6,400	1.64	1.28
Volunteered with school/community organizations	F2D10B=1	25.0	1.04	0.85	2,600	1.50	1.22
Volunteered with church-related group	F2D10D=1	45.9	1.19	0.97	2,600	1.50	1.23
Voted in 2004 Presidential election	F2D13=1	47.9	0.86	0.63	6,400	1.90	1.38
Respondent served in military	F2D14=1	4.7	0.33	0.26	6,400	1.58	1.26
Respondent's parent/guardian divorced in last 2 years	F2D15A=1	7.0	0.39	0.32	6,400	1.53	1.24
Respondent's parent/guardian lost job in last 2 years	F2D15B=1	13.1	0.55	0.42	6,400	1.72	1.31
Summary statistics							
Mean						1.66	1.29
Minimum						1.34	1.16
Median						1.61	1.27
Maximum						2.18	1.47
Standard Deviation						0.23	0.09

NOTE: DEFF = design effect; DEFT = root design effect; N = sample size. GED = General Educational Development credential.  
 SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, Restricted-Use Data File, 2006."

**Table J-20. Student design effects, by item, using first follow-up to second follow-up panel weight—Female: 2006**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Ever dropped out	F2EVERDO=1	10.2	0.52	0.36	6,900	2.07	1.44
Fall 2003—summer 2004 high school graduate	F2HSSTAT=1	86.4	0.69	0.41	6,900	2.82	1.68
Received GED or other equivalency	F2HSSTAT=6	3.0	0.28	0.21	6,900	1.78	1.34
Ever applied to a postsecondary school	F2EVRRAPP=1	82.9	0.67	0.45	6,900	2.18	1.48
Meet with advisor about academic plans often	F2B18B=3	27.7	0.71	0.61	5,500	1.37	1.17
Participate in other extracurricular activities often	F2B18G=3	25.2	0.73	0.59	5,500	1.53	1.24
Postsecondary education paid with grants/scholarships	F2B25A=1	59.8	0.85	0.66	5,500	1.65	1.28
Expect to finish college, but not advanced degree	F2STEXP=6	30.3	0.73	0.55	6,900	1.73	1.32
Ever held a job since leaving high school	F2EVRJOB=1	91.8	0.41	0.33	6,900	1.56	1.25
First job is working for an employer	F2C07=1	92.3	0.77	0.65	1,700	1.41	1.19
Current employer offers health insurance	F2C21=1	63.0	1.46	1.29	1,400	1.29	1.14
At age 30 expects to have a job as a laborer	F2OCC30=5	0.2	0.07	0.05	5,200	1.81	1.35
At age 30 expects to have a job as a manager	F2OCC30=6	10.4	0.52	0.42	5,200	1.50	1.22
At age 30 expects to have a job in the military	F2OCC30=7	0.2	0.08	0.07	5,200	1.24	1.11
At age 30 expects to have a professional job (group a)	F2OCC30=9	32.7	0.81	0.65	5,200	1.54	1.24
At age 30 expects to have a sales job	F2OCC30=13	2.0	0.26	0.20	5,200	1.74	1.32
At age 30 expects to have a job as a school teacher	F2OCC30=14	8.8	0.47	0.39	5,200	1.46	1.21
College degree but not advanced degree needed for job at age 30	F2C41=6	39.5	0.76	0.60	6,700	1.61	1.27
Respondent's current marital status is single	F2D01=1	93.0	0.43	0.31	6,800	1.97	1.40
Respondent's current marital status is married	F2D01=2	6.5	0.42	0.30	6,800	2.00	1.41
Number of friends or roommates living with respondent	F2D08C	0.8	0.02	0.02	6,800	2.19	1.48
Number of siblings living with respondent	F2D08D	0.6	0.02	0.01	6,800	1.99	1.41
Respondent lives in school provided housing in spring 2006	F2D07=1	30.8	0.98	0.69	4,500	2.04	1.43
Respondent performed community service in past 2 years	F2D09=1	44.8	0.80	0.60	6,800	1.79	1.34
Volunteered with school/community organizations	F2D10B=1	31.0	1.07	0.81	3,300	1.77	1.33
Volunteered with church-related group	F2D10D=1	47.0	1.10	0.87	3,300	1.58	1.26
Voted in 2004 Presidential election	F2D13=1	52.4	0.87	0.60	6,800	2.06	1.43
Respondent served in military	F2D14=1	1.0	0.14	0.12	6,900	1.36	1.17
Respondent's parent/guardian divorced in last 2 years	F2D15A=1	8.0	0.39	0.33	6,800	1.43	1.20
Respondent's parent/guardian lost job in last 2 years	F2D15B=1	15.1	0.55	0.43	6,800	1.62	1.27
Summary statistics							
Mean						1.74	1.31
Minimum						1.24	1.11
Median						1.69	1.30
Maximum						2.82	1.68
Standard Deviation						0.34	0.12

NOTE: DEFF = design effect; DEFT = root design effect; N = sample size. GED = General Educational Development credential.  
 SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, Restricted-Use Data File, 2006."

**Table J-21. Student design effects, by item, using first follow-up to second follow-up panel weight—American Indian or Alaska Native: 2006**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Ever dropped out	F2EVERDO=1	19.3	4.95	3.85	110	1.65	1.28
Fall 2003–summer 2004 high school graduate	F2HSSTAT=1	72.7	6.07	4.35	110	1.95	1.40
Received GED or other equivalency	F2HSSTAT=6	7.0	3.29	2.49	110	1.75	1.32
Ever applied to a postsecondary school	F2EVRAP=1	69.2	6.54	4.57	100	2.05	1.43
Meet with advisor about academic plans often	F2B18B=3	26.3	5.22	5.83	60	0.80	0.90
Participate in other extracurricular activities often	F2B18G=3	31.6	6.71	6.22	60	1.17	1.08
Postsecondary education paid with grants/scholarships	F2B25A=1	66.7	8.02	6.24	60	1.65	1.29
Expect to finish college, but not advanced degree	F2STEXP=6	32.5	6.00	4.57	110	1.72	1.31
Ever held a job since leaving high school	F2EVRJOB=1	90.6	3.59	2.89	100	1.55	1.24
First job is working for an employer	F2C07=1	80.9	6.96	5.62	50	1.53	1.24
Current employer offers health insurance	F2C21=1	50.1	12.56	9.45	30	1.77	1.33
At age 30 expects to have a job as a laborer	F2OCC30=5	1.6	1.62	1.52	70	1.12	1.06
At age 30 expects to have a job as a manager	F2OCC30=6	14.6	4.51	4.26	70	1.12	1.06
At age 30 expects to have a job in the military	F2OCC30=7	5.2	3.78	2.68	70	1.99	1.41
At age 30 expects to have a professional job (group a)	F2OCC30=9	22.6	5.69	5.03	70	1.28	1.13
At age 30 expects to have a sales job	F2OCC30=13	3.2	2.61	2.11	70	1.53	1.24
At age 30 expects to have a job as a school teacher	F2OCC30=14	5.4	2.81	2.72	70	1.07	1.03
College degree but not advanced degree needed for job at age 30	F2C41=6	38.8	7.04	5.08	90	1.92	1.39
Respondent's current marital status is single	F2D01=1	87.1	4.54	3.30	100	1.89	1.37
Respondent's current marital status is married	F2D01=2	12.9	4.54	3.30	100	1.89	1.37
Number of friends or roommates living with respondent	F2D08C	0.4	0.09	0.08	100	1.24	1.11
Number of siblings living with respondent	F2D08D	0.8	0.13	0.12	100	1.26	1.12
Respondent lives in school provided housing in spring 2006	F2D07=1	22.3	6.46	6.58	40	0.96	0.98
Respondent performed community service in past 2 years	F2D09=1	33.9	5.42	4.67	100	1.35	1.16
Volunteered with school/community organizations	F2D10B=1	27.4	7.43	7.54	40	0.97	0.99
Volunteered with church-related group	F2D10D=1	30.7	8.19	7.80	40	1.10	1.05
Voted in 2004 Presidential election	F2D13=1	47.4	6.52	4.92	100	1.75	1.32
Respondent served in military	F2D14=1	3.2	2.00	1.75	100	1.30	1.14
Respondent's parent/guardian divorced in last 2 years	F2D15A=1	9.8	3.68	2.93	100	1.58	1.26
Respondent's parent/guardian lost job in last 2 years	F2D15B=1	22.6	4.29	4.12	100	1.08	1.04
Summary statistics							
Mean						1.47	1.20
Minimum						0.80	0.90
Median						1.53	1.24
Maximum						2.05	1.43
Standard Deviation						0.36	0.15

NOTE: DEFF = design effect; DEFT = root design effect; N = sample size. GED = General Educational Development credential.  
 SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, Restricted-Use Data File, 2006."

**Table J-22. Student design effects, by item, using first follow-up to second follow-up panel weight—Asian: 2006**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Ever dropped out	F2EVERDO=1	7.8	1.04	0.73	1,300	2.02	1.42
Fall 2003–summer 2004 high school graduate	F2HSSTAT=1	88.7	1.33	0.86	1,300	2.37	1.54
Received GED or other equivalency	F2HSSTAT=6	1.7	0.38	0.36	1,300	1.14	1.07
Ever applied to a postsecondary school	F2EVRAPPP=1	88.4	1.07	0.88	1,300	1.49	1.22
Meet with advisor about academic plans often	F2B18B=3	19.1	1.26	1.16	1,100	1.17	1.08
Participate in other extracurricular activities often	F2B18G=3	27.9	1.80	1.33	1,100	1.84	1.36
Postsecondary education paid with grants/scholarships	F2B25A=1	58.8	1.82	1.46	1,100	1.56	1.25
Expect to finish college, but not advanced degree	F2STEXP=6	30.1	1.49	1.25	1,300	1.41	1.19
Ever held a job since leaving high school	F2EVRJOB=1	79.7	1.25	1.10	1,300	1.28	1.13
First job is working for an employer	F2C07=1	87.9	2.56	2.33	200	1.21	1.10
Current employer offers health insurance	F2C21=1	61.7	4.72	3.80	170	1.55	1.24
At age 30 expects to have a job as a laborer	F2OCC30=5	0.4	0.22	0.20	950	1.25	1.12
At age 30 expects to have a job as a manager	F2OCC30=6	13.9	1.38	1.12	950	1.52	1.23
At age 30 expects to have a job in the military	F2OCC30=7	0.5	0.23	0.23	950	0.99	1.00
At age 30 expects to have a professional job (group a)	F2OCC30=9	34.8	1.66	1.55	950	1.15	1.07
At age 30 expects to have a sales job	F2OCC30=13	1.5	0.37	0.40	950	0.85	0.92
At age 30 expects to have a job as a school teacher	F2OCC30=14	2.6	0.57	0.52	950	1.23	1.11
College degree but not advanced degree needed for job at age 30	F2C41=6	36.7	1.72	1.34	1,300	1.67	1.29
Respondent's current marital status is single	F2D01=1	97.1	0.60	0.46	1,300	1.69	1.30
Respondent's current marital status is married	F2D01=2	2.8	0.58	0.45	1,300	1.69	1.30
Number of friends or roommates living with respondent	F2D08C	0.9	0.05	0.04	1,300	1.76	1.33
Number of siblings living with respondent	F2D08D	0.9	0.06	0.04	1,300	2.38	1.54
Respondent lives in school provided housing in spring 2006	F2D07=1	30.5	1.74	1.44	1,000	1.46	1.21
Respondent performed community service in past 2 years	F2D09=1	48.4	1.87	1.37	1,300	1.86	1.36
Volunteered with school/community organizations	F2D10B=1	39.5	2.48	1.91	660	1.69	1.30
Volunteered with church-related group	F2D10D=1	42.6	2.17	1.93	650	1.26	1.12
Voted in 2004 Presidential election	F2D13=1	33.1	1.84	1.29	1,300	2.03	1.43
Respondent served in military	F2D14=1	1.3	0.38	0.31	1,300	1.46	1.21
Respondent's parent/guardian divorced in last 2 years	F2D15A=1	5.3	0.70	0.61	1,300	1.31	1.15
Respondent's parent/guardian lost job in last 2 years	F2D15B=1	13.2	1.14	0.93	1,300	1.51	1.23
Summary statistics							
Mean						1.53	1.23
Minimum						0.85	0.92
Median						1.50	1.23
Maximum						2.38	1.54
Standard Deviation						0.37	0.15

NOTE: DEFF = design effect; DEFT = root design effect; N = sample size. GED = General Educational Development credential.  
 SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, Restricted-Use Data File, 2006."



**Table J-23. Student design effects, by item, using first follow-up to second follow-up panel weight—Black or African American: 2006**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Ever dropped out	F2EVERDO=1	20.4	1.39	0.97	1,700	2.07	1.44
Fall 2003—summer 2004 high school graduate	F2HSSTAT=1	73.5	1.59	1.06	1,700	2.27	1.51
Received GED or other equivalency	F2HSSTAT=6	4.4	0.64	0.49	1,700	1.69	1.30
Ever applied to a postsecondary school	F2EVRAPP=1	75.5	1.36	1.04	1,700	1.72	1.31
Meet with advisor about academic plans often	F2B18B=3	34.4	1.57	1.38	1,200	1.29	1.14
Participate in other extracurricular activities often	F2B18G=3	21.4	1.43	1.20	1,200	1.44	1.20
Postsecondary education paid with grants/scholarships	F2B25A=1	66.9	1.53	1.37	1,200	1.25	1.12
Expect to finish college, but not advanced degree	F2STEXP=6	30.5	1.33	1.10	1,700	1.46	1.21
Ever held a job since leaving high school	F2EVRJOB=1	90.8	0.80	0.70	1,700	1.33	1.15
First job is working for an employer	F2C07=1	88.1	1.38	1.27	650	1.17	1.08
Current employer offers health insurance	F2C21=1	71.7	2.30	2.06	480	1.25	1.12
At age 30 expects to have a job as a laborer	F2OCC30=5	1.1	0.38	0.28	1,400	1.87	1.37
At age 30 expects to have a job as a manager	F2OCC30=6	16.4	1.17	0.99	1,400	1.40	1.18
At age 30 expects to have a job in the military	F2OCC30=7	0.7	0.22	0.22	1,400	1.04	1.02
At age 30 expects to have a professional job (group a)	F2OCC30=9	30.7	1.46	1.23	1,400	1.41	1.19
At age 30 expects to have a sales job	F2OCC30=13	2.5	0.48	0.42	1,400	1.35	1.16
At age 30 expects to have a job as a school teacher	F2OCC30=14	3.7	0.59	0.50	1,400	1.39	1.18
College degree but not advanced degree needed for job at age 30	F2C41=6	38.1	1.53	1.19	1,700	1.65	1.29
Respondent's current marital status is single	F2D01=1	97.6	0.40	0.37	1,700	1.17	1.08
Respondent's current marital status is married	F2D01=2	2.1	0.40	0.35	1,700	1.30	1.14
Number of friends or roommates living with respondent	F2D08C	0.5	0.03	0.02	1,700	1.25	1.12
Number of siblings living with respondent	F2D08D	0.7	0.03	0.03	1,700	1.53	1.24
Respondent lives in school provided housing in spring 2006	F2D07=1	32.3	1.90	1.59	870	1.43	1.19
Respondent performed community service in past 2 years	F2D09=1	39.1	1.40	1.17	1,700	1.42	1.19
Volunteered with school/community organizations	F2D10B=1	27.8	1.82	1.68	710	1.17	1.08
Volunteered with church-related group	F2D10D=1	58.0	2.12	1.85	710	1.32	1.15
Voted in 2004 Presidential election	F2D13=1	48.4	1.45	1.20	1,700	1.46	1.21
Respondent served in military	F2D14=1	2.3	0.42	0.36	1,700	1.37	1.17
Respondent's parent/guardian divorced in last 2 years	F2D15A=1	8.7	0.77	0.68	1,700	1.28	1.13
Respondent's parent/guardian lost job in last 2 years	F2D15B=1	13.4	1.02	0.82	1,700	1.54	1.24
<b>Summary statistics</b>							
Mean						1.44	1.20
Minimum						1.04	1.02
Median						1.39	1.18
Maximum						2.27	1.51
Standard Deviation						0.27	0.11

NOTE: DEFF = design effect; DEFT = root design effect; N = sample size. GED = General Educational Development credential.  
 SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, Restricted-Use Data File, 2006."

**Table J-24. Student design effects, by item, using first follow-up to second follow-up panel weight—Hispanic or Latino: 2006**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Ever dropped out	F2EVERDO=1	19.6	1.13	0.91	1,900	1.55	1.25
Fall 2003—summer 2004 high school graduate	F2HSSTAT=1	72.9	1.35	1.01	1,900	1.77	1.33
Received GED or other equivalency	F2HSSTAT=6	4.2	0.69	0.46	1,900	2.24	1.50
Ever applied to a postsecondary school	F2EVRAPP=1	71.2	1.47	1.04	1,900	1.99	1.41
Meet with advisor about academic plans often	F2B18B=3	25.5	1.43	1.24	1,200	1.32	1.15
Participate in other extracurricular activities often	F2B18G=3	15.3	1.13	1.03	1,200	1.22	1.10
Postsecondary education paid with grants/scholarships	F2B25A=1	52.7	1.75	1.43	1,200	1.50	1.22
Expect to finish college, but not advanced degree	F2STEXP=6	31.9	1.22	1.06	1,900	1.31	1.14
Ever held a job since leaving high school	F2EVRJOB=1	87.9	0.92	0.75	1,900	1.50	1.23
First job is working for an employer	F2C07=1	87.4	1.22	1.20	760	1.03	1.01
Current employer offers health insurance	F2C21=1	64.8	2.12	1.94	600	1.19	1.09
At age 30 expects to have a job as a laborer	F2OCC30=5	1.3	0.38	0.30	1,400	1.64	1.28
At age 30 expects to have a job as a manager	F2OCC30=6	13.6	0.91	0.91	1,400	1.00	1.00
At age 30 expects to have a job in the military	F2OCC30=7	0.5	0.21	0.19	1,400	1.17	1.08
At age 30 expects to have a professional job (group a)	F2OCC30=9	26.4	1.47	1.17	1,400	1.56	1.25
At age 30 expects to have a sales job	F2OCC30=13	2.5	0.50	0.42	1,400	1.46	1.21
At age 30 expects to have a job as a school teacher	F2OCC30=14	4.5	0.73	0.55	1,400	1.73	1.32
College degree but not advanced degree needed for job at age 30	F2C41=6	36.7	1.31	1.13	1,800	1.36	1.17
Respondent's current marital status is single	F2D01=1	92.0	0.73	0.62	1,900	1.36	1.17
Respondent's current marital status is married	F2D01=2	7.1	0.68	0.59	1,900	1.33	1.16
Number of friends or roommates living with respondent	F2D08C	0.4	0.02	0.02	1,900	1.08	1.04
Number of siblings living with respondent	F2D08D	1.1	0.04	0.03	1,900	2.05	1.43
Respondent lives in school provided housing in spring 2006	F2D07=1	14.8	1.46	1.18	910	1.54	1.24
Respondent performed community service in past 2 years	F2D09=1	30.4	1.10	1.06	1,900	1.09	1.04
Volunteered with school/community organizations	F2D10B=1	25.4	2.07	1.71	650	1.47	1.21
Volunteered with church-related group	F2D10D=1	48.1	2.50	1.96	650	1.62	1.27
Voted in 2004 Presidential election	F2D13=1	33.5	1.37	1.08	1,900	1.59	1.26
Respondent served in military	F2D14=1	2.2	0.36	0.33	1,900	1.17	1.08
Respondent's parent/guardian divorced in last 2 years	F2D15A=1	9.3	0.74	0.67	1,900	1.24	1.11
Respondent's parent/guardian lost job in last 2 years	F2D15B=1	14.6	0.92	0.81	1,900	1.29	1.14
Summary statistics							
Mean						1.45	1.20
Minimum						1.00	1.00
Median						1.41	1.19
Maximum						2.24	1.50
Standard Deviation						0.30	0.12

NOTE: DEFF = design effect; DEFT = root design effect; N = sample size. GED = General Educational Development credential.  
 SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, Restricted-Use Data File, 2006."

**Table J-25. Student design effects, by item, using first follow-up to second follow-up panel weight—White: 2006**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Ever dropped out	F2EVERDO=1	8.6	0.44	0.32	7,600	1.85	1.36
Fall 2003–summer 2004 high school graduate	F2HSSTAT=1	88.9	0.53	0.36	7,600	2.14	1.46
Received GED or other equivalency	F2HSSTAT=6	3.4	0.27	0.21	7,600	1.65	1.28
Ever applied to a postsecondary school	F2EVRAP=1	81.1	0.63	0.45	7,600	1.96	1.40
Meet with advisor about academic plans often	F2B18B=3	22.1	0.62	0.53	6,100	1.35	1.16
Participate in other extracurricular activities often	F2B18G=3	26.2	0.72	0.56	6,100	1.63	1.28
Postsecondary education paid with grants/scholarships	F2B25A=1	53.4	0.91	0.64	6,100	2.01	1.42
Expect to finish college, but not advanced degree	F2STEXP=6	32.0	0.64	0.53	7,600	1.46	1.21
Ever held a job since leaving high school	F2EVRJOB=1	95.2	0.29	0.24	7,600	1.40	1.18
First job is working for an employer	F2C07=1	88.8	0.88	0.73	1,900	1.47	1.21
Current employer offers health insurance	F2C21=1	66.5	1.36	1.14	1,700	1.42	1.19
At age 30 expects to have a job as a laborer	F2OCC30=5	0.9	0.15	0.12	5,600	1.54	1.24
At age 30 expects to have a job as a manager	F2OCC30=6	12.9	0.53	0.45	5,600	1.43	1.20
At age 30 expects to have a job in the military	F2OCC30=7	1.3	0.18	0.15	5,600	1.47	1.21
At age 30 expects to have a professional job (group a)	F2OCC30=9	29.7	0.87	0.61	5,600	2.02	1.42
At age 30 expects to have a sales job	F2OCC30=13	2.5	0.26	0.21	5,600	1.50	1.22
At age 30 expects to have a job as a school teacher	F2OCC30=14	6.4	0.40	0.33	5,600	1.46	1.21
College degree but not advanced degree needed for job at age 30	F2C41=6	40.4	0.70	0.57	7,400	1.51	1.23
Respondent's current marital status is single	F2D01=1	95.1	0.39	0.25	7,600	2.51	1.58
Respondent's current marital status is married	F2D01=2	4.5	0.37	0.24	7,600	2.46	1.57
Number of friends or roommates living with respondent	F2D08C	0.9	0.02	0.02	7,600	2.24	1.50
Number of siblings living with respondent	F2D08D	0.4	0.01	0.01	7,600	1.97	1.40
Respondent lives in school provided housing in spring 2006	F2D07=1	33.8	1.00	0.67	5,100	2.25	1.50
Respondent performed community service in past 2 years	F2D09=1	44.5	0.74	0.57	7,600	1.68	1.30
Volunteered with school/community organizations	F2D10B=1	28.4	1.00	0.75	3,600	1.78	1.33
Volunteered with church-related group	F2D10D=1	44.9	1.00	0.83	3,600	1.44	1.20
Voted in 2004 Presidential election	F2D13=1	56.7	0.83	0.57	7,600	2.12	1.46
Respondent served in military	F2D14=1	3.1	0.26	0.20	7,600	1.65	1.29
Respondent's parent/guardian divorced in last 2 years	F2D15A=1	6.7	0.36	0.29	7,600	1.59	1.26
Respondent's parent/guardian lost job in last 2 years	F2D15B=1	13.9	0.51	0.40	7,600	1.64	1.28
<b>Summary statistics</b>							
Mean						1.75	1.32
Minimum						1.35	1.16
Median						1.65	1.28
Maximum						2.51	1.58
Standard Deviation						0.33	0.12

NOTE: DEFF = design effect; DEFT = root design effect; N = sample size. GED = General Educational Development credential.  
 SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, Restricted-Use Data File, 2006."

**Table J-26. Student design effects, by item, using first follow-up to second follow-up panel weight—More than one race: 2006**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Ever dropped out	F2EVERDO=1	13.8	1.90	1.40	600	1.83	1.35
Fall 2003—summer 2004 high school graduate	F2HSSTAT=1	79.2	2.11	1.65	600	1.63	1.28
Received GED or other equivalency	F2HSSTAT=6	4.8	1.22	0.87	600	1.96	1.40
Ever applied to a postsecondary school	F2EVRAPP=1	77.7	2.34	1.70	600	1.88	1.37
Meet with advisor about academic plans often	F2B18B=3	24.7	2.92	2.10	420	1.94	1.39
Participate in other extracurricular activities often	F2B18G=3	27.9	2.81	2.18	420	1.67	1.29
Postsecondary education paid with grants/scholarships	F2B25A=1	54.8	3.08	2.41	430	1.63	1.28
Expect to finish college, but not advanced degree	F2STEXP=6	32.3	2.66	1.90	600	1.95	1.39
Ever held a job since leaving high school	F2EVRJOB=1	90.7	1.49	1.19	600	1.57	1.25
First job is working for an employer	F2C07=1	89.8	2.55	2.19	190	1.35	1.16
Current employer offers health insurance	F2C21=1	69.9	4.38	3.49	170	1.58	1.26
At age 30 expects to have a job as a laborer	F2OCC30=5	0.9	0.44	0.44	460	1.02	1.01
At age 30 expects to have a job as a manager	F2OCC30=6	11.1	1.79	1.47	460	1.48	1.22
At age 30 expects to have a job in the military	F2OCC30=7	2.4	0.94	0.72	460	1.70	1.31
At age 30 expects to have a professional job (group a)	F2OCC30=9	33.0	2.87	2.21	460	1.70	1.30
At age 30 expects to have a sales job	F2OCC30=13	2.3	0.87	0.70	460	1.57	1.25
At age 30 expects to have a job as a school teacher	F2OCC30=14	3.9	1.03	0.90	460	1.30	1.14
College degree but not advanced degree needed for job at age 30	F2C41=6	37.2	2.91	2.01	580	2.10	1.45
Respondent's current marital status is single	F2D01=1	95.3	1.15	0.86	600	1.76	1.33
Respondent's current marital status is married	F2D01=2	4.4	1.11	0.84	600	1.77	1.33
Number of friends or roommates living with respondent	F2D08C	0.8	0.07	0.06	590	1.72	1.31
Number of siblings living with respondent	F2D08D	0.6	0.06	0.04	590	1.67	1.29
Respondent lives in school provided housing in spring 2006	F2D07=1	37.4	3.93	2.69	320	2.13	1.46
Respondent performed community service in past 2 years	F2D09=1	41.9	2.51	2.02	600	1.55	1.24
Volunteered with school/community organizations	F2D10B=1	23.0	3.11	2.60	260	1.43	1.19
Volunteered with church-related group	F2D10D=1	37.4	3.96	2.97	270	1.77	1.33
Voted in 2004 Presidential election	F2D13=1	45.4	2.67	2.04	590	1.71	1.31
Respondent served in military	F2D14=1	5.3	1.15	0.92	600	1.56	1.25
Respondent's parent/guardian divorced in last 2 years	F2D15A=1	9.4	1.45	1.20	600	1.47	1.21
Respondent's parent/guardian lost job in last 2 years	F2D15B=1	16.4	2.01	1.52	600	1.76	1.33
Summary statistics							
Mean						1.67	1.29
Minimum						1.02	1.01
Median						1.68	1.30
Maximum						2.13	1.46
Standard Deviation						0.23	0.09

NOTE: DEFF = design effect; DEFT = root design effect; N = sample size. GED = General Educational Development credential.  
 SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, Restricted-Use Data File, 2006."

**Table J-27. Student design effects, by item, using first follow-up to second follow-up panel weight—Public: 2006**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Ever dropped out	F2EVERDO=1	13.1	0.48	0.33	10,400	2.09	1.45
Fall 2003–summer 2004 high school graduate	F2HSSTAT=1	82.5	0.60	0.37	10,400	2.56	1.60
Received GED or other equivalency	F2HSSTAT=6	3.9	0.24	0.19	10,400	1.60	1.27
Ever applied to a postsecondary school	F2EVRAP=1	77.4	0.61	0.41	10,300	2.22	1.49
Meet with advisor about academic plans often	F2B18B=3	23.7	0.55	0.50	7,300	1.22	1.10
Participate in other extracurricular activities often	F2B18G=3	23.1	0.58	0.49	7,300	1.38	1.17
Postsecondary education paid with grants/scholarships	F2B25A=1	55.9	0.78	0.58	7,300	1.79	1.34
Expect to finish college, but not advanced degree	F2STEXP=6	31.7	0.52	0.46	10,400	1.30	1.14
Ever held a job since leaving high school	F2EVRJOB=1	92.6	0.29	0.26	10,300	1.26	1.12
First job is working for an employer	F2C07=1	88.5	0.64	0.54	3,400	1.38	1.17
Current employer offers health insurance	F2C21=1	67.0	1.07	0.88	2,800	1.48	1.22
At age 30 expects to have a job as a laborer	F2OCC30=5	1.0	0.13	0.11	7,700	1.31	1.15
At age 30 expects to have a job as a manager	F2OCC30=6	13.4	0.47	0.39	7,700	1.45	1.20
At age 30 expects to have a job in the military	F2OCC30=7	1.1	0.14	0.12	7,700	1.40	1.18
At age 30 expects to have a professional job (group a)	F2OCC30=9	29.3	0.67	0.52	7,700	1.67	1.29
At age 30 expects to have a sales job	F2OCC30=13	2.5	0.21	0.18	7,700	1.34	1.16
At age 30 expects to have a job as a school teacher	F2OCC30=14	5.5	0.30	0.26	7,700	1.36	1.17
College degree but not advanced degree needed for job at age 30	F2C41=6	38.9	0.60	0.49	10,000	1.49	1.22
Respondent's current marital status is single	F2D01=1	94.7	0.31	0.22	10,300	1.90	1.38
Respondent's current marital status is married	F2D01=2	4.9	0.29	0.21	10,300	1.87	1.37
Number of friends or roommates living with respondent	F2D08C	0.7	0.02	0.01	10,300	2.26	1.50
Number of siblings living with respondent	F2D08D	0.6	0.02	0.01	10,300	2.36	1.54
Respondent lives in school provided housing in spring 2006	F2D07=1	29.4	0.87	0.60	5,800	2.08	1.44
Respondent performed community service in past 2 years	F2D09=1	40.2	0.63	0.48	10,300	1.72	1.31
Volunteered with school/community organizations	F2D10B=1	27.5	0.87	0.68	4,300	1.63	1.28
Volunteered with church-related group	F2D10D=1	46.3	0.89	0.77	4,200	1.37	1.17
Voted in 2004 Presidential election	F2D13=1	49.1	0.71	0.49	10,300	2.07	1.44
Respondent served in military	F2D14=1	2.9	0.20	0.17	10,300	1.40	1.18
Respondent's parent/guardian divorced in last 2 years	F2D15A=1	7.6	0.30	0.26	10,300	1.28	1.13
Respondent's parent/guardian lost job in last 2 years	F2D15B=1	14.4	0.42	0.35	10,300	1.50	1.22
<b>Summary statistics</b>							
Mean						1.66	1.28
Minimum						1.22	1.10
Median						1.50	1.22
Maximum						2.56	1.60
Standard Deviation						0.38	0.14

NOTE: DEFF = design effect; DEFT = root design effect; N = sample size. GED = General Educational Development credential.  
 SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, Restricted-Use Data File, 2006."

**Table J-28. Student design effects, by item, using first follow-up to second follow-up panel weight—Catholic: 2006**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Ever dropped out	F2EVERDO=1	2.2	0.60	0.35	1,800	2.90	1.70
Fall 2003—summer 2004 high school graduate	F2HSSTAT=1	97.7	0.50	0.36	1,800	1.90	1.38
Received GED or other equivalency	F2HSSTAT=6	1.3	0.31	0.27	1,800	1.33	1.15
Ever applied to a postsecondary school	F2EVRAPP=1	95.5	0.58	0.49	1,800	1.41	1.19
Meet with advisor about academic plans often	F2B18B=3	28.3	1.20	1.11	1,700	1.17	1.08
Participate in other extracurricular activities often	F2B18G=3	32.7	1.49	1.15	1,700	1.67	1.29
Postsecondary education paid with grants/scholarships	F2B25A=1	51.6	1.70	1.23	1,600	1.90	1.38
Expect to finish college, but not advanced degree	F2STEXP=6	34.1	1.19	1.13	1,800	1.10	1.05
Ever held a job since leaving high school	F2EVRJOB=1	93.4	0.86	0.59	1,800	2.09	1.44
First job is working for an employer	F2C07=1	79.2	3.08	3.33	150	0.86	0.92
Current employer offers health insurance	F2C21=1	66.2	4.30	3.58	180	1.45	1.20
At age 30 expects to have a job as a laborer	F2OCC30=5	0.2	0.18	0.14	1,300	1.81	1.35
At age 30 expects to have a job as a manager	F2OCC30=6	15.4	1.09	1.00	1,300	1.17	1.08
At age 30 expects to have a job in the military	F2OCC30=7	0.8	0.27	0.25	1,300	1.23	1.11
At age 30 expects to have a professional job (group a)	F2OCC30=9	36.1	1.60	1.34	1,300	1.44	1.20
At age 30 expects to have a sales job	F2OCC30=13	2.2	0.46	0.41	1,300	1.27	1.13
At age 30 expects to have a job as a school teacher	F2OCC30=14	4.8	0.66	0.59	1,300	1.26	1.12
College degree but not advanced degree needed for job at age 30	F2C41=6	44.3	1.59	1.20	1,700	1.76	1.33
Respondent's current marital status is single	F2D01=1	99.6	0.15	0.14	1,700	1.12	1.06
Respondent's current marital status is married	F2D01=2	0.3	0.15	0.14	1,700	1.17	1.08
Number of friends or roommates living with respondent	F2D08C	1.1	0.06	0.04	1,700	2.81	1.68
Number of siblings living with respondent	F2D08D	0.5	0.03	0.02	1,700	2.05	1.43
Respondent lives in school provided housing in spring 2006	F2D07=1	43.5	2.02	1.29	1,500	2.47	1.57
Respondent performed community service in past 2 years	F2D09=1	51.9	1.52	1.20	1,700	1.62	1.27
Volunteered with school/community organizations	F2D10B=1	35.1	1.95	1.58	910	1.52	1.23
Volunteered with church-related group	F2D10D=1	41.0	2.01	1.63	910	1.52	1.23
Voted in 2004 Presidential election	F2D13=1	65.1	1.60	1.14	1,700	1.97	1.40
Respondent served in military	F2D14=1	1.6	0.42	0.30	1,700	1.91	1.38
Respondent's parent/guardian divorced in last 2 years	F2D15A=1	6.7	0.61	0.60	1,700	1.02	1.01
Respondent's parent/guardian lost job in last 2 years	F2D15B=1	10.2	0.72	0.73	1,700	0.97	0.99
Summary statistics							
Mean						1.60	1.25
Minimum						0.86	0.92
Median						1.49	1.22
Maximum						2.90	1.70
Standard Deviation						0.51	0.20

NOTE: DEFF = design effect; DEFT = root design effect; N = sample size. GED = General Educational Development credential.  
 SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, Restricted-Use Data File, 2006."

**Table J-29. Student design effects, by item, using first follow-up to second follow-up panel weight—Other private: 2006**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Ever dropped out	F2EVERDO=1	5.4	1.11	0.65	1,200	2.93	1.71
Fall 2003—summer 2004 high school graduate	F2HSSTAT=1	92.5	1.55	0.75	1,200	4.25	2.06
Received GED or other equivalency	F2HSSTAT=6	1.9	0.65	0.39	1,200	2.74	1.65
Ever applied to a postsecondary school	F2EVRRAPP=1	92.8	1.16	0.74	1,200	2.47	1.57
Meet with advisor about academic plans often	F2B18B=3	26.9	1.46	1.32	1,100	1.22	1.11
Participate in other extracurricular activities often	F2B18G=3	37.9	1.99	1.45	1,100	1.88	1.37
Postsecondary education paid with grants/scholarships	F2B25A=1	50.8	2.40	1.49	1,100	2.59	1.61
Expect to finish college, but not advanced degree	F2STEXP=6	29.5	2.33	1.30	1,200	3.21	1.79
Ever held a job since leaving high school	F2EVRJOB=1	88.7	1.41	0.90	1,200	2.44	1.56
First job is working for an employer	F2C07=1	82.1	4.39	3.18	150	1.90	1.38
Current employer offers health insurance	F2C21=1	62.2	4.50	3.93	150	1.31	1.14
At age 30 expects to have a job as a laborer	F2OCC30=5	0	0	0	880	†	†
At age 30 expects to have a job as a manager	F2OCC30=6	12.8	1.30	1.13	880	1.32	1.15
At age 30 expects to have a job in the military	F2OCC30=7	0.9	0.37	0.31	880	1.43	1.20
At age 30 expects to have a professional job (group a)	F2OCC30=9	31.0	1.75	1.56	880	1.26	1.12
At age 30 expects to have a sales job	F2OCC30=13	2.1	0.53	0.48	880	1.21	1.10
At age 30 expects to have a job as a school teacher	F2OCC30=14	3.8	0.65	0.64	880	1.01	1.01
College degree but not advanced degree needed for job at age 30	F2C41=6	39.4	1.98	1.42	1,200	1.94	1.39
Respondent's current marital status is single	F2D01=1	97.7	0.63	0.43	1,200	2.16	1.47
Respondent's current marital status is married	F2D01=2	2.0	0.57	0.40	1,200	2.04	1.43
Number of friends or roommates living with respondent	F2D08C	1.0	0.06	0.04	1,200	2.56	1.60
Number of siblings living with respondent	F2D08D	0.4	0.06	0.03	1,200	4.20	2.05
Respondent lives in school provided housing in spring 2006	F2D07=1	47.2	3.34	1.59	980	4.39	2.09
Respondent performed community service in past 2 years	F2D09=1	60.7	1.71	1.40	1,200	1.50	1.23
Volunteered with school/community organizations	F2D10B=1	34.1	2.50	1.75	730	2.03	1.42
Volunteered with church-related group	F2D10D=1	55.0	4.04	1.84	730	4.82	2.20
Voted in 2004 Presidential election	F2D13=1	59.9	2.76	1.40	1,200	3.87	1.97
Respondent served in military	F2D14=1	1.9	0.51	0.39	1,200	1.70	1.31
Respondent's parent/guardian divorced in last 2 years	F2D15A=1	4.7	0.75	0.60	1,200	1.55	1.24
Respondent's parent/guardian lost job in last 2 years	F2D15B=1	10.9	0.74	0.89	1,200	0.68	0.83
Summary statistics							
Mean						2.30	1.47
Minimum						0.68	0.83
Median						2.03	1.42
Maximum						4.82	2.20
Standard Deviation						1.11	0.36

† Not applicable.

NOTE: DEFF = design effect; DEFT = root design effect; N = sample size. GED = General Educational Development credential.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, Restricted-Use Data File, 2006."

**Table J-30. Student design effects, by item, using first follow-up to second follow-up panel weight—Low socioeconomic status (SES): 2006**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Ever dropped out	F2EVERDO=1	23.1	1.02	0.76	3,100	1.80	1.34
Fall 2003–summer 2004 high school graduate	F2HSSTAT=1	70.6	1.13	0.82	3,100	1.87	1.37
Received GED or other equivalency	F2HSSTAT=6	5.2	0.53	0.40	3,100	1.77	1.33
Ever applied to a postsecondary school	F2EVRAPP=1	65.0	1.08	0.87	3,000	1.56	1.25
Meet with advisor about academic plans often	F2B18B=3	25.8	1.25	1.07	1,700	1.37	1.17
Participate in other extracurricular activities often	F2B18G=3	14.0	0.95	0.85	1,700	1.25	1.12
Postsecondary education paid with grants/scholarships	F2B25A=1	62.8	1.49	1.18	1,700	1.58	1.26
Expect to finish college, but not advanced degree	F2STEXP=6	28.3	0.98	0.81	3,100	1.45	1.20
Ever held a job since leaving high school	F2EVRJOB=1	89.7	0.68	0.55	3,000	1.50	1.23
First job is working for an employer	F2C07=1	88.0	0.95	0.86	1,400	1.24	1.11
Current employer offers health insurance	F2C21=1	68.0	1.64	1.40	1,100	1.37	1.17
At age 30 expects to have a job as a laborer	F2OCC30=5	1.5	0.31	0.26	2,200	1.42	1.19
At age 30 expects to have a job as a manager	F2OCC30=6	14.3	0.77	0.74	2,200	1.09	1.05
At age 30 expects to have a job in the military	F2OCC30=7	1.0	0.24	0.21	2,200	1.36	1.17
At age 30 expects to have a professional job (group a)	F2OCC30=9	26.3	0.96	0.93	2,200	1.08	1.04
At age 30 expects to have a sales job	F2OCC30=13	2.6	0.43	0.33	2,200	1.65	1.28
At age 30 expects to have a job as a school teacher	F2OCC30=14	3.9	0.49	0.41	2,200	1.42	1.19
College degree but not advanced degree needed for job at age 30	F2C41=6	34.2	1.04	0.88	2,900	1.39	1.18
Respondent's current marital status is single	F2D01=1	91.9	0.58	0.50	3,000	1.37	1.17
Respondent's current marital status is married	F2D01=2	7.3	0.55	0.47	3,000	1.37	1.17
Number of friends or roommates living with respondent	F2D08C	0.4	0.02	0.02	3,000	1.15	1.07
Number of siblings living with respondent	F2D08D	0.9	0.03	0.02	3,000	1.63	1.28
Respondent lives in school provided housing in spring 2006	F2D07=1	17.9	1.33	1.12	1,200	1.43	1.20
Respondent performed community service in past 2 years	F2D09=1	29.1	0.94	0.83	3,000	1.28	1.13
Volunteered with school/community organizations	F2D10B=1	22.2	1.60	1.36	940	1.39	1.18
Volunteered with church-related group	F2D10D=1	51.6	2.13	1.64	930	1.69	1.30
Voted in 2004 Presidential election	F2D13=1	34.3	1.20	0.86	3,000	1.91	1.38
Respondent served in military	F2D14=1	2.3	0.30	0.27	3,000	1.19	1.09
Respondent's parent/guardian divorced in last 2 years	F2D15A=1	8.7	0.57	0.51	3,000	1.25	1.12
Respondent's parent/guardian lost job in last 2 years	F2D15B=1	16.1	0.80	0.67	3,000	1.44	1.20
Summary statistics							
Mean						1.44	1.20
Minimum						1.08	1.04
Median						1.40	1.18
Maximum						1.91	1.38
Standard Deviation						0.22	0.09

NOTE: DEFF = design effect; DEFT = root design effect; N = sample size. GED = General Educational Development credential.  
 SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, Restricted-Use Data File, 2006."



Table J-31. Student design effects, by item, using first follow-up to second follow-up panel weight—Middle socioeconomic status (SES): 2006

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Ever dropped out	F2EVERDO=1	11.0	0.52	0.39	6,300	1.77	1.33
Fall 2003–summer 2004 high school graduate	F2HSSTAT=1	84.8	0.68	0.45	6,300	2.28	1.51
Received GED or other equivalency	F2HSSTAT=6	3.8	0.31	0.24	6,300	1.68	1.30
Ever applied to a postsecondary school	F2EVRAAPP=1	78.6	0.71	0.52	6,300	1.90	1.38
Meet with advisor about academic plans often	F2B18B=3	23.5	0.72	0.61	4,800	1.39	1.18
Participate in other extracurricular activities often	F2B18G=3	21.4	0.69	0.60	4,700	1.34	1.16
Postsecondary education paid with grants/scholarships	F2B25A=1	55.3	0.92	0.72	4,700	1.64	1.28
Expect to finish college, but not advanced degree	F2STEXP=6	34.4	0.74	0.60	6,300	1.55	1.25
Ever held a job since leaving high school	F2EVRJOB=1	93.3	0.34	0.31	6,300	1.17	1.08
First job is working for an employer	F2C07=1	88.4	0.87	0.73	1,900	1.39	1.18
Current employer offers health insurance	F2C21=1	68.3	1.36	1.14	1,700	1.43	1.20
At age 30 expects to have a job as a laborer	F2OCC30=5	0.9	0.17	0.14	4,800	1.54	1.24
At age 30 expects to have a job as a manager	F2OCC30=6	13.5	0.62	0.49	4,800	1.55	1.25
At age 30 expects to have a job in the military	F2OCC30=7	1.2	0.19	0.16	4,800	1.39	1.18
At age 30 expects to have a professional job (group a)	F2OCC30=9	29.1	0.83	0.66	4,800	1.59	1.26
At age 30 expects to have a sales job	F2OCC30=13	2.4	0.27	0.22	4,800	1.48	1.22
At age 30 expects to have a job as a school teacher	F2OCC30=14	5.8	0.45	0.34	4,800	1.72	1.31
College degree but not advanced degree needed for job at age 30	F2C41=6	40.0	0.75	0.63	6,100	1.42	1.19
Respondent's current marital status is single	F2D01=1	94.8	0.37	0.28	6,300	1.73	1.31
Respondent's current marital status is married	F2D01=2	4.8	0.35	0.27	6,300	1.73	1.31
Number of friends or roommates living with respondent	F2D08C	0.7	0.02	0.02	6,300	1.83	1.35
Number of siblings living with respondent	F2D08D	0.6	0.02	0.01	6,300	1.93	1.39
Respondent lives in school provided housing in spring 2006	F2D07=1	27.3	0.99	0.73	3,700	1.82	1.35
Respondent performed community service in past 2 years	F2D09=1	39.8	0.78	0.62	6,300	1.59	1.26
Volunteered with school/community organizations	F2D10B=1	27.0	1.10	0.87	2,600	1.61	1.27
Volunteered with church-related group	F2D10D=1	46.9	1.14	0.97	2,600	1.36	1.17
Voted in 2004 Presidential election	F2D13=1	50.5	0.81	0.63	6,300	1.66	1.29
Respondent served in military	F2D14=1	3.5	0.29	0.23	6,300	1.62	1.27
Respondent's parent/guardian divorced in last 2 years	F2D15A=1	7.6	0.40	0.34	6,300	1.45	1.21
Respondent's parent/guardian lost job in last 2 years	F2D15B=1	14.9	0.58	0.45	6,300	1.65	1.29
Summary statistics							
Mean						1.61	1.26
Minimum						1.17	1.08
Median						1.60	1.27
Maximum						2.28	1.51
Standard Deviation						0.22	0.09

NOTE: DEFF = design effect; DEFT = root design effect; N = sample size. GED = General Educational Development credential.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, Restricted-Use Data File, 2006."

**Table J-32. Student design effects, by item, using first follow-up to second follow-up panel weight—High socioeconomic status (SES): 2006**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Ever dropped out	F2EVERDO=1	4.5	0.45	0.33	4,000	1.86	1.37
Fall 2003–summer 2004 high school graduate	F2HSSTAT=1	93.8	0.49	0.38	4,000	1.61	1.27
Received GED or other equivalency	F2HSSTAT=6	2.0	0.30	0.22	4,000	1.79	1.34
Ever applied to a postsecondary school	F2EVRAPP=1	92.7	0.59	0.41	3,900	2.02	1.42
Meet with advisor about academic plans often	F2B18B=3	24.2	0.89	0.71	3,700	1.58	1.26
Participate in other extracurricular activities often	F2B18G=3	34.6	0.98	0.78	3,700	1.57	1.25
Postsecondary education paid with grants/scholarships	F2B25A=1	51.6	1.18	0.83	3,700	2.03	1.42
Expect to finish college, but not advanced degree	F2STEXP=6	29.5	0.95	0.73	4,000	1.72	1.31
Ever held a job since leaving high school	F2EVRJOB=1	93.6	0.43	0.39	3,900	1.20	1.10
First job is working for an employer	F2C07=1	88.7	1.71	1.59	400	1.16	1.08
Current employer offers health insurance	F2C21=1	57.0	3.14	2.50	390	1.58	1.26
At age 30 expects to have a job as a laborer	F2OCC30=5	0.6	0.21	0.14	2,900	2.15	1.47
At age 30 expects to have a job as a manager	F2OCC30=6	12.8	0.82	0.62	2,900	1.73	1.32
At age 30 expects to have a job in the military	F2OCC30=7	0.9	0.21	0.18	2,900	1.39	1.18
At age 30 expects to have a professional job (group a)	F2OCC30=9	34.1	1.27	0.88	2,900	2.08	1.44
At age 30 expects to have a sales job	F2OCC30=13	2.6	0.39	0.29	2,900	1.75	1.32
At age 30 expects to have a job as a school teacher	F2OCC30=14	6.1	0.56	0.44	2,900	1.59	1.26
College degree but not advanced degree needed for job at age 30	F2C41=6	42.2	1.05	0.80	3,900	1.74	1.32
Respondent's current marital status is single	F2D01=1	98.5	0.25	0.19	3,900	1.68	1.30
Respondent's current marital status is married	F2D01=2	1.4	0.24	0.19	3,900	1.72	1.31
Number of friends or roommates living with respondent	F2D08C	1.2	0.03	0.02	3,900	1.68	1.30
Number of siblings living with respondent	F2D08D	0.4	0.02	0.01	3,900	1.89	1.38
Respondent lives in school provided housing in spring 2006	F2D07=1	41.9	1.31	0.86	3,300	2.34	1.53
Respondent performed community service in past 2 years	F2D09=1	56.9	1.04	0.79	3,900	1.73	1.32
Volunteered with school/community organizations	F2D10B=1	33.0	1.29	0.97	2,300	1.76	1.33
Volunteered with church-related group	F2D10D=1	43.3	1.42	1.03	2,300	1.92	1.38
Voted in 2004 Presidential election	F2D13=1	65.1	1.08	0.76	3,900	2.02	1.42
Respondent served in military	F2D14=1	2.1	0.33	0.23	3,900	2.08	1.44
Respondent's parent/guardian divorced in last 2 years	F2D15A=1	6.0	0.49	0.38	3,900	1.67	1.29
Respondent's parent/guardian lost job in last 2 years	F2D15B=1	10.5	0.68	0.49	3,900	1.95	1.40
<b>Summary statistics</b>							
Mean						1.77	1.33
Minimum						1.16	1.08
Median						1.74	1.32
Maximum						2.34	1.53
Standard Deviation						0.26	0.10

NOTE: DEFF = design effect; DEFT = root design effect; N = sample size. GED = General Educational Development credential.  
 SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, Restricted-Use Data File, 2006."

**Table J-33. Student design effects, by item, using first follow-up to second follow-up panel weight—Postsecondary enrolled: 2006**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Ever dropped out	F2EVERDO=1	4.2	0.29	0.20	10,200	2.07	1.44
Fall 2003–summer 2004 high school graduate	F2HSSTAT=1	93.3	0.38	0.25	10,200	2.34	1.53
Received GED or other equivalency	F2HSSTAT=6	2.1	0.20	0.14	10,200	1.94	1.39
Ever applied to a postsecondary school	F2EVRAP=1	95.3	0.29	0.21	10,200	1.86	1.36
Meet with advisor about academic plans often	F2B18B=3	24.1	0.50	0.43	10,100	1.39	1.18
Participate in other extracurricular activities often	F2B18G=3	24.3	0.54	0.43	10,100	1.58	1.26
Postsecondary education paid with grants/scholarships	F2B25A=1	55.4	0.71	0.49	10,100	2.08	1.44
Expect to finish college, but not advanced degree	F2STEXP=6	34.7	0.62	0.47	10,200	1.72	1.31
Ever held a job since leaving high school	F2EVRJOB=1	92.8	0.31	0.26	10,200	1.46	1.21
First job is working for an employer	F2C07=1	89.1	1.24	1.01	960	1.53	1.24
Current employer offers health insurance	F2C21=1	63.2	1.60	1.36	1,200	1.37	1.17
At age 30 expects to have a job as a laborer	F2OCC30=5	0.4	0.09	0.07	7,700	1.70	1.30
At age 30 expects to have a job as a manager	F2OCC30=6	12.4	0.49	0.37	7,700	1.68	1.30
At age 30 expects to have a job in the military	F2OCC30=7	0.9	0.14	0.11	7,700	1.68	1.29
At age 30 expects to have a professional job (group a)	F2OCC30=9	33.1	0.72	0.54	7,700	1.80	1.34
At age 30 expects to have a sales job	F2OCC30=13	2.4	0.23	0.17	7,700	1.73	1.31
At age 30 expects to have a job as a school teacher	F2OCC30=14	6.3	0.35	0.28	7,700	1.60	1.26
College degree but not advanced degree needed for job at age 30	F2C41=6	43.1	0.63	0.50	9,900	1.61	1.27
Respondent's current marital status is single	F2D01=1	96.9	0.25	0.17	10,100	2.03	1.43
Respondent's current marital status is married	F2D01=2	2.9	0.24	0.17	10,100	2.04	1.43
Number of friends or roommates living with respondent	F2D08C	0.9	0.02	0.01	10,100	2.40	1.55
Number of siblings living with respondent	F2D08D	0.5	0.02	0.01	10,100	2.40	1.55
Respondent lives in school provided housing in spring 2006	F2D07=1	31.2	0.80	0.51	8,200	2.45	1.56
Respondent performed community service in past 2 years	F2D09=1	48.7	0.67	0.50	10,100	1.79	1.34
Volunteered with school/community organizations	F2D10B=1	31.2	0.89	0.65	5,200	1.89	1.37
Volunteered with church-related group	F2D10D=1	44.9	0.89	0.69	5,100	1.65	1.28
Voted in 2004 Presidential election	F2D13=1	57.7	0.68	0.49	10,100	1.93	1.39
Respondent served in military	F2D14=1	2.2	0.19	0.14	10,100	1.78	1.33
Respondent's parent/guardian divorced in last 2 years	F2D15A=1	6.9	0.31	0.25	10,100	1.52	1.23
Respondent's parent/guardian lost job in last 2 years	F2D15B=1	13.7	0.46	0.34	10,100	1.83	1.35
<b>Summary statistics</b>							
Mean						1.83	1.35
Minimum						1.37	1.17
Median						1.78	1.34
Maximum						2.45	1.56
Standard Deviation						0.30	0.11

NOTE: DEFF = design effect; DEFT = root design effect; N = sample size. GED = General Educational Development credential.  
 SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, Restricted-Use Data File, 2006."

**Table J-34. Student design effects, by item, using first follow-up to second follow-up panel weight—Never postsecondary enrolled: 2006**

Survey item (or composite variable)	Variable	Estimate	Design standard error	Simple random sample standard error	N	DEFF	DEFT
Ever dropped out	F2EVERDO=1	32.6	1.10	0.84	3,100	1.70	1.30
Fall 2003–summer 2004 high school graduate	F2HSSTAT=1	60.9	1.18	0.88	3,100	1.82	1.35
Received GED or other equivalency	F2HSSTAT=6	8.0	0.59	0.49	3,100	1.46	1.21
Ever applied to a postsecondary school	F2EVRAPP=1	36.1	1.04	0.86	3,100	1.46	1.21
Meet with advisor about academic plans often	F2B18B=3	†	†	†	0	†	†
Participate in other extracurricular activities often	F2B18G=3	†	†	†	0	†	†
Postsecondary education paid with grants/scholarships	F2B25A=1	†	†	†	0	†	†
Expect to finish college, but not advanced degree	F2STEXP=6	24.1	0.87	0.77	3,100	1.30	1.14
Ever held a job since leaving high school	F2EVRJOB=1	91.6	0.57	0.50	3,100	1.30	1.14
First job is working for an employer	F2C07=1	88.0	0.72	0.62	2,800	1.37	1.17
Current employer offers health insurance	F2C21=1	69.0	1.24	1.06	1,900	1.36	1.17
At age 30 expects to have a job as a laborer	F2OCC30=5	2.7	0.42	0.35	2,100	1.42	1.19
At age 30 expects to have a job as a manager	F2OCC30=6	16.4	0.88	0.81	2,100	1.19	1.09
At age 30 expects to have a job in the military	F2OCC30=7	1.6	0.33	0.28	2,100	1.45	1.21
At age 30 expects to have a professional job (group a)	F2OCC30=9	20.0	1.12	0.87	2,100	1.65	1.28
At age 30 expects to have a sales job	F2OCC30=13	2.6	0.42	0.35	2,100	1.46	1.21
At age 30 expects to have a job as a school teacher	F2OCC30=14	3.0	0.46	0.37	2,100	1.55	1.25
College degree but not advanced degree needed for job at age 30	F2C41=6	28.5	0.98	0.84	2,900	1.35	1.16
Respondent's current marital status is single	F2D01=1	90.0	0.62	0.54	3,100	1.29	1.13
Respondent's current marital status is married	F2D01=2	9.0	0.59	0.52	3,100	1.32	1.15
Number of friends or roommates living with respondent	F2D08C	0.3	0.02	0.01	3,000	1.43	1.20
Number of siblings living with respondent	F2D08D	0.8	0.03	0.02	3,000	1.77	1.33
Respondent lives in school provided housing in spring 2006	F2D07=1	†	†	†	0	†	†
Respondent performed community service in past 2 years	F2D09=1	22.7	0.90	0.76	3,100	1.41	1.19
Volunteered with school/community organizations	F2D10B=1	12.6	1.42	1.24	720	1.32	1.15
Volunteered with church-related group	F2D10D=1	55.3	2.08	1.85	720	1.26	1.12
Voted in 2004 Presidential election	F2D13=1	30.8	1.00	0.84	3,000	1.44	1.20
Respondent served in military	F2D14=1	4.7	0.44	0.38	3,100	1.33	1.15
Respondent's parent/guardian divorced in last 2 years	F2D15A=1	9.0	0.63	0.52	3,000	1.47	1.21
Respondent's parent/guardian lost job in last 2 years	F2D15B=1	14.9	0.75	0.65	3,000	1.36	1.17
Summary statistics							
Mean						1.43	1.20
Minimum						1.19	1.09
Median						1.41	1.19
Maximum						1.82	1.35
Standard Deviation						0.15	0.06

† Not applicable.

NOTE: DEFF = design effect; DEFT = root design effect; N = sample size. GED = General Educational Development credential.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, Restricted-Use Data File, 2006."

# **Appendix K**

## **Nonresponse Bias Tables**

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Table K-1. Nonresponse bias before and after weight adjustments for the sample using the cross-sectional weight, by selected categorical variables: 2006

Description	Before weight adjustment					After weight adjustment					
	Unweighted respondents	Unweighted nonrespondents	Respondent mean weighted <sup>1</sup>	Non-respondent mean weighted <sup>1</sup>	Relative bias	Overall mean, before adjustments <sup>1</sup>	Overall mean, after adjustments <sup>3</sup>	Estimated bias	Bias per standard error	Relative bias	SIG <sup>2</sup>
<b>Father's occupation</b>											
No job for pay	150	30	0.763	0.88	-0.018	0.776	0.745	0.031	-0.045	0.04	N
Clerical	340	40	2.565	1.994	0.089	2.499	2.447	0.051	-0.672	0.021	N
Craftsperson	1,800	220	13.947	14.448	-0.078	14.005	13.799	0.206	-1.806	0.015	N
Farmer, farm manager	270	30	2.308	2.24	0.01	2.3	2.182	0.118	0.106	0.051	N
Homemaker	340	70	2.415	4.403	-0.308	2.646	2.66	-0.014	-1.218	-0.005	N
Laborer	1,400	220	10.482	13.101	-0.406	10.785	10.798	-0.013	-3.089	-0.001	N
Manager, administrator	2,100	250	14.555	14.584	-0.004	14.559	14.669	-0.111	-3.65	-0.008	N
Military	190	‡	1.345	1.197	0.023	1.328	1.341	-0.013	-1.484	-0.01	N
Operative	1,600	200	12.111	12.396	-0.044	12.144	12.085	0.059	-2.435	0.005	N
Professional A	1,600	140	10.126	8.036	0.324	9.884	10.063	-0.179	-4.26	-0.018	N
Professional B	860	80	4.717	3.688	0.159	4.598	4.795	-0.197	-4.844	-0.043	N
Proprietor, owner	850	120	5.598	5.808	-0.033	5.622	5.766	-0.144	-3.823	-0.026	N
Protective service	490	50	3.586	3.108	0.074	3.53	3.435	0.095	-0.505	0.027	N
Sales	740	90	5.42	4.71	0.11	5.338	5.238	0.1	-0.738	0.019	N
School teacher	210	‡	1.473	0.405	0.165	1.349	1.361	-0.012	-0.915	-0.009	N
Service	560	90	3.735	5.115	-0.214	3.895	3.909	-0.013	-1.909	-0.003	N
Technical	670	80	4.855	3.886	0.15	4.743	4.707	0.036	-1.651	0.008	N
<b>Mother's occupation</b>											
No job for pay	540	70	3.211	3.2	0.002	3.21	3.115	0.095	-0.342	0.03	N
Clerical	2,300	260	16.87	17.118	-0.038	16.898	16.646	0.252	-2.041	0.015	N
Craftsperson	320	40	2.426	2.333	0.014	2.416	2.338	0.078	-0.306	0.032	N
Farmer, farm manager	80	‡	0.615	0.551	0.01	0.607	0.634	-0.027	-1.093	-0.044	N
Homemaker	730	180	5.559	9.472	-0.607	6.012	5.967	0.045	-1.347	0.008	N
Laborer	610	90	4.567	5.154	-0.091	4.635	4.621	0.015	-1.584	0.003	N
Manager, administrator	1,500	190	10.485	10.059	0.066	10.435	10.585	-0.15	-4.158	-0.014	N
Military	30	‡	0.158	0.042	0.018	0.144	0.164	-0.02	-2.848	-0.139	N
Operative	580	80	4.293	4.642	-0.054	4.334	4.334	#	-1.92	#	N
Professional A	2,100	190	13.774	10.883	0.448	13.439	13.773	-0.334	-5.287	-0.025	N
Professional B	550	60	3.486	2.62	0.134	3.385	3.576	-0.191	-4.874	-0.056	N
Proprietor, owner	340	50	2.222	2.833	-0.095	2.293	2.336	-0.043	-1.886	-0.019	N
Protective service	100	‡	0.679	0.817	-0.021	0.695	0.704	-0.009	-1.122	-0.013	N

See notes at end of table.

Table K-1. Nonresponse bias before and after weight adjustments for the sample using the cross-sectional weight, by selected categorical variables: 2006—Continued

Description	Before weight adjustment					After weight adjustment							
	Unweighted respondents	Unweighted nonrespondents	Respondent mean weighted <sup>1</sup>	Non-respondent mean weighted <sup>1</sup>	Estimated bias	Relative bias	SIG <sup>2</sup>	Overall mean, before adjustments <sup>1</sup>	Overall mean, after adjustments <sup>3</sup>	Estimated bias	Bias per standard error	Relative bias	SIG <sup>2</sup>
Mother's occupation—Continued													
Sales	610	70	4.388	4.695	-0.048	-0.011	N	4.423	4.293	0.13	-0.463	0.029	N
School teacher	960	70	6.587	3.88	0.419	0.068	Y	6.273	6.23	0.043	-2.038	0.007	N
Service	2,200	310	15.526	18.832	-0.512	-0.032	N	15.909	15.866	0.043	0.217	0.003	N
Technical	710	60	5.155	2.868	0.355	0.074	Y	4.89	4.818	0.073	0.662	0.015	N
English is the student's native language													
No	2,400	380	13.85	17.31	-0.536	-0.037	Y	14.251	14.501	-0.251	-3.284	-0.018	N
Yes	11,800	1,400	86.15	82.69	0.536	0.006	Y	85.749	85.499	0.251	-8.899	0.003	N
Sophomore cohort member													
No	140	‡	1.172	1.392	-0.034	-0.028	N	1.198	1.449	-0.251	-3.52	-0.21	Y
Yes	14,000	1,700	98.828	98.608	0.034	#	98.802	98.551	0.251	3.52	0.003	Y	
Senior cohort member													
No	1,600	500	13.137	28.862	-2.437	-0.156	Y	14.959	13.878	1.081	3.929	0.072	Y
Yes	12,500	1,200	86.863	71.138	2.437	0.029	Y	85.041	86.122	-1.081	-3.929	-0.013	Y
Asian 10th-grade enrollment percent													
≤ 2 percent	5,500	730	38.998	36.205	0.433	0.011	N	38.565	38.743	-0.178	-0.485	-0.005	N
> 2 percent	8,600	1,400	61.002	63.795	-0.433	-0.007	N	61.435	61.257	0.178	0.485	0.003	N
Black or African American 10th-grade enrollment percent													
≤ 4 percent	4,800	670	34.644	32.434	0.343	0.01	N	34.302	34.097	0.205	0.537	0.006	N
> 4 percent	9,300	1,400	65.356	67.566	-0.343	-0.005	N	65.698	65.903	-0.205	-0.537	-0.003	N
Income													
None	70	‡	0.426	0.534	-0.017	-0.038	N	0.439	0.443	-0.005	-0.936	-0.01	N
\$1,000 or less	150	‡	1.085	0.948	0.021	0.02	N	1.069	1.1	-0.031	-2.306	-0.029	N
\$1,001–\$5,000	260	40	1.855	2.058	-0.031	-0.017	N	1.879	1.862	0.017	-0.904	0.009	N
\$5,001–\$10,000	300	50	2.278	2.138	0.022	0.01	N	2.261	2.247	0.014	-1.125	0.006	N
\$10,001–\$15,000	610	80	4.349	4.899	-0.085	-0.019	N	4.413	4.319	0.094	-0.799	0.021	N
\$15,001–\$20,000	680	90	4.86	5.215	-0.055	-0.011	N	4.901	4.861	0.04	-1.551	0.008	N
\$20,001–\$25,000	860	120	6.458	7.724	-0.196	-0.029	N	6.605	6.471	0.134	-1.018	0.02	N

See notes at end of table.



Table K-1. Nonresponse bias before and after weight adjustments for the sample using the cross-sectional weight, by selected categorical variables: 2006—Continued

Description	Before weight adjustment					After weight adjustment					
	Unweighted respondents	Unweighted nonrespondents	Respondent mean weighted <sup>1</sup>	Non-respondent mean weighted <sup>1</sup>	Relative bias SIG <sup>2</sup>	Overall mean, before adjustments <sup>1</sup>	Overall mean, after adjustments <sup>3</sup>	Estimated bias	Bias per standard error	Relative bias SIG <sup>2</sup>	
Income—Continued											
\$25,001–\$35,000	1,600	230	12.199	13.369	-0.181	N	12.334	12.302	0.032	-2.854	0.003
\$35,001–\$50,000	2,600	350	19.233	21.54	-0.358	N	19.5	19.412	0.088	-3.393	0.005
\$50,001–\$75,000	2,900	320	21.354	18.507	0.441	N	21.025	20.881	0.143	-3.327	0.007
\$75,001–\$100,000	1,900	220	13.155	12.438	0.111	N	13.072	13.177	-0.105	-3.497	-0.008
\$100,001–\$200,000	1,600	180	9.982	9.117	0.134	N	9.882	10.172	-0.29	-5.079	-0.029
\$200,001 or more	530	50	2.766	1.513	0.194	Y	2.621	2.753	-0.133	-2.264	-0.051
Census region											
Northeast	2,600	320	18.312	16.608	0.264	N	18.115	18.572	-0.458	-1.755	-0.025
Midwest	3,600	370	24.5	21.6	0.449	N	24.164	24.183	-0.019	-0.077	-0.001
South	5,200	620	35.121	33.688	0.222	N	34.955	34.491	0.464	1.496	0.013
West	2,800	410	22.067	28.104	-0.936	Y	22.766	22.754	0.012	0.029	0.001
School sector											
Public	11,100	1,700	92.132	93.315	-0.183	N	92.315	92.331	-0.016	-0.067	#
Catholic	1,800	200	4.435	3.115	0.205	Y	4.231	4.225	0.006	0.105	0.001
Other private	1,300	210	3.433	3.569	-0.021	N	3.454	3.444	0.01	0.043	0.003
School urbanicity											
Urban	4,800	600	29.677	33.06	-0.524	N	30.069	30.7	-0.631	-1.731	-0.021
Suburban	6,800	830	50.334	48.209	0.329	N	50.088	49.967	0.121	0.335	0.002
Rural	2,600	300	19.989	18.73	0.195	N	19.843	19.332	0.511	1.572	0.026
Minutes per class period											
≤45	3,400	510	18.804	20.001	-0.185	N	18.99	19.106	-0.116	-0.413	-0.006
46–50	3,100	440	22.019	21.698	0.05	N	21.969	21.835	0.133	0.344	0.006
51–80	3,700	580	28.518	30.083	-0.243	N	28.761	28.801	-0.04	-0.106	-0.001
81+	4,000	560	30.659	28.218	0.378	N	30.281	30.258	0.023	0.065	0.001
Class periods per day											
1–4	4,100	560	31.531	28.279	0.504	N	31.027	30.991	0.036	0.102	0.001
5–6	3,400	590	26.338	30.575	-0.657	N	26.995	26.993	0.002	0.007	#
7	3,800	560	24.877	24.923	-0.007	N	24.884	24.861	0.023	0.068	0.001
8–9	2,800	380	17.255	16.222	0.16	N	17.095	17.156	-0.061	-0.173	-0.004

See notes at end of table.

Table K-1. Nonresponse bias before and after weight adjustments for the sample using the cross-sectional weight, by selected categorical variables: 2006—Continued

Description	Before weight adjustment					After weight adjustment							
	Unweighted respondents	Unweighted nonrespondents	Respondent mean weighted <sup>1</sup>	Non-respondent mean weighted <sup>1</sup>	Estimated bias	Relative bias	SIG <sup>2</sup>	Overall mean, before adjustments <sup>1</sup>	Overall mean, after adjustments <sup>3</sup>	Estimated bias	Bias per standard error	Relative bias	SIG <sup>2</sup>
Is the school coeducational?													
Yes	13,400	2,000	97.912	98.321	-0.063	-0.001	N	97.975	97.972	0.003	0.079	#	N
No, all-female school	350	50	1.017	0.81	0.032	0.033	N	0.985	0.981	0.004	0.188	0.005	N
No, all-male school	390	60	1.071	0.869	0.031	0.03	N	1.04	1.047	-0.007	-0.28	-0.007	N
10th-grade enrollment													
0-99	2,700	410	12.518	10.556	0.304	0.025	N	12.214	12.164	0.051	0.147	0.004	N
100-249	3,700	410	22.647	16.274	0.988	0.046	Y	21.66	21.675	-0.016	-0.059	-0.001	N
250-499	4,500	640	35.98	36.446	-0.072	-0.002	N	36.052	36.048	0.004	0.011	#	N
500+	3,200	630	28.854	36.724	-1.22	-0.041	Y	30.074	30.113	-0.039	-0.093	-0.001	N
Total enrollment													
≤ 600	3,300	450	17.731	13.707	0.624	0.036	Y	17.107	17.046	0.061	0.171	0.004	N
601-1,200	4,300	570	27.457	25.281	0.337	0.012	N	27.12	27.103	0.017	0.051	0.001	N
1,201-1,800	3,200	470	26.319	25.93	0.06	0.002	N	26.258	26.273	-0.015	-0.047	-0.001	N
> 1,800	3,300	610	28.494	35.082	-1.021	-0.035	Y	29.515	29.578	-0.063	-0.151	-0.002	N
Enrollment status													
In school / in grade (grade 12)	12,400	1,200	86.207	70.494	2.435	0.029	Y	84.387	85.403	-1.016	-3.705	-0.012	Y
In school / out of grade	940	320	7.549	18.714	-1.73	-0.186	Y	8.843	7.988	0.855	3.75	0.097	Y
Out of school	730	150	5.985	9.357	-0.523	-0.08	Y	6.376	6.23	0.146	1.048	0.023	N
Out of scope	40	40	0.259	1.435	-0.182	-0.414	Y	0.395	0.379	0.016	0.377	0.041	N
Family composition													
Mother and father	8,600	900	58.383	50.783	1.178	0.021	Y	57.503	57.496	0.006	-7.444	#	N
Mother and male guardian	1,700	250	13.081	14.318	-0.192	-0.014	N	13.225	13.063	0.162	-2.242	0.012	N
Father and female guardian	420	90	2.893	4.62	-0.268	-0.085	N	3.093	3.132	-0.039	-2.034	-0.013	N
Two guardians	220	50	1.665	2.734	-0.166	-0.091	N	1.789	1.724	0.064	-0.167	0.036	N
Mother only	2,500	310	18.389	18.838	-0.07	-0.004	N	18.441	18.663	-0.222	-5.232	-0.012	N
Father only	400	70	3.02	4.878	-0.288	-0.087	N	3.236	3.205	0.031	-0.859	0.01	N
Female guardian only	180	30	1.319	1.874	-0.086	-0.061	N	1.383	1.435	-0.052	-2.106	-0.037	N
Male guardian only	40	‡	0.205	0.718	-0.079	-0.279	N	0.265	0.222	0.043	1.072	0.162	N
Lives with student less than half the year	140	30	1.044	1.237	-0.03	-0.028	N	1.066	1.06	0.006	0.137	0.006	N

See notes at end of table.

Table K-1. Nonresponse bias before and after weight adjustments for the sample using the cross-sectional weight, by selected categorical variables: 2006—Continued

Description	Before weight adjustment					After weight adjustment							
	Unweighted respondents	Unweighted nonrespondents	Respondent mean weighted <sup>1</sup>	Non-respondent mean weighted <sup>1</sup>	Estimated bias	Relative bias	SIG <sup>2</sup>	Overall mean, before adjustments <sup>1</sup>	Overall mean, after adjustments <sup>3</sup>	Estimated bias	Bias per standard error	Relative bias	SIG <sup>2</sup>
Parent's highest level of education													
Did not finish high school	850	140	6.282	8.248	-0.305	-0.046	N	6.51	6.478	0.032	-1.424	0.005	N
Graduated from high school or GED	2,800	430	20.765	27.179	-0.994	-0.046	Y	21.508	21.195	0.313	-2.42	0.015	N
Attended 2-year school, no degree	1,500	180	11.602	10.818	0.121	0.011	N	11.511	11.53	-0.02	-3.176	-0.002	N
Graduated from 2-year school	1,500	170	11.259	10.45	0.125	0.011	N	11.165	11.08	0.085	-2.187	0.008	N
Attended college, no 4-year degree	1,600	200	11.28	12.281	-0.155	-0.014	N	11.396	11.496	-0.1	-3.368	-0.009	N
Graduated from college	3,200	360	21.857	18.929	0.454	0.021	N	21.518	21.786	-0.269	-5.836	-0.012	N
Completed master's degree or equivalent	1,700	170	11.478	8.767	0.42	0.038	Y	11.164	10.915	0.249	-1.225	0.022	N
Completed PhD, MD, other advanced degree	1,000	90	5.478	3.328	0.333	0.065	Y	5.228	5.519	-0.291	-5.322	-0.056	Y
Socioeconomic status (SES)													
Lowest quarter	3,300	490	24.501	29.331	-0.749	-0.03	Y	25.06	24.941	0.119	0.442	0.005	N
Second quarter	3,300	460	25.142	30.067	-0.763	-0.029	Y	25.713	25.209	0.504	2.047	0.02	N
Third quarter	3,400	430	24.798	24.743	0.009	#	24.792	24.921	-0.129	-0.539	-0.005	N	
Highest quarter	4,100	350	25.559	15.859	1.503	0.062	Y	24.435	24.929	-0.494	-2.146	-0.02	N
Student sex													
Male	6,800	1,200	48.124	57.216	-1.409	-0.028	Y	49.534	49.876	-0.342	-1.069	-0.007	N
Female	7,300	910	51.876	42.784	1.409	0.028	Y	50.466	50.124	0.342	1.069	0.007	N
Free or reduced-price lunch													
0	2,600	370	8.292	7.309	0.152	0.019	N	8.14	8.063	0.077	0.5	0.009	N
1-10	3,200	420	25.246	24.883	0.056	0.002	N	25.19	25.049	0.141	0.446	0.006	N
11-30	4,200	620	35.503	33.907	0.247	0.007	N	35.255	35.042	0.213	0.543	0.006	N
> 30	4,200	680	30.958	33.902	-0.456	-0.015	N	31.415	31.846	-0.431	-1.084	-0.014	N

See notes at end of table.

**Table K-1. Nonresponse bias before and after weight adjustments for the sample using the cross-sectional weight, by selected categorical variables: 2006—Continued**

Description	Before weight adjustment					After weight adjustment							
	Unweighted respondents	Unweighted nonrespondents	Respondent mean weighted <sup>1</sup>	Non-respondent mean weighted <sup>1</sup>	Estimated bias	Relative bias	SIG <sup>2</sup>	Overall mean, before adjustments <sup>1</sup>	Overall mean, after adjustments <sup>3</sup>	Estimated bias	Bias per standard error	Relative bias	SIG <sup>2</sup>
<b>Number of full-time teachers</b>													
1–40	3,700	480	18.245	14.343	0.605	0.034	Y	17.64	17.61	0.03	0.097	0.002	N
41–70	3,600	490	23.23	20.726	0.388	0.017	N	22.842	22.815	0.027	0.096	0.001	N
71–100	3,600	580	30.144	32.184	-0.316	-0.01	N	30.46	30.337	0.122	0.339	0.004	N
101+	3,300	540	28.381	32.748	-0.677	-0.023	N	29.058	29.238	-0.18	-0.439	-0.006	N
<b>Number of grades within the school</b>													
4	10,800	1,600	79.649	81.089	-0.223	-0.003	N	79.872	79.931	-0.059	-0.163	-0.001	N
> or < 4	3,400	510	20.351	18.911	0.223	0.011	N	20.128	20.069	0.059	0.163	0.003	N
<b>Types of grades within the school</b>													
K-12, PreK-10th, 1st-12th, PreK/1st-9th/12th and PreK-12 schools	930	140	4.988	4.415	0.086	0.018	N	4.882	4.83	0.052	0.155	0.011	N
Middle grades but no elementary	1,500	220	7.684	6.149	0.238	0.032	N	7.446	7.452	-0.006	-0.044	-0.001	N
Only high school	11,700	1,700	87.348	89.435	-0.324	-0.004	N	87.671	87.718	-0.046	-0.136	-0.001	N
<b>Hispanic or Latino 10th-grade enrollment percent</b>													
≤ 3 percent	5,500	730	38.389	34.779	0.559	0.015	N	37.829	37.611	0.218	0.588	0.006	N
> 3 percent	8,600	1,400	61.611	65.221	-0.559	-0.009	N	62.171	62.389	-0.218	-0.588	-0.004	N
<b>IEP<sup>4</sup> percentage</b>													
≤ 5 percent	5,600	760	26.427	25.278	0.178	0.007	N	26.249	26.311	-0.062	-0.181	-0.002	N
6–10 percent	3,600	580	32.887	35.476	-0.401	-0.012	N	33.289	33.137	0.152	0.383	0.005	N
11–15 percent	3,100	450	26.498	24.056	0.378	0.014	N	26.12	26.216	-0.096	-0.312	-0.004	N
> 15 percent	1,900	300	14.188	15.19	-0.155	-0.011	N	14.343	14.336	0.007	0.019	0.001	N
<b>LEP<sup>5</sup> percentage</b>													
0 percent	6,200	780	34.595	29.06	0.858	0.025	Y	33.737	33.575	0.162	0.436	0.005	N
1 percent	2,800	380	23.62	20.087	0.547	0.024	N	23.072	23.128	-0.055	-0.182	-0.002	N
2–5 percent	2,400	370	18.842	20.11	-0.197	-0.01	N	19.039	18.874	0.165	0.541	0.009	N
> 5 percent	2,800	570	22.943	30.742	-1.209	-0.05	Y	24.151	24.423	-0.272	-0.655	-0.011	N

See notes at end of table.

**Table K-1. Nonresponse bias before and after weight adjustments for the sample using the cross-sectional weight, by selected categorical variables: 2006—Continued**

Description	Before weight adjustment					After weight adjustment							
	Unweighted respondents	Unweighted nonrespondents	Respondent mean weighted <sup>1</sup>	Non-respondent mean weighted <sup>1</sup>	Estimated bias	Relative bias	SIG <sup>2</sup>	Overall mean, before adjustments <sup>1</sup>	Overall mean, after adjustments <sup>3</sup>	Estimated bias	Bias per standard error	Relative bias	SIG <sup>2</sup>
<b>All other races<sup>6</sup> 10th-grade enrollment percent</b>													
≤ 80 percent	7,000	1,200	50.48	57.768	-1.13	-0.022	Y	51.61	52.052	-0.442	-1.074	-0.009	N
> 80 percent	7,200	910	49.52	42.232	1.13	0.023	Y	48.39	47.948	0.442	1.074	0.009	N
<b>Number of part-time teachers</b>													
0-1	4,100	650	30.722	33.313	-0.402	-0.013	N	31.124	31.26	-0.136	-0.369	-0.004	N
2-3	4,100	570	29.294	25.625	0.569	0.02	N	28.726	28.746	-0.02	-0.052	-0.001	N
4-6	3,400	490	21.325	20.863	0.072	0.003	N	21.254	21.165	0.089	0.293	0.004	N
7+	2,600	380	18.658	20.198	-0.239	-0.013	N	18.897	18.829	0.068	0.21	0.004	N
<b>Full-time teachers certified</b>													
0-90 percent	3,600	590	15.527	17.948	-0.375	-0.024	N	15.902	16.044	-0.141	-0.485	-0.009	N
91-99 percent	2,500	380	20.666	20.097	0.088	0.004	N	20.578	20.576	0.002	0.007	#	N
100 percent	8,000	1,100	63.807	61.955	0.287	0.005	N	63.52	63.381	0.139	0.357	0.002	N
<b>Student race/ethnicity<sup>6</sup></b>													
Asian	1,400	200	4.261	3.39	0.135	0.033	N	4.126	4.258	-0.132	-1.03	-0.032	N
Black or African American	1,900	260	14.116	11.066	0.473	0.035	Y	13.643	14.325	-0.681	-3.709	-0.05	Y
Hispanic or Latino	2,100	320	15.758	14.207	0.24	0.015	N	15.518	16.4	-0.882	-2.96	-0.057	Y
All other races	8,800	1,300	65.864	71.338	-0.848	-0.013	Y	66.713	65.017	1.695	4.812	0.025	Y
<b>Number of days in school year</b>													
Less than 180 days	3,700	500	24.787	20.614	0.647	0.027	Y	24.14	24.247	-0.107	-0.364	-0.004	N
180 days	7,900	1,100	56.831	56.482	0.054	0.001	N	56.777	56.72	0.057	0.143	0.001	N
More than 180 days	2,600	440	18.382	22.905	-0.701	-0.037	Y	19.083	19.033	0.05	0.155	0.003	N

# Rounds to zero.

† Counts suppressed for reasons of confidentiality.

<sup>1</sup> Design weight is used before weight adjustments. This is the distribution to each response category.

<sup>2</sup> "Y" denotes statistical significance at  $p < .05$ . "N" denotes no statistical significance.

<sup>3</sup> Weight after nonresponse and calibration adjustment.

<sup>4</sup> IEP = Individualized Education Program.

<sup>5</sup> LEP = limited English proficient.

<sup>6</sup> "All other races" includes White, American Indian or Alaska Native, Pacific Islander or Native Hawaiian, and More than one race. All race categories exclude individuals of Hispanic or Latino origin. SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002). "Second Follow-up, 2006."

**Table K-2. Nonresponse bias before and after weight adjustment for the sample using the F2F1 panel weight, by selected categorical variables: 2006**

Description	Before weight adjustment					After weight adjustment					
	Unweighted respondents	Unweighted non-respondents	Respondent mean weighted <sup>1</sup>	Non-respondent mean weighted <sup>1</sup>	Relative bias	Overall mean, before adjustments <sup>1</sup>	Overall mean, after adjustments <sup>3</sup>	Estimated bias	Bias per standard error	Relative bias	SIG <sup>2</sup>
<b>Father's occupation</b>											
No job for pay	140	‡	0.669	0.752	-0.008	0.677	0.743	-0.066	-2.056	-0.098	N
Clerical	320	30	2.537	2.254	0.028	2.509	2.443	0.066	0.685	0.026	N
Craftsperson	1,700	160	13.979	14.246	-0.026	14.005	13.813	0.192	0.798	0.014	N
Farmer, farm manager	260	30	2.37	2.673	-0.03	2.4	2.186	0.214	1.257	0.089	N
Homemaker	310	40	2.331	3.687	-0.133	2.464	2.645	-0.182	-1.614	-0.074	N
Laborer	1,400	170	10.506	12.325	-0.178	10.684	10.795	-0.11	-0.692	-0.01	N
Manager, administrator	2,000	200	14.613	14.67	-0.006	14.619	14.7	-0.081	-0.388	-0.006	N
Military	170	‡	1.304	1.029	0.027	1.277	1.314	-0.037	-0.738	-0.029	N
Operative	1,500	160	12.059	12.906	-0.083	12.142	12.11	0.032	0.151	0.003	N
Professional A	1,500	110	10.19	7.9	0.224	9.966	10.068	-0.102	-0.697	-0.01	N
Professional B	830	60	4.789	3.503	0.126	4.663	4.812	-0.149	-1.853	-0.032	N
Proprietor, owner	800	90	5.647	5.815	-0.016	5.664	5.76	-0.097	-0.942	-0.017	N
Protective service	460	40	3.597	3.16	0.043	3.554	3.426	0.128	0.97	0.036	N
Sales	700	70	5.423	4.797	0.061	5.362	5.217	0.145	0.709	0.027	N
School teacher	210	10	1.526	0.411	0.109	1.417	1.343	0.074	0.851	0.052	N
Service	530	70	3.688	5.726	-0.2	3.888	3.923	-0.035	-0.348	-0.009	N
Technical	630	60	4.77	4.146	0.061	4.709	4.702	0.007	0.058	0.001	N
<b>Mother's occupation</b>											
No job for pay	510	50	3.204	3.233	-0.003	3.207	3.071	0.136	0.874	0.042	N
Clerical	2,200	210	16.935	18.046	-0.109	17.044	16.704	0.34	1.332	0.02	N
Craftsperson	300	30	2.302	2.707	-0.04	2.342	2.345	-0.004	-0.047	-0.002	N
Farmer, farm manager	70	‡	0.573	0.569	#	0.573	0.578	-0.005	-0.112	-0.009	N
Homemaker	660	120	5.391	8.5	-0.304	5.695	5.923	-0.228	-1.363	-0.04	N
Laborer	570	60	4.537	5.135	-0.059	4.596	4.655	-0.059	-0.466	-0.013	N
Manager, administrator	1,400	150	10.468	10.434	0.003	10.465	10.598	-0.132	-0.908	-0.013	N
Military	20	‡	0.159	#	#	0.144	0.173	-0.029	-2.827	-0.201	N
Operative	550	60	4.244	4.639	-0.039	4.283	4.362	-0.079	-0.708	-0.018	N
Professional A	2,000	150	13.998	11.116	0.282	13.716	13.776	-0.06	-0.329	-0.004	N
Professional B	520	50	3.484	2.442	0.102	3.382	3.589	-0.207	-3.28	-0.061	Y
Proprietor, owner	310	40	2.19	3.119	-0.091	2.281	2.315	-0.034	-0.437	-0.015	N
Protective service	100	‡	0.683	0.755	-0.007	0.69	0.701	-0.011	-0.338	-0.016	N

See notes at end of table.

**Table K-2. Nonresponse bias before and after weight adjustment for the sample using the F2F1 panel weight, by selected categorical variables: 2006—Continued**

Description	Before weight adjustment					After weight adjustment							
	Unweighted respondents	Unweighted non-respondents	Respondent mean weighted <sup>1</sup>	Non-respondent mean weighted <sup>1</sup>	Estimated bias	Relative bias	SIG <sup>2</sup>	Overall mean, before adjustments <sup>1</sup>	Overall mean, after adjustments <sup>3</sup>	Estimated bias	Bias per standard error	Relative bias	SIG <sup>2</sup>
Mother's occupation—Continued													
Sales	580	60	4.4	4.823	-0.041	-0.009	N	4.441	4.239	0.152	0.947	0.034	N
School teacher	930	50	6.805	3.821	0.292	0.045	Y	6.513	6.242	0.27	2.404	0.042	N
Service	2,000	220	15.479	17.772	-0.225	-0.014	N	15.704	15.885	-0.181	-0.871	-0.012	N
Technical	670	50	5.147	2.888	0.221	0.045	Y	4.926	4.794	0.132	1.146	0.027	N
English is the student's native language													
No	2,300	290	13.777	17.424	-0.357	-0.025	Y	14.134	14.407	-0.274	-1.133	-0.019	N
Yes	11,100	1,000	86.223	82.576	0.357	0.004	Y	85.866	85.593	0.274	1.133	0.003	N
Sophomore cohort member													
No	140	‡	1.243	1.782	-0.053	-0.041	N	1.296	1.453	-0.157	-2.283	-0.121	Y
Yes	13,200	1,300	98.757	98.218	0.053	0.001	N	98.704	98.547	0.157	2.283	0.002	Y
Senior cohort member													
No	1,300	180	11.615	15.371	-0.368	-0.031	Y	11.983	13.688	-1.705	-6.967	-0.142	Y
Yes	12,000	1,100	88.385	84.629	0.368	0.004	Y	88.017	86.312	1.705	6.967	0.019	Y
Asian 10th-grade enrollment percent													
≤ 2 percent	5,200	470	38.673	34.661	0.393	0.01	Y	38.28	38.691	-0.411	-1.194	-0.011	N
> 2 percent	8,200	850	61.327	65.339	-0.393	-0.006	Y	61.72	61.309	0.411	1.194	0.007	N
Black or African American 10th-grade enrollment percent													
≤ 4 percent	4,600	440	34.815	32.774	0.2	0.006	N	34.616	34.113	0.502	1.388	0.015	N
> 4 percent	8,800	880	65.185	67.226	-0.2	-0.003	N	65.384	65.887	-0.502	-1.388	-0.008	N
Income													
None	60	‡	0.435	0.544	-0.011	-0.024	N	0.445	0.465	-0.019	-0.706	-0.043	N
\$1,000 or less	140	‡	1.052	0.987	0.006	0.006	N	1.046	1.081	-0.035	-1.047	-0.034	N
\$1,001–\$5,000	240	30	1.777	2.191	-0.041	-0.022	N	1.817	1.847	-0.029	-0.382	-0.016	N
\$5,001–\$10,000	280	30	2.236	2.088	0.015	0.007	N	2.222	2.24	-0.018	-0.224	-0.008	N
\$10,001–\$15,000	550	60	4.252	4.944	-0.068	-0.016	N	4.32	4.303	0.017	0.129	0.004	N
\$15,001–\$20,000	620	60	4.742	5.002	-0.025	-0.005	N	4.768	4.858	-0.09	-0.733	-0.019	N
\$20,001–\$25,000	810	90	6.362	8.395	-0.199	-0.03	N	6.561	6.495	0.066	0.431	0.01	N
\$25,001–\$35,000	1,500	170	11.997	12.658	-0.065	-0.005	N	12.061	12.304	-0.242	-1.39	-0.02	N
\$35,001–\$50,000	2,500	270	19.361	22.17	-0.275	-0.014	N	19.636	19.39	0.246	1.048	0.013	N

See notes at end of table.

**Table K-2. Nonresponse bias before and after weight adjustment for the sample using the F2F1 panel weight, by selected categorical variables: 2006—Continued**

Description	Before weight adjustment					After weight adjustment					
	Unweighted respondents	Unweighted non-respondents	Respondent mean weighted <sup>1</sup>	Non-respondent mean weighted <sup>1</sup>	Relative bias	Overall mean, before adjustments <sup>1</sup>	Overall mean, after adjustments <sup>3</sup>	Estimated bias	Bias per standard error	Relative bias	SIG <sup>2</sup>
Income—Continued											
\$50,001–\$75,000	2,800	260	21.591	19.57	0.198	21.393	20.928	0.465	1.851	0.022	N
\$75,001–\$100,000	1,800	160	13.207	11.858	0.132	13.075	13.137	-0.063	-0.329	-0.005	N
\$100,001–\$200,000	1,600	130	10.191	8.182	0.197	9.994	10.21	-0.216	-1.598	-0.022	N
\$200,001 or more	500	40	2.797	1.412	0.136	2.661	2.745	-0.083	-1.497	-0.031	N
Census region											
Northeast	2,500	250	18.607	16.776	0.179	18.428	18.58	-0.152	-0.537	-0.008	N
Midwest	3,400	280	24.641	21.184	0.339	24.302	24.227	0.075	0.311	0.003	N
South	4,800	490	34.844	34.305	0.053	34.791	34.501	0.29	0.921	0.008	N
West	2,700	310	21.908	27.735	-0.571	22.479	22.692	-0.213	-0.507	-0.009	N
School sector											
Public	10,400	1,100	92.02	93.695	-0.164	92.184	92.341	-0.157	-0.731	-0.002	N
Catholic	1,800	120	4.57	2.908	0.163	4.407	4.228	0.179	3.818	0.041	Y
Other private	1,200	110	3.41	3.397	0.001	3.409	3.431	-0.022	-0.104	-0.007	N
School urbanicity											
Urban	4,500	450	29.408	32.747	-0.327	29.735	30.594	-0.859	-2.334	-0.029	Y
Suburban	6,400	630	50.429	47.732	0.264	50.165	50.058	0.107	0.291	0.002	N
Rural	2,400	240	20.163	19.521	0.063	20.1	19.348	0.753	2.21	0.037	N
Minutes per class period											
≤45	3,200	300	19.005	16.805	0.215	18.789	19.096	-0.307	-1.13	-0.016	N
46–50	2,900	270	22.183	21.691	0.048	22.135	21.824	0.311	0.88	0.014	N
51–80	3,500	380	28.357	30.554	-0.215	28.573	28.788	-0.215	-0.628	-0.008	N
81+	3,700	380	30.455	30.949	-0.048	30.503	30.292	0.211	0.652	0.007	N
Class periods per day											
1–4	3,800	380	31.337	31.124	0.021	31.316	31.016	0.3	0.956	0.01	N
5–6	3,200	360	26.278	29.764	-0.341	26.619	26.966	-0.347	-1.045	-0.013	N
7	3,600	350	24.809	24.413	0.039	24.77	24.838	-0.068	-0.227	-0.003	N
8–9	2,700	230	17.576	14.7	0.282	17.295	17.18	0.115	0.336	0.007	N
Is the school coeducational?											
Yes	12,700	1,300	97.849	98.514	-0.065	97.914	97.976	-0.062	-1.757	-0.001	N
No, all-female school	340	‡	1.052	0.478	0.056	0.996	0.978	0.018	0.693	0.018	N
No, all-male school	380	40	1.099	1.008	0.009	1.09	1.046	0.044	2.018	0.041	N

See notes at end of table.



**Table K-2. Nonresponse bias before and after weight adjustment for the sample using the F2F1 panel weight, by selected categorical variables: 2006—Continued**

Description	Before weight adjustment					After weight adjustment						
	Unweighted respondents	Unweighted non-respondents	Respondent mean weighted <sup>1</sup>	Non-respondent mean weighted <sup>1</sup>	Relative bias	Overall mean, before adjustments <sup>1</sup>	Overall mean, after adjustments <sup>3</sup>	Estimated bias	Bias per standard error	Relative bias	SIG <sup>2</sup>	
10th-grade enrollment												
0-99	2,600	260	12.676	12.199	0.047	12.629	12.175	0.454	1.322	0.036	N	
100-249	3,500	280	22.9	17.594	0.52	22.38	21.725	0.655	2.634	0.029	Y	
250-499	4,300	410	35.834	34.88	0.093	35.741	36.085	-0.345	-1.006	-0.01	N	
500+	3,000	370	28.591	35.327	-0.66	29.25	30.015	-0.765	-2.039	-0.026	N	
Total enrollment												
≤ 600	3,200	300	18.025	15.687	0.229	17.796	17.084	0.712	2.136	0.04	N	
601-1,200	4,100	370	27.517	25.843	0.164	27.353	27.152	0.201	0.692	0.007	N	
1,201-1,800	3,000	310	26.011	25.55	0.045	25.966	26.269	-0.303	-1.127	-0.012	N	
> 1,800	3,100	350	28.447	32.92	-0.438	28.885	29.495	-0.61	-1.648	-0.021	N	
Enrollment status												
In school/in grade (grade 12)	12,000	1,100	88.365	84.629	0.366	87.999	86.291	1.708	6.98	0.019	Y	
In school/out of grade	730	80	6.296	7.88	-0.155	6.451	7.307	-0.856	-3.821	-0.133	Y	
Out of school	620	90	5.339	7.491	-0.211	5.55	6.402	-0.852	-6.283	-0.153	Y	
Family composition												
Mother and father	8,200	700	59.273	51.323	0.779	58.494	57.555	0.94	3.562	0.016	Y	
Mother and male guardian	1,500	180	12.79	13.6	-0.079	12.869	13.066	-0.196	-0.986	-0.015	N	
Father and female guardian	380	60	2.792	4.055	-0.124	2.916	3.158	-0.242	-2.803	-0.083	Y	
Two guardians	200	30	1.557	2.345	-0.077	1.634	1.687	-0.053	-0.618	-0.033	N	
Mother only	2,300	240	18.089	19.117	-0.101	18.19	18.638	-0.448	-2.216	-0.025	N	
Father only	380	60	2.981	5.725	-0.269	3.25	3.185	0.064	0.459	0.02	N	
Female guardian only	160	20	1.297	1.801	-0.049	1.347	1.435	-0.089	-1.634	-0.066	N	
Male guardian only	30	‡	0.196	0.795	-0.059	0.255	0.213	0.042	1.396	0.165	N	
Lives with student less than half the year	130	20	1.024	1.239	-0.021	1.046	1.063	-0.017	-0.383	-0.017	N	
Parent's highest level of education												
Did not finish high school	790	100	6.153	7.289	-0.111	6.264	6.459	-0.195	-1.367	-0.031	N	
Graduated from high school or GED	2,600	330	20.582	27.195	-0.648	21.229	21.2	0.029	0.104	0.001	N	
Attended 2-year school, no degree	1,400	150	11.487	10.968	0.051	11.436	11.551	-0.115	-0.653	-0.01	N	
Graduated from 2-year school	1,400	130	11.247	10.97	0.027	11.219	11.072	0.147	0.735	0.013	N	

See notes at end of table.

Table K-2. Nonresponse bias before and after weight adjustment for the sample using the F2F1 panel weight, by selected categorical variables: 2006—Continued

Description	Before weight adjustment					After weight adjustment					
	Unweighted respondents	Unweighted non-respondents	Respondent mean weighted <sup>1</sup>	Non-respondent mean weighted <sup>1</sup>	Relative bias	Overall mean, before adjustments <sup>1</sup>	Overall mean, after adjustments <sup>3</sup>	Estimated bias	Bias per standard error	Relative bias	SIG <sup>2</sup>
Parent's highest level of education—Continued											
Attended college, no 4-year degree	1,500	150	11.098	12.641	-0.151	11.249	11.467	-0.218	-1.216	-0.019	N
Graduated from college	3,100	270	22.142	18.719	0.335	21.807	21.809	-0.002	-0.01	#	N
Completed master's degree or equivalent	1,700	130	11.799	8.794	0.294	11.504	10.931	0.573	2.727	0.05	Y
Completed Ph.D., M.D., other advanced degree	970	70	5.493	3.423	0.203	5.29	5.51	-0.22	-2.343	-0.042	N
Socioeconomic status											
Lowest quarter	3,100	370	24.146	28.855	-0.461	24.607	24.94	-0.333	-1.349	-0.014	N
Second quarter	3,100	350	24.982	30.325	-0.523	25.505	25.156	0.349	1.346	0.014	N
Third quarter	3,200	340	24.731	25.351	-0.061	24.792	24.965	-0.173	-0.713	-0.007	N
Highest quarter	4,000	270	26.141	15.470	1.045	25.096	24.939	0.157	0.676	0.006	N
Student sex											
Male	6,500	790	48.212	60.577	-1.211	49.423	49.832	-0.408	-1.433	-0.008	N
Female	6,900	530	51.788	39.423	1.211	50.577	50.168	0.408	1.433	0.008	N
Free or reduced-price lunch											
0	2,500	200	8.400	6.078	0.227	8.173	8.044	0.128	0.851	0.016	N
1–10	3,100	250	25.597	20.317	0.517	25.08	25.103	-0.023	-0.081	-0.001	N
11–30	3,900	420	35.383	37.180	-0.176	35.559	35.122	0.437	1.17	0.012	N
> 30	3,900	440	30.619	36.426	-0.569	31.188	31.73	-0.543	-1.429	-0.017	N
Number of full-time teachers											
1–40	3,500	310	18.542	15.077	0.339	18.203	17.64	0.563	1.847	0.031	N
41–70	3,400	340	23.359	22.384	0.096	23.264	22.873	0.39	1.533	0.017	N
71–100	3,400	350	30.014	31.125	-0.109	30.123	30.297	-0.174	-0.496	-0.006	N
101+	3,000	320	28.084	31.414	-0.326	28.41	29.189	-0.779	-2.240	-0.027	N
Number of grades within the school											
4	10,200	1,000	79.661	81.772	-0.207	79.867	79.951	-0.084	-0.239	-0.001	N
> or < 4	3,200	310	20.339	18.228	0.207	20.133	20.049	0.084	0.239	0.004	N

See notes at end of table.

**Table K-2. Nonresponse bias before and after weight adjustment for the sample using the F2F1 panel weight, by selected categorical variables: 2006—Continued**

Description	Before weight adjustment					After weight adjustment						
	Unweighted respondents	Unweighted non-respondents	Respondent mean weighted <sup>1</sup>	Non-respondent mean weighted <sup>1</sup>	Relative bias	SIG <sup>2</sup>	Overall mean, before adjustments <sup>1</sup>	Overall mean, after adjustments <sup>3</sup>	Estimated bias	Bias per standard error	Relative bias	SIG <sup>2</sup>
Types of grades within the school												
K-12, PreK-10th, 1st-12th, PreK/1st-9th/12th and PreK-12 schools	900	80	5.041	5.000	0.004	0.001	5.037	4.834	0.203	0.576	0.04	N
Middle grades but no elementary	1,400	140	7.678	6.539	0.112	0.015	7.567	7.452	0.114	0.949	0.015	N
Only high school	11,100	1,100	87.28	88.461	-0.116	-0.001	87.396	87.714	-0.318	-0.908	-0.004	N
Hispanic or Latino 10th-grade enrollment percent												
≤ 3 percent	5,200	460	38.485	32.76	0.561	0.015	37.924	37.702	0.222	0.683	0.006	N
> 3 percent	8,100	860	61.515	67.24	-0.561	-0.009	62.076	62.298	-0.222	-0.683	-0.004	N
IEP <sup>4</sup> percentage												
≤ 5 percent	5,300	460	26.626	24.642	0.194	0.007	26.432	26.360	0.071	0.226	0.003	N
6–10 percent	3,400	370	32.936	34.579	-0.161	-0.005	33.097	33.135	-0.038	-0.107	-0.001	N
11–15 percent	2,900	300	26.3	25.757	0.053	0.002	26.247	26.191	0.056	0.182	0.002	N
> 15 percent	1,800	190	14.138	15.023	-0.087	-0.006	14.224	14.314	-0.09	-0.234	-0.006	N
LEP <sup>5</sup> percentage												
0 percent	5,900	500	35.034	29.444	0.547	0.016	34.486	33.716	0.770	2.191	0.022	N
1 percent	2,600	260	23.517	20.802	0.266	0.011	23.251	23.112	0.139	0.482	0.006	N
2–5 percent	2,200	220	18.724	16.132	0.254	0.014	18.470	18.883	-0.413	-1.703	-0.022	N
> 5 percent	2,600	350	22.725	33.622	-1.067	-0.045	23.793	24.289	-0.496	-1.319	-0.021	N
All other races <sup>6</sup> 10th-grade enrollment percent												
≤ 80 percent	6,500	740	50.038	59.856	-0.962	-0.019	51.000	51.964	-0.964	-2.622	-0.019	Y
> 80 percent	6,800	580	49.962	40.144	0.962	0.020	49.000	48.036	0.964	2.622	0.020	Y
Number of part-time teachers												
0–1	3,800	420	30.447	34.969	-0.443	-0.014	30.890	31.188	-0.298	-0.872	-0.010	N
2–3	3,900	390	29.373	27.91	0.143	0.005	29.229	28.777	0.452	1.176	0.015	N
4–6	3,200	300	21.217	19.939	0.125	0.006	21.092	21.140	-0.048	-0.166	-0.002	N
7+	2,400	220	18.964	17.182	0.174	0.009	18.789	18.895	-0.106	-0.383	-0.006	N
Full-time teachers certified												
0–90 percent	3,400	350	15.647	19.385	-0.366	-0.023	16.013	16.045	-0.032	-0.130	-0.002	N
91–99 percent	2,400	230	20.428	18.281	0.210	0.010	20.218	20.517	-0.299	-0.885	-0.015	N
100 percent	7,600	740	63.925	62.334	0.156	0.002	63.769	63.438	0.331	0.893	0.005	N

See notes at end of table.

**Table K-2. Nonresponse bias before and after weight adjustment for the sample using the F2F1 panel weight, by selected categorical variables: 2006—Continued**

Description	Before weight adjustment					After weight adjustment					
	Unweighted respondents	Unweighted non-respondents	Respondent mean weighted <sup>1</sup>	Non-respondent mean weighted <sup>1</sup>	Relative bias	Overall mean, before adjustments <sup>1</sup>	Overall mean, after adjustments <sup>3</sup>	Estimated bias	Bias per standard error	Relative bias	SIG <sup>2</sup>
<b>Student race/ethnicity<sup>6</sup></b>											
Asian	1,300	150	4.317	4.592	-0.027	4.344	4.251	0.093	0.713	0.021	N
Black or African American	1,700	200	13.97	15.869	-0.186	14.156	14.329	-0.173	-0.913	-0.012	N
Hispanic or Latino	1,900	250	15.604	19.969	-0.427	16.031	16.338	-0.307	-1.181	-0.019	N
All other races	8,400	720	66.109	59.57	0.64	65.469	65.081	0.388	1.208	0.006	N
<b>Number of days in school year</b>											
Less than 180 days	3,500	310	24.849	20.691	0.407	24.442	24.197	0.245	0.906	0.010	N
180 days	7,400	730	56.783	57.543	-0.074	56.857	56.789	0.068	0.183	0.001	N
More than 180 days	2,400	270	18.368	21.766	-0.333	18.70	19.014	-0.313	-1.153	-0.017	N

# Rounds to zero.

‡ Counts suppressed for reasons of confidentiality.

<sup>1</sup> Design weight is used before weight adjustments. This is the distribution to each response category.

<sup>2</sup> "Y" denotes statistical significance at p < .05. "N" denotes no statistical significance.

<sup>3</sup> Weight after nonresponse and calibration adjustment.

<sup>4</sup> IEP = Individualized Education Program.

<sup>5</sup> LEP = limited English proficient.

<sup>6</sup> "All other races" includes White, American Indian or Alaska Native, Pacific Islander or Native Hawaiian, and More than one race. All race categories exclude individuals of Hispanic or Latino origin.  
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

**Table K-3. Nonresponse bias before and after weight adjustment for the sample using the cross-sectional weight for the racial group White/Other, by selected categorical variables: 2006**

Description	Before nonresponse adjustment					After nonresponse adjustments							
	Unweighted respondents	Unweighted non-respondents	Respondent mean weighted <sup>1</sup>	Non-respondent mean weighted <sup>1</sup>	Estimated bias	Relative bias	SIG <sup>2</sup>	Overall mean, before adjustments <sup>1</sup>	Overall mean, after adjustments <sup>3</sup>	Estimated bias	Bias per standard error	Relative bias	SIG <sup>2</sup>
<b>Father's occupation</b>													
No job for pay	30	‡	0.193	0.288	-0.016	-0.076	N	0.203	0.209	-0.006	-0.843	-0.029	N
Clerical	180	10	2.191	0.733	0.242	0.124	Y	2.036	2.089	-0.053	-2.496	-0.026	N
Craftsperson	1,100	140	14.054	17.582	-0.585	-0.040	N	14.429	13.887	0.543	-1.337	0.038	N
Farmer, farm manager	170	‡	2.285	2.334	-0.008	-0.004	N	2.290	1.996	0.294	0.694	0.128	N
Homemaker	140	30	1.622	3.448	-0.303	-0.157	N	1.816	1.773	0.043	-0.700	0.024	N
Laborer	700	110	8.155	11.626	-0.575	-0.066	N	8.525	8.282	0.243	-1.752	0.028	N
Manager, administrator	1,500	150	16.399	15.653	0.124	0.008	N	16.32	16.636	-0.316	-5.288	-0.019	N
Military	110	10	1.328	1.096	0.038	0.030	N	1.304	1.319	-0.016	-1.609	-0.012	N
Operative	870	100	10.187	10.129	0.010	0.001	N	10.181	10.122	0.059	-3.135	0.006	N
Professional A	1,100	90	11.643	9.167	0.410	0.037	N	11.38	11.624	-0.245	-4.941	-0.021	N
Professional B	650	50	5.812	3.928	0.312	0.057	N	5.612	5.984	-0.372	-6.403	-0.066	Y
Proprietor, owner	650	80	6.938	6.766	0.029	0.004	N	6.920	7.191	-0.271	-5.107	-0.039	N
Protective service	280	30	3.226	2.647	0.096	0.031	N	3.164	3.182	-0.018	-1.989	-0.006	N
Sales	530	60	6.041	5.518	0.087	0.015	N	5.985	5.965	0.020	-1.506	0.003	N
School teacher	170	‡	1.874	0.501	0.228	0.138	Y	1.728	1.729	-0.001	-1.001	-0.001	N
Service	220	40	2.472	4.141	-0.277	-0.101	N	2.649	2.585	0.065	-1.063	0.024	N
Technical	450	50	5.579	4.444	0.188	0.035	N	5.458	5.427	0.031	-1.973	0.006	N
<b>Mother's occupation</b>													
No job for pay	140	20	1.61	1.543	0.011	0.007	N	1.603	1.335	0.269	0.875	0.168	N
Clerical	1,600	150	18.251	19.294	-0.173	-0.009	N	18.362	18.19	0.172	-3.334	0.009	N
Craftsperson	160	20	1.891	2.302	-0.068	-0.035	N	1.935	1.968	-0.033	-2.075	-0.017	N
Farmer, farm manager	20	‡	0.298	0.146	0.025	0.093	N	0.282	0.258	0.024	0.12	0.085	N
Homemaker	370	100	4.525	7.909	-0.561	-0.110	N	4.885	4.727	0.159	-1.001	0.033	N
Laborer	240	40	3.022	4.341	-0.219	-0.067	N	3.162	2.943	0.219	0.059	0.069	N
Manager, administrator	1,000	110	11.907	11.205	0.116	0.010	N	11.832	12.039	-0.207	-4.924	-0.018	N
Military	20	‡	0.196	#	#	#	Y	0.175	0.207	-0.032	-3.437	-0.184	Y
Operative	270	40	3.329	3.651	-0.053	-0.016	N	3.363	3.357	0.007	-2.371	0.002	N
Professional A	1,500	120	15.963	12.969	0.496	0.032	N	15.645	16.122	-0.478	-6.26	-0.031	N
Professional B	370	40	3.738	2.991	0.124	0.034	N	3.658	3.882	-0.224	-4.651	-0.061	N
Proprietor, owner	230	30	2.65	3.213	-0.093	-0.034	N	2.71	2.813	-0.103	-2.744	-0.038	N

See notes at end of table.

**Table K-3. Nonresponse bias before and after weight adjustment for the sample using the cross-sectional weight for the racial group White/Other, by selected categorical variables: 2006—Continued**

Description	Before nonresponse adjustment					After nonresponse adjustments							
	Unweighted respondents	Unweighted non-respondents	Respondent mean weighted <sup>1</sup>	Non-respondent mean weighted <sup>1</sup>	Estimated bias	Relative bias	SIG <sup>2</sup>	Overall mean, before adjustments <sup>1</sup>	Overall mean, after adjustments <sup>3</sup>	Estimated bias	Bias per standard error	Relative bias	SIG <sup>2</sup>
<b>Mother's occupation—Continued</b>													
Protective service	60	‡	0.588	0.729	-0.023	-0.038	N	0.603	0.609	-0.006	-1.039	-0.01	N
Sales	430	60	4.896	6.003	-0.183	-0.036	N	5.014	4.843	0.17	-1.033	0.034	N
School teacher	780	50	8.56	5.049	0.582	0.073	Y	8.187	8.187	#	-3.331	#	N
Service	1,200	150	13.732	15.906	-0.36	-0.026	N	13.964	14.065	-0.101	-0.418	-0.007	N
Technical	410	30	4.841	2.75	0.347	0.077	Y	4.619	4.454	0.165	1.179	0.036	N
<b>English is the student's native language</b>													
No	320	60	3.242	5.19	-0.323	-0.091	Y	3.449	3.479	-0.03	-2.003	-0.009	N
Yes	8,500	890	96.758	94.81	0.323	0.003	Y	96.551	96.521	0.03	-12.12	#	N
<b>Sophomore cohort member</b>													
No	60	‡	0.811	1.022	-0.035	-0.041	N	0.834	1.011	-0.177	-2.582	-0.213	Y
Yes	8,800	940	99.189	98.978	0.035	#	N	99.166	98.989	0.177	2.582	0.002	Y
<b>Senior cohort member</b>													
No	820	230	10.606	24.496	-2.302	-0.178	Y	12.084	11.107	0.977	3.158	0.081	Y
Yes	8,000	720	89.394	75.504	2.302	0.026	Y	87.916	88.893	-0.977	-3.158	-0.011	Y
<b>Asian 10th-grade enrollment percent</b>													
≤ 2 percent	3,600	490	39.063	37.921	0.189	0.005	N	38.874	39.167	-0.293	-0.568	-0.008	N
> 2 percent	5,200	820	60.937	62.079	-0.189	-0.003	N	61.126	60.833	0.293	0.568	0.005	N
<b>Black or African American 10th-grade enrollment percent</b>													
≤ 4 percent	3,500	480	41.923	35.585	1.05	0.026	Y	40.872	41.235	-0.362	-0.672	-0.009	N
> 4 percent	5,300	830	58.077	64.415	-1.05	-0.018	Y	59.128	58.765	0.362	0.672	0.006	N
<b>Income</b>													
None	20	‡	0.167	0.259	-0.015	-0.084	N	0.176	0.165	0.012	-0.006	0.066	N
\$1,000 or less	30	‡	0.392	0.42	-0.005	-0.012	N	0.395	0.417	-0.021	-1.633	-0.054	N
\$1,001–\$5,000	70	‡	1.001	1.552	-0.091	-0.084	N	1.059	0.893	0.166	1.032	0.157	N
\$5,001–\$10,000	110	‡	1.328	1.435	-0.018	-0.013	N	1.339	1.359	-0.02	-1.499	-0.015	N
\$10,001–\$15,000	240	30	3.022	4.043	-0.169	-0.053	N	3.13	2.842	0.289	0.469	0.092	N
\$15,001–\$20,000	280	40	3.206	3.872	-0.11	-0.033	N	3.277	3.23	0.047	-1.705	0.014	N

See notes at end of table.

**Table K-3. Nonresponse bias before and after weight adjustment for the sample using the cross-sectional weight for the racial group White/Other, by selected categorical variables: 2006—Continued**

Description	Before nonresponse adjustment					After nonresponse adjustments							
	Unweighted respondents	Unweighted non-respondents	Respondent mean weighted <sup>1</sup>	Non-respondent mean weighted <sup>1</sup>	Estimated bias	Relative bias	SIG <sup>2</sup>	Overall mean, before adjustments <sup>1</sup>	Overall mean, after adjustments <sup>3</sup>	Estimated bias	Bias per standard error	Relative bias	SIG <sup>2</sup>
<b>Income—Continued</b>													
\$20,001–\$25,000	410	50	5.067	5.957	-0.148	-0.028	N	5.161	5.098	0.064	-1.495	0.012	N
\$25,001–\$35,000	840	100	10.599	10.086	0.085	0.008	N	10.545	10.468	0.077	-3.091	0.007	N
\$35,001–\$50,000	1,600	190	19.485	21.775	-0.38	-0.019	N	19.728	19.46	0.269	-3.266	0.014	N
\$50,001–\$75,000	2,100	200	24.264	21.998	0.376	0.016	N	24.023	24.041	-0.018	-5.329	-0.001	N
\$75,001–\$100,000	1,400	150	15.603	15.079	0.087	0.006	N	15.548	15.751	-0.203	-4.736	-0.013	N
\$100,001–\$200,000	1,200	130	12.344	11.895	0.074	0.006	N	12.296	12.689	-0.392	-5.668	-0.032	N
\$200,001 or more	430	30	3.523	1.629	0.314	0.098	Y	3.321	3.589	-0.267	-3.327	-0.081	Y
<b>Census region</b>													
Northeast	1,700	180	20.261	16.339	0.65	0.033	Y	19.843	20.48	-0.637	-1.727	-0.032	N
Midwest	2,800	260	29.825	26.724	0.514	0.018	N	29.494	29.595	-0.1	-0.287	-0.003	N
South	3,100	350	31.436	32.438	-0.166	-0.005	N	31.543	31.492	0.05	0.132	0.002	N
West	1,200	160	18.479	24.498	-0.998	-0.051	N	19.12	18.433	0.687	1.185	0.036	N
<b>School sector</b>													
Public	6,400	1,000	90.49	92.787	-0.381	-0.004	Y	90.871	90.336	0.535	3.037	0.006	Y
Catholic	1,400	150	5.351	3.589	0.292	0.058	Y	5.059	5.143	-0.084	-1.029	-0.017	N
Other private	1,100	170	4.159	3.624	0.089	0.022	N	4.07	4.521	-0.451	-3.083	-0.111	Y
<b>School urbanicity</b>													
Urban	2,300	250	21.263	24.617	-0.556	-0.025	N	21.62	21.706	-0.087	-0.18	-0.004	N
Suburban	4,500	480	53.581	50.797	0.461	0.009	N	53.285	53.668	-0.383	-0.779	-0.007	N
Rural	2,100	230	25.156	24.586	0.094	0.004	N	25.095	24.626	0.47	1.012	0.019	N
<b>Minutes per class period</b>													
≤ 45	2,300	350	19.817	21.083	-0.21	-0.01	N	20.027	20.061	-0.034	-0.087	-0.002	N
46–50	2,200	310	24.813	23.722	0.181	0.007	N	24.633	24.726	-0.094	-0.156	-0.004	N
51–80	2,000	310	25.701	27.43	-0.287	-0.011	N	25.987	25.913	0.074	0.158	0.003	N
81+	2,400	340	29.669	27.766	0.315	0.011	N	29.354	29.3	0.054	0.114	0.002	N
<b>Class periods per day</b>													
1–4	2,500	340	30.572	27.764	0.465	0.015	N	30.106	30.122	-0.015	-0.032	-0.001	N
5–6	1,700	310	22.544	28.764	-1.031	-0.044	Y	23.575	22.797	0.778	1.629	0.033	N
7	2,700	390	27.378	25.968	0.234	0.009	N	27.144	27.602	-0.458	-1.041	-0.017	N
8–9	2,000	270	19.506	17.505	0.332	0.017	N	19.175	19.479	-0.305	-0.563	-0.016	N

See notes at end of table.

**Table K-3. Nonresponse bias before and after weight adjustment for the sample using the cross-sectional weight for the racial group White/Other, by selected categorical variables: 2006—Continued**

Description	Before nonresponse adjustment					After nonresponse adjustments							
	Unweighted respondents	Unweighted non-respondents	Respondent mean weighted <sup>1</sup>	Non-respondent mean weighted <sup>1</sup>	Estimated bias	Relative bias	SIG <sup>2</sup>	Overall mean, before adjustments <sup>1</sup>	Overall mean, after adjustments <sup>3</sup>	Estimated bias	Bias per standard error	Relative bias	SIG <sup>2</sup>
<b>Is the school coeducational?</b>													
Yes	8,300	1,200	97.649	98.068	-0.07	-0.001	N	97.718	97.686	0.032	0.679	#	N
No, all-female school	270	40	1.139	1.061	0.013	0.011	N	1.126	1.118	0.007	0.213	0.007	N
No, all-male school	290	40	1.213	0.87	0.057	0.049	N	1.156	1.196	-0.04	-1.411	-0.034	N
<b>10th-grade enrollment</b>													
0-99	2,200	320	15.909	11.892	0.666	0.044	Y	15.243	15.839	-0.596	-1.407	-0.039	N
100-249	2,700	300	25.695	18.008	1.274	0.052	Y	24.421	24.723	-0.302	-0.819	-0.012	N
250-499	2,600	380	36.728	37.198	-0.078	-0.002	N	36.805	37.167	-0.362	-0.707	-0.01	N
500+	1,300	310	21.669	32.902	-1.862	-0.079	Y	23.531	22.272	1.259	2.091	0.054	N
<b>Total enrollment</b>													
≤ 600	2,700	350	22.253	15.735	1.08	0.051	Y	21.172	21.782	-0.609	-1.316	-0.029	N
601-1,200	3,000	400	30.559	27.347	0.532	0.018	N	30.027	30.42	-0.394	-0.862	-0.013	N
1,201-1,800	1,800	260	25.985	25.312	0.112	0.004	N	25.874	26.252	-0.378	-0.828	-0.015	N
> 1,800	1,300	310	21.203	31.606	-1.724	-0.075	Y	22.927	21.546	1.381	2.314	0.06	N
<b>Enrollment status</b>													
In school/in grade (grade 12)	8,000	710	88.815	74.575	2.36	0.027	Y	87.299	88.259	-0.959	-3.073	-0.011	Y
In school/out of grade	480	150	6.318	17.106	-1.788	-0.221	Y	7.466	6.571	0.895	3.292	0.12	Y
Out of school	380	70	4.682	7.438	-0.457	-0.089	Y	4.975	4.919	0.056	0.381	0.011	N
Out of scope	20	‡	0.185	0.881	-0.115	-0.384	N	0.26	0.252	0.008	0.16	0.03	N
<b>Family composition</b>													
Mother and father	5,800	540	63.35	56.217	1.182	0.019	Y	62.59	62.658	-0.068	-8.456	-0.001	N
Mother and male guardian	1,000	130	13.05	13.309	-0.043	-0.003	N	13.077	12.945	0.133	-3.053	0.01	N
Father and female guardian	260	50	2.951	5.218	-0.376	-0.113	N	3.193	3.233	-0.041	-2.181	-0.013	N
Two guardians	110	‡	1.177	1.943	-0.127	-0.097	N	1.258	1.249	0.01	-1.096	0.008	N
Mother only	1,200	140	14.342	15.394	-0.174	-0.012	N	14.454	14.618	-0.164	-4.643	-0.011	N
Father only	270	40	3.395	5.342	-0.323	-0.087	N	3.602	3.522	0.08	-0.923	0.022	N
Female guardian only	60	‡	0.701	0.952	-0.042	-0.056	N	0.728	0.767	-0.039	-1.787	-0.053	N
Male guardian only	10	‡	0.155	0.61	-0.075	-0.328	N	0.203	0.151	0.052	1.197	0.257	N
Lives with student less than half the year	60	‡	0.879	1.014	-0.022	-0.025	N	0.893	0.856	0.037	0.716	0.042	N

See notes at end of table.



**Table K-3. Nonresponse bias before and after weight adjustment for the sample using the cross-sectional weight for the racial group White/Other, by selected categorical variables: 2006—Continued**

Description	Before nonresponse adjustment					After nonresponse adjustments							
	Unweighted respondents	Unweighted non-respondents	Respondent mean weighted <sup>1</sup>	Non-respondent mean weighted <sup>1</sup>	Estimated bias	Relative bias	SIG <sup>2</sup>	Overall mean, before adjustments <sup>1</sup>	Overall mean, after adjustments <sup>3</sup>	Estimated bias	Bias per standard error	Relative bias	SIG <sup>2</sup>
Parent's highest level of education													
Did not finish high school	170	40	2.304	3.806	-0.249	-0.098	N	2.464	2.16	0.304	1.009	0.123	N
Graduated from high school or GED	1,600	250	20.113	28.948	-1.464	-0.068	Y	21.053	20.383	0.67	-2.098	0.032	N
Attended 2-year school, no degree	940	110	11.375	11.856	-0.08	-0.007	N	11.427	11.341	0.086	-3.09	0.007	N
Graduated from 2-year school	960	100	11.705	11.348	0.059	0.005	N	11.667	11.578	0.089	-2.711	0.008	N
Attended college, no 4-year degree	990	120	11.253	12.644	-0.23	-0.02	N	11.401	11.438	-0.037	-3.374	-0.003	N
Graduated from college	2,200	200	23.975	18.269	0.946	0.041	Y	23.368	24.042	-0.674	-7.758	-0.029	N
Completed Master's degree or equivalent	1,300	110	13.117	9.982	0.52	0.041	N	12.783	12.769	0.014	-3.497	0.001	N
Completed Ph.D., M.D., other advanced degree	680	50	6.158	3.147	0.499	0.088	Y	5.838	6.288	-0.451	-6.273	-0.077	Y
Socioeconomic status (SES)													
Lowest quarter	1,300	200	16.268	21.77	-0.912	-0.053	Y	16.853	16.076	0.778	2.572	0.046	Y
Second quarter	2,000	270	24.621	31.481	-1.137	-0.044	Y	25.351	24.706	0.645	1.926	0.025	N
Third quarter	2,400	250	27.692	27.222	0.078	0.003	N	27.642	28.164	-0.523	-1.773	-0.019	N
Highest quarter	3,100	240	31.42	19.526	1.971	0.067	Y	30.154	31.053	-0.9	-2.898	-0.03	Y
Student sex													
Male	4,300	740	48.006	58.168	-1.684	-0.034	Y	49.691	49.781	-0.09	-0.215	-0.002	N
Female	4,600	570	51.994	41.832	1.684	0.033	Y	50.309	50.219	0.09	0.215	0.002	N
Free or reduced-price lunch													
0	2,000	290	10.352	8.517	0.304	0.03	N	10.048	10.183	-0.136	-0.619	-0.013	N
1-10	2,400	310	30.516	29.477	0.172	0.006	N	30.344	30.693	-0.35	-0.746	-0.012	N
11-30	2,800	390	38.274	34.531	0.62	0.016	N	37.654	37.974	-0.321	-0.586	-0.009	N
> 30	1,700	320	20.858	27.474	-1.096	-0.05	Y	21.955	21.149	0.806	1.566	0.037	N
Number of full-time teachers													
1-40	2,900	360	22.415	16.962	0.904	0.042	Y	21.511	21.774	-0.263	-0.587	-0.012	N
41-70	2,400	330	26	22.164	0.636	0.025	N	25.364	25.698	-0.333	-0.881	-0.013	N
71-100	2,100	330	29.069	30.868	-0.298	-0.01	N	29.367	29.218	0.149	0.298	0.005	N
101+	1,500	290	22.516	30.006	-1.241	-0.052	Y	23.757	23.31	0.447	0.82	0.019	N

See notes at end of table.

**Table K-3. Nonresponse bias before and after weight adjustment for the sample using the cross-sectional weight for the racial group White/Other, by selected categorical variables: 2006—Continued**

Description	Before nonresponse adjustment					After nonresponse adjustments							
	Unweighted respondents	Unweighted non-respondents	Respondent mean weighted <sup>1</sup>	Non-respondent mean weighted <sup>1</sup>	Estimated bias	Relative bias	SIG <sup>2</sup>	Overall mean, before adjustments <sup>1</sup>	Overall mean, after adjustments <sup>3</sup>	Estimated bias	Bias per standard error	Relative bias	SIG <sup>2</sup>
Number of grades within the school													
4	6,300	940	76.152	79.527	-0.559	-0.007	N	76.711	76.094	0.617	1.294	0.008	N
> or < 4	2,500	370	23.848	20.473	0.559	0.024	N	23.289	23.906	-0.617	-1.294	-0.026	N
Types of grades within the school													
K-12, PreK-10th, 1st-12th, PreK/1st-9th/12th and PreK-12 schools	840	130	6.696	4.933	0.292	0.046	N	6.404	6.865	-0.461	-1.179	-0.072	N
Middle grades but no elementary	1,000	150	8.432	6.451	0.328	0.041	Y	8.103	8.19	-0.086	-0.483	-0.011	N
Only high school	7,000	1,000	84.872	88.616	-0.621	-0.007	Y	85.493	84.945	0.548	1.345	0.006	N
Hispanic or Latino 10th-grade enrollment percent													
≤ 3 percent	4,100	540	45.28	39.431	0.969	0.022	Y	44.311	44.904	-0.594	-1.07	-0.013	N
> 3 percent	4,700	780	54.72	60.569	-0.969	-0.017	Y	55.689	55.096	0.594	1.07	0.011	N
IEP <sup>4</sup> percentage													
≤ 5 percent	3,600	520	26.088	24.804	0.213	0.008	N	25.875	26.315	-0.44	-1.083	-0.017	N
6-10 percent	2,200	360	33.298	37.212	-0.649	-0.019	N	33.946	33.246	0.701	1.189	0.021	N
11-15 percent	1,900	260	26.519	23.363	0.523	0.02	N	25.996	26.129	-0.132	-0.315	-0.005	N
> 15 percent	1,100	170	14.095	14.621	-0.087	-0.006	N	14.182	14.311	-0.128	-0.248	-0.009	N
LEP <sup>5</sup> percentage													
0 percent	4,700	600	41.438	33.747	1.275	0.032	Y	40.163	40.727	-0.564	-1.027	-0.014	N
1 percent	1,800	240	26.162	21.319	0.803	0.032	Y	25.359	25.861	-0.502	-1.137	-0.02	N
2-5 percent	1,400	220	19.072	19.991	-0.152	-0.008	N	19.224	19.257	-0.033	-0.077	-0.002	N
> 5 percent	870	250	13.329	24.943	-1.925	-0.126	Y	15.254	14.154	1.099	1.894	0.072	N
All other races <sup>6</sup> 10th-grade enrollment percent													
≤ 80 percent	2,700	550	33.347	46.213	-2.132	-0.06	Y	35.479	34.514	0.965	1.654	0.027	N
> 80 percent	6,100	760	66.653	53.787	2.132	0.033	Y	64.521	65.486	-0.965	-1.654	-0.015	N
Number of part-time teachers													
0-1	2,200	370	25.976	30.572	-0.762	-0.028	N	26.737	26.338	0.399	0.745	0.015	N
2-3	2,600	350	30.403	25.503	0.812	0.027	N	29.591	29.996	-0.405	-0.781	-0.014	N
4-6	2,300	330	22.982	21.665	0.218	0.01	N	22.764	22.782	-0.018	-0.04	-0.001	N
7+	1,700	260	20.639	22.261	-0.269	-0.013	N	20.908	20.884	0.024	0.051	0.001	N

See notes at end of table.

**Table K-3. Nonresponse bias before and after weight adjustment for the sample using the cross-sectional weight for the racial group White/Other, by selected categorical variables: 2006—Continued**

Description	Before nonresponse adjustment					After nonresponse adjustments					
	Unweighted respondents	Unweighted non-respondents	Respondent mean weighted <sup>1</sup>	Non-respondent mean weighted <sup>1</sup>	Estimated bias	Overall mean, before adjustments <sup>1</sup>	Overall mean, after adjustments <sup>3</sup>	Estimated bias	Bias per standard error	Relative bias	SIG <sup>2</sup>
<b>Full-time teachers certified</b>											
0–90 percent	2,200	360	12.595	15.707	-0.516	13.11	13.001	0.109	0.364	0.008	N
91–99 percent	1,500	230	19.498	19.642	-0.024	19.522	19.505	0.017	0.037	0.001	N
100 percent	5,200	720	67.907	64.651	0.54	67.368	67.494	-0.127	-0.243	-0.002	N
<b>Number of days in school year</b>											
Less than 180 days	2,700	350	26.651	21.384	0.873	25.778	26.351	-0.574	-1.411	-0.022	N
180 days	4,700	690	55.897	56.729	-0.138	56.035	55.62	0.415	0.779	0.007	N
More than 180 days	1,500	270	17.452	21.888	-0.735	18.187	18.029	0.159	0.35	0.009	N

# Rounds to zero.

† Counts suppressed for reasons of confidentiality.

<sup>1</sup> Design weight is used before weight adjustments. This is the distribution to each response category.

<sup>2</sup> “y” denotes statistical significance at p < .05. “N” denotes no statistical significance.

<sup>3</sup> Weight after nonresponse and calibration adjustment.

<sup>4</sup> IEP = Individualized Education Program.

<sup>5</sup> LEP = limited English proficient.

<sup>6</sup> “All other races” includes White, American Indian or Alaska Native, Pacific Islander or Native Hawaiian, and More than one race. All race categories exclude individuals of Hispanic or Latino origin. SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), “Second Follow-up, 2006.”

**Table K-4. Nonresponse bias before and after weight adjustment for the sample using the F2F1 panel weight for the racial group White/Other, by selected categorical variables: 2006**

Description	Before weight adjustment					After weight adjustment					
	Unweighted respondents	Unweighted non-respondents	Respondent mean weighted <sup>1</sup>	Non-respondent mean weighted <sup>1</sup>	Relative bias	Overall mean, before adjustments <sup>1</sup>	Overall mean, after adjustments <sup>3</sup>	Estimated bias	Bias per standard error	Relative bias	SIG <sup>2</sup>
<b>Father's occupation</b>											
No job for pay	30	‡	0.204	0.141	0.006	0.198	0.24	-0.041	-2.259	-0.209	N
Clerical	170	‡	2.216	0.769	0.129	2.087	2.128	-0.041	-0.496	-0.02	N
Craftsperson	1,100	100	14.076	17.07	-0.267	14.343	13.941	0.401	1.197	0.028	N
Farmer, farm manager	160	‡	2.362	2.716	-0.032	2.393	2.01	0.383	1.577	0.16	N
Homemaker	120	‡	1.572	3.125	-0.138	1.71	1.808	-0.098	-0.845	-0.057	N
Laborer	660	80	8.163	11.185	-0.269	8.432	8.308	0.124	0.654	0.015	N
Manager, administrator	1,400	110	16.511	15.943	0.051	16.461	16.677	-0.216	-0.79	-0.013	N
Military	100	‡	1.303	1.141	0.014	1.288	1.315	-0.027	-0.415	-0.021	N
Operative	800	70	9.959	9.997	-0.003	9.962	9.973	0.011	-0.052	-0.001	N
Professional A	1,000	70	11.713	9.024	0.24	11.473	11.648	-0.175	-0.867	-0.015	N
Professional B	620	40	5.868	3.568	0.205	5.663	5.97	-0.307	-2.839	-0.054	N
Proprietor, owner	620	60	6.982	7.033	-0.005	6.987	7.189	-0.202	-1.394	-0.029	N
Protective service	260	30	3.196	2.774	0.038	3.158	3.131	0.027	0.22	0.009	N
Sales	500	40	6.083	5.512	0.051	6.032	6.023	0.009	0.03	0.001	N
School teacher	160	‡	1.927	0.465	0.13	1.796	1.697	0.1	0.767	0.055	N
Service	210	30	2.408	4.949	-0.226	2.635	2.548	0.087	0.749	0.033	N
Technical	420	30	5.459	4.589	0.078	5.382	5.394	-0.012	-0.064	-0.002	N
<b>Mother's occupation</b>											
No job for pay	130	‡	1.595	1.693	-0.009	1.604	1.306	0.298	1.387	0.186	N
Clerical	1,500	120	18.32	20.638	-0.206	18.527	18.236	0.291	0.881	0.016	N
Craftsperson	150	20	1.857	2.63	-0.069	1.926	1.986	-0.06	-0.754	-0.031	N
Farmer, farm manager	20	‡	0.288	0.187	0.009	0.279	0.239	0.04	0.806	0.143	N
Homemaker	330	60	4.381	6.728	-0.209	4.59	4.702	-0.112	-0.694	-0.024	N
Laborer	220	30	2.96	4.939	-0.176	3.136	2.94	0.196	1.121	0.063	N
Manager, administrator	990	90	11.86	11.678	0.016	11.844	12.054	-0.211	-1.05	-0.018	N
Military	20	‡	0.195	#	#	0.178	0.218	-0.04	-2.563	-0.224	N
Operative	260	‡	3.245	3.167	0.007	3.238	3.371	-0.133	-1.392	-0.041	N
Professional A	1,500	100	16.243	13.725	0.224	16.019	16.184	-0.165	-0.659	-0.01	N
Professional B	350	30	3.758	2.795	0.086	3.672	3.924	-0.252	-2.774	-0.069	N
Proprietor, owner	210	‡	2.583	3.357	-0.069	2.652	2.753	-0.101	-0.986	-0.038	N
Protective service	50	‡	0.588	0.707	-0.011	0.599	0.6	-0.001	-0.031	-0.002	N

See notes at end of table.

**Table K-4. Nonresponse bias before and after weight adjustment for the sample using the F2F1 panel weight for the racial group White/Other, by selected categorical variables: 2006—Continued**

Description	Before weight adjustment					After weight adjustment					
	Unweighted respondents	Unweighted non-respondents	Respondent mean weighted <sup>1</sup>	Non-respondent mean weighted <sup>1</sup>	Relative bias	Overall mean, before adjustments <sup>1</sup>	Overall mean, after adjustments <sup>3</sup>	Estimated bias	Bias per standard error	Relative bias	SIG <sup>2</sup>
Mother's occupation—Continued											
Sales	410	40	4.897	6.157	-0.112	5.009	4.852	0.157	0.874	0.031	N
School teacher	760	40	8.805	4.771	0.359	8.445	8.185	0.26	1.688	0.031	N
Service	1,100	90	13.562	14.245	-0.061	13.623	13.986	-0.363	-1.469	-0.027	N
Technical	390	30	4.862	2.584	0.203	4.659	4.464	0.195	1.325	0.042	N
English is the student's native language											
No	300	40	3.203	4.943	-0.155	3.358	3.391	-0.034	-0.233	-0.01	N
Yes	8,100	680	96.797	95.057	0.155	96.642	96.609	0.034	0.233	#	N
Sophomore cohort member											
No	60	‡	0.857	1.315	-0.041	0.898	1.012	-0.114	-1.706	-0.127	N
Yes	8,300	710	99.143	98.685	0.041	99.102	98.988	0.114	1.706	0.001	N
Senior cohort member											
No	670	60	9.271	10.566	-0.115	9.386	10.984	-1.597	-5.093	-0.17	Y
Yes	7,700	660	90.729	89.434	0.115	90.614	89.016	1.597	5.093	0.018	Y
Asian 10th-grade enrollment percent											
≤ 2 percent	3,400	280	38.668	35.705	0.264	38.404	39.068	-0.664	-1.406	-0.017	N
> 2 percent	5,000	450	61.332	64.295	-0.264	61.596	60.932	0.664	1.406	0.011	N
Black or African American 10th-grade enrollment percent											
≤ 4 percent	3,400	280	42.091	38.236	0.343	41.747	41.282	0.465	0.936	0.011	N
> 4 percent	5,000	440	57.909	61.764	-0.343	58.253	58.718	-0.465	-0.936	-0.008	N
Income											
None	20	‡	0.169	0.333	-0.015	0.184	0.174	0.01	0.328	0.053	N
\$1,000 or less	30	‡	0.387	0.462	-0.007	0.393	0.44	-0.046	-1.498	-0.118	N
\$1,001–\$5,000	60	‡	0.941	1.69	-0.067	1.007	0.881	0.126	1.212	0.125	N
\$5,001–\$10,000	100	‡	1.271	1.458	-0.017	1.288	1.314	-0.025	-0.351	-0.02	N
\$10,001–\$15,000	210	‡	2.897	4.184	-0.115	3.011	2.788	0.223	1.175	0.074	N
\$15,001–\$20,000	250	30	3.043	3.4	-0.032	3.075	3.163	-0.088	-0.875	-0.029	N
\$20,001–\$25,000	380	40	4.982	6.265	-0.114	5.096	5.079	0.017	0.082	0.003	N
\$25,001–\$35,000	780	70	10.328	9.146	0.105	10.222	10.414	-0.191	-0.936	-0.019	N

See notes at end of table.

**Table K-4. Nonresponse bias before and after weight adjustment for the sample using the F2F1 panel weight for the racial group White/Other, by selected categorical variables: 2006—Continued**

Description	Before weight adjustment					After weight adjustment					
	Unweighted respondents	Unweighted non-respondents	Respondent mean weighted <sup>1</sup>	Non-respondent mean weighted <sup>1</sup>	Relative bias	Overall mean, before adjustments <sup>1</sup>	Overall mean, after adjustments <sup>3</sup>	Estimated bias	Bias per standard error	Relative bias	SIG <sup>2</sup>
<b>Income—Continued</b>											
\$35,001–\$50,000	1,600	160	19,583	23,939	-0.388	19,971	19,447	0.524	1.613	0.026	N
\$50,001–\$75,000	2,000	160	24,488	22,529	0.175	24,314	24.12	0.193	0.596	0.008	N
\$75,001–\$100,000	1,400	120	15,757	14,763	0.089	15,668	15,849	-0.181	-0.694	-0.012	N
\$100,001–\$200,000	1,200	90	12,613	10.35	0.202	12,412	12,767	-0.355	-1.823	-0.029	N
\$200,001 or more	410	30	3,542	1,481	0.184	3,358	3,564	-0.206	-2.764	-0.061	N
<b>Census region</b>											
Northeast	1,600	140	20.45	15.975	0.399	20,051	20,347	-0.296	-0.744	-0.015	N
Midwest	2,700	190	30.07	26.1	0.354	29,717	29,737	-0.02	-0.056	-0.001	N
South	2,900	280	31,106	34.72	-0.322	31,428	31,425	0.004	0.009	#	N
West	1,100	110	18,373	23,204	-0.431	18,804	18,491	0.313	0.509	0.017	N
<b>School sector</b>											
Public	6,000	560	90,263	93,241	-0.265	90,528	90,311	0.218	1.217	0.002	N
Catholic	1,300	80	5,532	3,601	0.172	5,36	5,176	0.184	2.542	0.034	Y
Other private	1,000	80	4,205	3,158	0.093	4,112	4,513	-0.401	-2.529	-0.098	Y
<b>School urbanicity</b>											
Urban	2,200	180	21.17	23,882	-0.242	21,412	21,681	-0.27	-0.533	-0.013	N
Suburban	4,200	370	53.52	50,622	0.258	53,262	53,705	-0.443	-0.861	-0.008	N
Rural	2,000	170	25.31	25,496	-0.017	25,326	24,613	0.713	1.478	0.028	N
<b>Minutes per class period</b>											
≤ 45	2,100	170	19,879	16,433	0.307	19,572	19,862	-0.29	-0.828	-0.015	N
46–50	2,100	170	25,001	25,115	-0.01	25,011	24,735	0.276	0.502	0.011	N
51–80	1,900	160	25,614	25,383	0.021	25,594	26,008	-0.414	-0.958	-0.016	N
81+	2,200	220	29,506	33,069	-0.317	29,824	29,396	0.428	0.98	0.014	N
<b>Class periods per day</b>											
1–4	2,300	220	30,401	32,992	-0.231	30,632	30,202	0.43	0.987	0.014	N
5–6	1,600	140	22,453	25,485	-0.27	22,723	22,794	-0.071	-0.156	-0.003	N
7	2,600	220	27,357	26,048	0.117	27,241	27,583	-0.342	-0.866	-0.013	N
8–9	1,900	140	19,789	15,475	0.384	19,404	19,422	-0.017	-0.034	-0.001	N

See notes at end of table.

**Table K-4. Nonresponse bias before and after weight adjustment for the sample using the F2F1 panel weight for the racial group White/Other, by selected categorical variables: 2006—Continued**

Description	Before weight adjustment					After weight adjustment							
	Unweighted respondents	Unweighted non-respondents	Respondent mean weighted <sup>1</sup>	Non-respondent mean weighted <sup>1</sup>	Estimated bias	Relative bias	SIG <sup>2</sup>	Overall mean, before adjustments <sup>1</sup>	Overall mean, after adjustments <sup>3</sup>	Estimated bias	Bias per standard error	Relative bias	SIG <sup>2</sup>
Is the school coeducational?													
Yes	7,800	690	97.584	98.248	-0.059	-0.001	N	97.643	97.688	-0.045	-0.941	#	N
No, all-female school	260	‡	1.171	0.705	0.042	0.037	N	1.129	1.113	0.016	0.421	0.014	N
No, all-male school	280	‡	1.246	1.048	0.018	0.014	N	1.228	1.199	0.029	1.163	0.024	N
10th-grade enrollment													
0-99	2,200	200	16.177	15.409	0.068	0.004	N	16.108	15.831	0.277	0.627	0.017	N
100-249	2,500	190	25.956	21.464	0.4	0.016	N	25.555	24.792	0.764	2.136	0.03	N
250-499	2,500	210	36.343	35.157	0.106	0.003	N	36.237	37.122	-0.885	-1.94	-0.024	N
500+	1,200	130	21.525	27.97	-0.574	-0.026	N	22.099	22.254	-0.155	-0.3	-0.007	N
Total enrollment													
≤ 600	2,600	220	22.645	20.26	0.213	0.009	N	22.433	21.781	0.651	1.461	0.029	N
601-1,200	2,800	240	30.501	29.31	0.106	0.003	N	30.395	30.383	0.012	0.03	#	N
1,201-1,800	1,700	140	25.568	24.133	0.128	0.005	N	25.44	26.222	-0.782	-2.214	-0.031	N
> 1,800	1,200	120	21.285	26.298	-0.447	-0.021	N	21.732	21.614	0.118	0.22	0.005	N
Enrollment Status													
In school / in grade (grade 12)	7,700	660	90.721	89.434	0.115	0.001	N	90.606	89.009	1.597	5.094	0.018	Y
In school / out of grade	370	30	5.264	6.176	-0.081	-0.015	N	5.345	6.118	-0.773	-2.709	-0.145	Y
Out of school	310	30	4.015	4.389	-0.033	-0.008	N	4.049	4.873	-0.825	-5.528	-0.204	Y
Family composition													
Mother and father	5,600	420	64.299	56.582	0.688	0.011	Y	63.612	62.765	0.847	2.377	0.013	N
Mother and male guardian	950	90	12.907	12.557	0.031	0.002	N	12.876	13.136	-0.26	-1.006	-0.02	N
Father and female guardian	230	40	2.776	5.036	-0.201	-0.068	N	2.978	3.182	-0.204	-1.695	-0.069	N
Two guardians	90	‡	1.036	1.848	-0.072	-0.065	N	1.109	1.164	-0.055	-0.899	-0.05	N
Mother only	1,100	110	14.003	15.244	-0.111	-0.008	N	14.114	14.554	-0.441	-1.788	-0.031	N
Father only	250	30	3.331	6.331	-0.267	-0.074	N	3.598	3.477	0.121	0.64	0.034	N
Female guardian only	50	‡	0.672	0.86	-0.017	-0.024	N	0.688	0.766	-0.078	-1.586	-0.113	N
Male guardian only	10	‡	0.141	0.637	-0.044	-0.239	N	0.185	0.141	0.044	1.222	0.238	N
Lives with student less than half the year	60	‡	0.835	0.905	-0.006	-0.007	N	0.841	0.816	0.025	0.515	0.03	N

See notes at end of table.

**Table K-4. Nonresponse bias before and after weight adjustment for the sample using the F2F1 panel weight for the racial group White/Other, by selected categorical variables: 2006—Continued**

Description	Before weight adjustment					After weight adjustment					
	Unweighted respondents	Unweighted non-respondents	Respondent mean weighted <sup>1</sup>	Non-respondent mean weighted <sup>1</sup>	Relative bias	Overall mean, before adjustments <sup>1</sup>	Overall mean, after adjustments <sup>3</sup>	Estimated bias	Bias per standard error	Relative bias	SIG <sup>2</sup>
Parent's highest level of education											
Did not finish high school	150	‡	2,198	2,876	-0.06	2,258	2,105	0.153	0.983	0.068	N
Graduated from high school or GED	1,500	190	19,858	29,271	-0.839	20,697	20,379	0.318	0.871	0.015	N
Attended 2-year school, no degree	880	90	11,249	12,165	-0.082	11,331	11,379	-0.048	-0.215	-0.004	N
Graduated from 2-year school	910	80	11,738	11,942	-0.018	11,756	11,61	0.145	0.538	0.012	N
Attended college, no 4-year degree	940	90	11,185	13,146	-0.175	11,359	11,512	-0.153	-0.622	-0.013	N
Graduated from college	2,100	140	24,121	17,843	0.559	23,562	23,915	-0.353	-1.25	-0.015	N
Completed master's degree or equivalent	1,200	80	13,445	9,334	0.366	13,079	12,775	0.304	1.239	0.023	N
Completed Ph.D., M.D., other advanced degree	650	40	6,206	3,424	0.248	5,958	6,324	-0.366	-2.801	-0.061	Y
Socioeconomic status (SES)											
Lowest quarter	1,200	150	15,877	21,441	-0.496	16,372	15,97	0.402	1.29	0.025	N
Second quarter	1,900	200	24,437	31,478	-0.627	25,065	24,67	0.395	1.142	0.016	N
Third quarter	2,300	200	27,588	28,245	-0.059	27,647	28,242	-0.595	-1.975	-0.022	N
Highest quarter	3,000	180	32,098	18,836	1.182	30,916	31,118	-0.202	-0.635	-0.007	N
Student sex											
Male	4,000	450	48,037	64,036	-1.426	49,463	49,709	-0.246	-0.662	-0.005	N
Female	4,300	280	51,963	35,964	1.426	50,537	50,291	0.246	0.662	0.005	N
Free or reduced-price lunch											
0	1,900	140	10,461	7,17	0.293	10,168	10,159	0.009	0.043	0.001	N
1-10	2,300	170	30,894	25,229	0.505	30,389	30,784	-0.395	-0.978	-0.013	N
11-30	2,600	250	37,997	40,995	-0.267	38,264	37,962	0.302	0.581	0.008	N
> 30	1,600	170	20,648	26,605	-0.531	21,179	21,095	0.084	0.161	0.004	N
Number of full-time teachers											
1-40	2,800	230	22,709	20,37	0.209	22,501	21,795	0.706	1.613	0.031	N
41-70	2,300	200	26,086	24,866	0.109	25,977	25,771	0.206	0.598	0.008	N
71-100	1,900	160	28,869	28,929	-0.005	28,874	29,181	-0.307	-0.628	-0.011	N
101+	1,400	130	22,336	25,836	-0.312	22,648	23,253	-0.605	-1.361	-0.027	N

See notes at end of table.



**Table K-4. Nonresponse bias before and after weight adjustment for the sample using the F2F1 panel weight for the racial group White/Other, by selected categorical variables: 2006—Continued**

Description	Before weight adjustment					After weight adjustment						
	Unweighted respondents	Unweighted non-respondents	Respondent mean weighted <sup>1</sup>	Non-respondent mean weighted <sup>1</sup>	Relative bias	SIG <sup>2</sup>	Overall mean, before adjustments <sup>1</sup>	Overall mean, after adjustments <sup>3</sup>	Estimated bias	Bias per standard error	Relative bias	SIG <sup>2</sup>
Number of grades within the school												
4	6,000	510	76,009	79,784	-0.336	N	76,345	76,001	0.345	0.748	0.005	N
> or < 4	2,400	210	23,991	20,216	0.336	N	23,655	23,999	-0.345	-0.748	-0.015	N
Types of grades within the school												
K-12, PreK-10th, 1st-12th, PreK/1st-9th/12th and PreK-12 schools	810	60	6,898	5,936	0.086	N	6,812	6,893	-0.081	-0.178	-0.012	N
Middle grades but no elementary	970	100	8,38	7,431	0.085	N	8,295	8,147	0.148	0.919	0.018	N
Only high school	6,600	560	84,722	86,632	-0.17	N	84,893	84,96	-0.067	-0.15	-0.001	N
Hispanic or Latino 10th-grade enrollment percent												
≤ 3 percent	3,900	320	45,531	39,008	0.581	Y	44.95	45.178	-0.228	-0.468	-0.005	N
> 3 percent	4,500	410	54,469	60,992	-0.581	Y	55.05	54.822	0.228	0.468	0.004	N
IEP <sup>4</sup> percentage												
≤ 5 percent	3,500	270	26,316	22,268	0.361	N	25,955	26,291	-0.336	-0.888	-0.013	N
6-10 percent	2,100	210	33,367	37,62	-0.379	N	33,746	33,291	0.455	0.926	0.013	N
11-15 percent	1,800	160	26,241	26.53	-0.026	N	26,267	26,094	0.173	0.422	0.007	N
> 15 percent	1,000	90	14,076	13,583	0.044	N	14,032	14,323	-0.291	-0.544	-0.021	N
LEP <sup>5</sup> percentage												
0 percent	4,500	360	41,845	36,439	0.482	N	41,363	40,833	0.531	1.066	0.013	N
1 percent	1,700	150	26,035	23,285	0.245	N	25,79	25,875	-0.085	-0.207	-0.003	N
2-5 percent	1,300	110	18,88	15,079	0.339	N	18,541	19,219	-0.678	-2.094	-0.037	N
> 5 percent	800	110	13,24	25,197	-1.065	Y	14,306	14,074	0.232	0.441	0.016	N
All other races <sup>6</sup> 10th-grade enrollment percent												
≤ 80 percent	2,500	260	32,868	42,224	-0.834	Y	33,702	34,352	-0.650	-1.258	-0.019	N
> 80 percent	5,800	470	67,132	57,776	0.834	Y	66,298	65,648	0.650	1.258	0.010	N
Number of part-time teachers												
0-1	2,000	210	25,677	32,078	-0.570	N	26,248	26,169	0.079	0.168	0.003	N
2-3	2,400	210	30,467	28,425	0.182	N	30,285	30,016	0.269	0.518	0.009	N
4-6	2,200	180	22,83	21,174	0.148	N	22,682	22,763	-0.080	-0.198	-0.004	N
7+	1,700	130	21,026	18,323	0.241	N	20,785	21,053	-0.268	-0.723	-0.013	N

See notes at end of table.

**Table K-4. Nonresponse bias before and after weight adjustment for the sample using the F2F1 panel weight for the racial group White/Other, by selected categorical variables: 2006—Continued**

Description	Before weight adjustment					After weight adjustment					
	Unweighted respondents	Unweighted non-respondents	Respondent mean weighted <sup>1</sup>	Non-respondent mean weighted <sup>1</sup>	Relative bias	Overall mean, before adjustments <sup>1</sup>	Overall mean, after adjustments <sup>3</sup>	Estimated bias	Bias per standard error	Relative bias	SIG <sup>2</sup>
<b>Full-time teachers certified</b>											
0–90 percent	2,100	180	12.787	15.403	-0.233	13.020	13.008	0.012	0.042	0.001	N
91–99 percent	1,400	110	19.189	16.447	0.244	18.944	19.350	-0.405	-0.936	-0.021	N
100 percent	4,900	430	68.025	68.149	-0.011	68.036	67.643	0.393	0.809	0.006	N
<b>Number of days in school year</b>											
Less than 180 days	2,500	200	26.868	21.710	0.46	26.409	26.460	-0.051	-0.151	-0.002	N
180 days	4,400	390	55.649	59.144	-0.311	55.96	55.543	0.418	0.866	0.007	N
More than 180 days	1,400	140	17.483	19.145	-0.148	17.631	17.997	-0.366	-1.009	-0.021	N

# Rounds to zero.

† Counts suppressed for reasons of confidentiality.

<sup>1</sup> Design weight is used before weight adjustments. This is the distribution to each response category.

<sup>2</sup> “Y” denotes statistical significance at  $p < .05$ . “N” denotes no statistical significance.

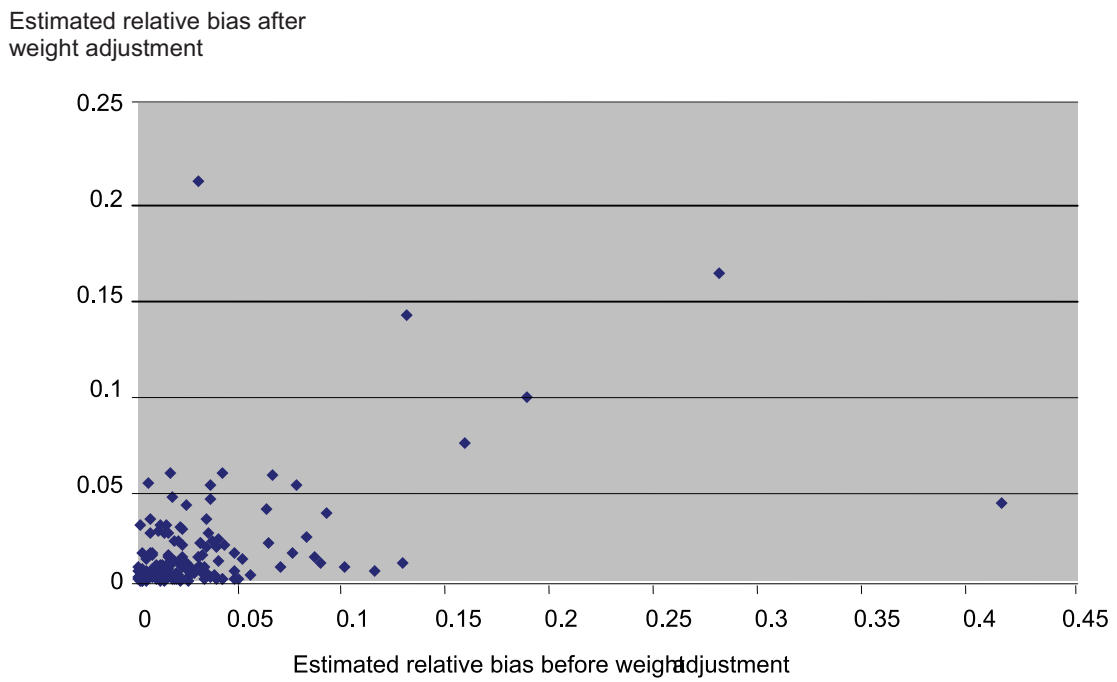
<sup>3</sup> Weight after nonresponse and calibration adjustment.

<sup>4</sup> IEP = Individualized Education Program.

<sup>5</sup> LEP = limited English proficient.

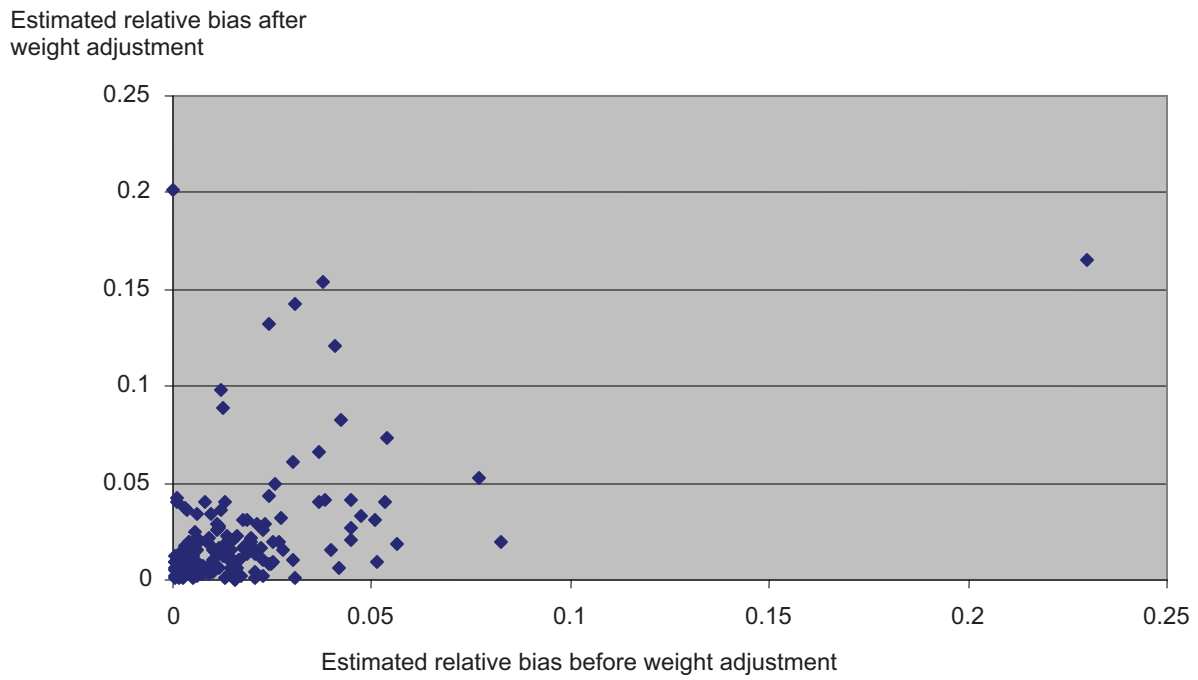
<sup>6</sup> “All other races” includes White, American Indian or Alaska Native, Pacific Islander or Native Hawaiian, and More than one race. All race categories exclude individuals of Hispanic or Latino origin. SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), “Second Follow-up, 2006.”

**Figure K-1. Before versus after weighting adjustment estimates for relative bias for the ELS:2002 sample using the cross-sectional weight F2QWT: 2006**



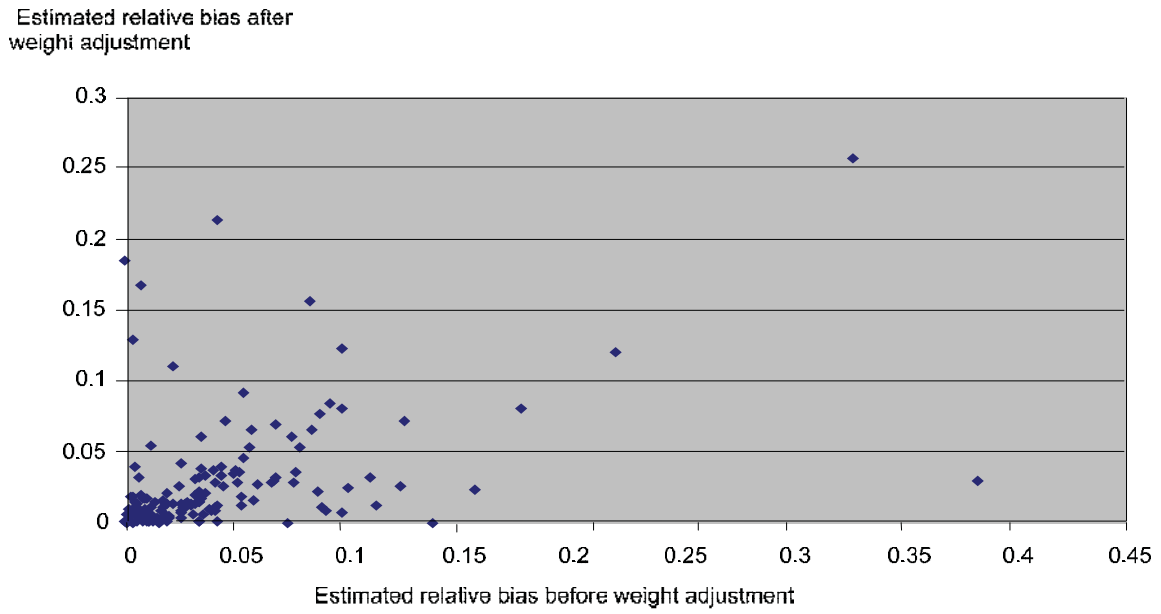
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

**Figure K-2. Before versus after weight adjustment estimates for relative bias for ELS:2002 sample using the panel weight F2F1WT: 2006**



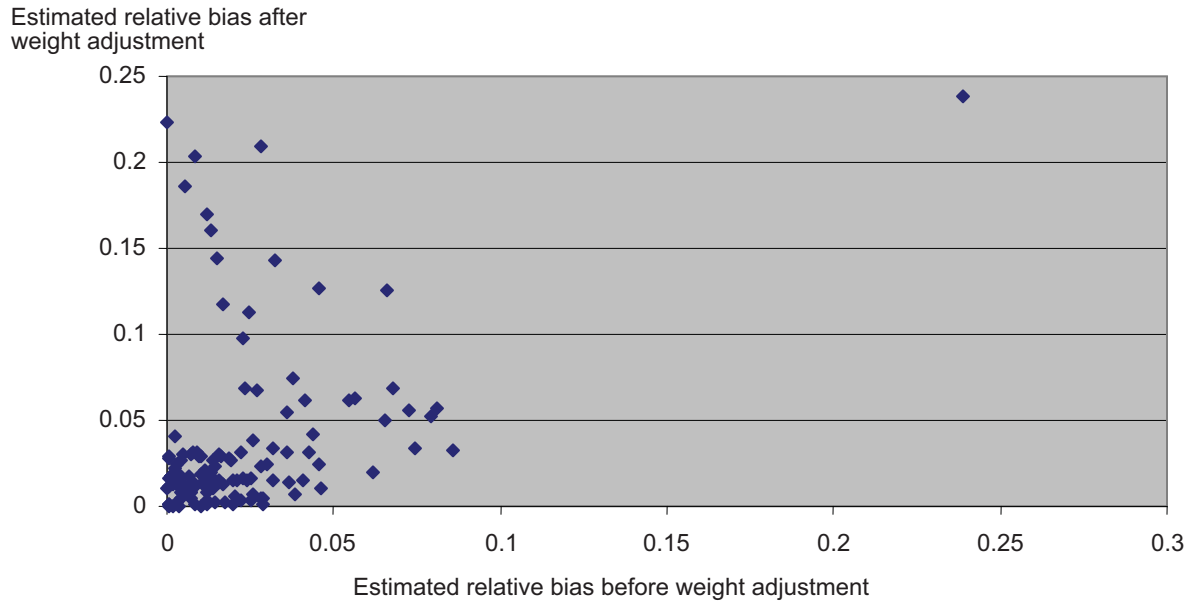
SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

**Figure K-3. Before versus after weight adjustment estimates for relative bias for the racial group White/Other using the F2 cross-sectional weight F2QWT: 2006**



SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

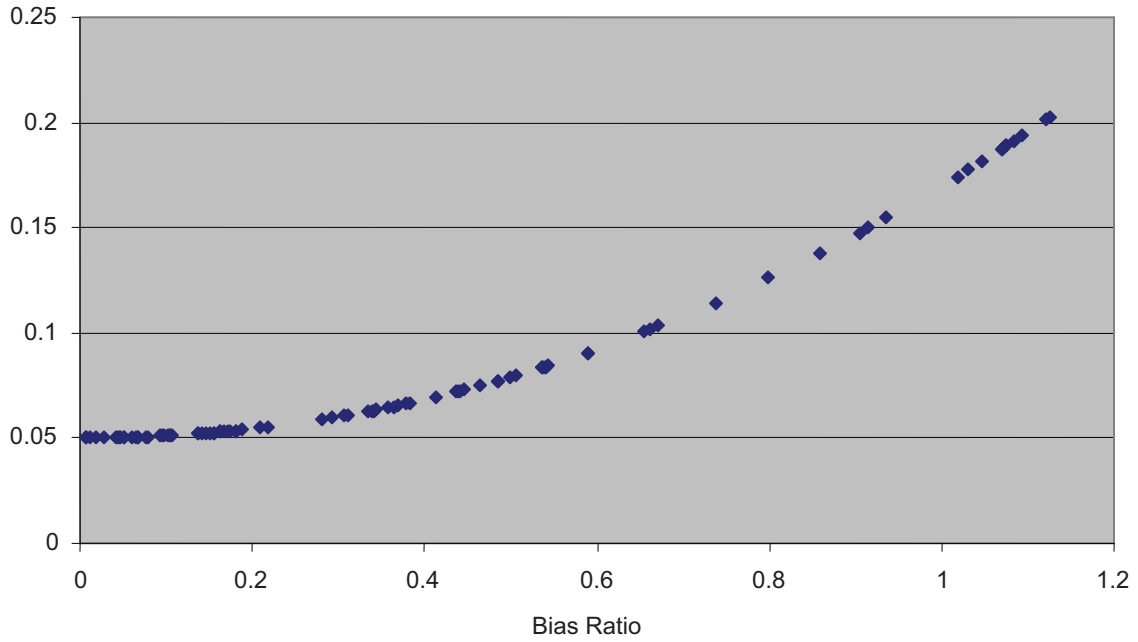
**Figure K-4. Before versus after weight adjustment estimates for relative bias for racial group White/Other using the F2F1 panel weight F2F1WT: 2006**



SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

**Figure K-5. Minimum bias ratio by Type I error rate for the ELS:2002 sample using the F2 cross-sectional weight F2QWT: 2006**

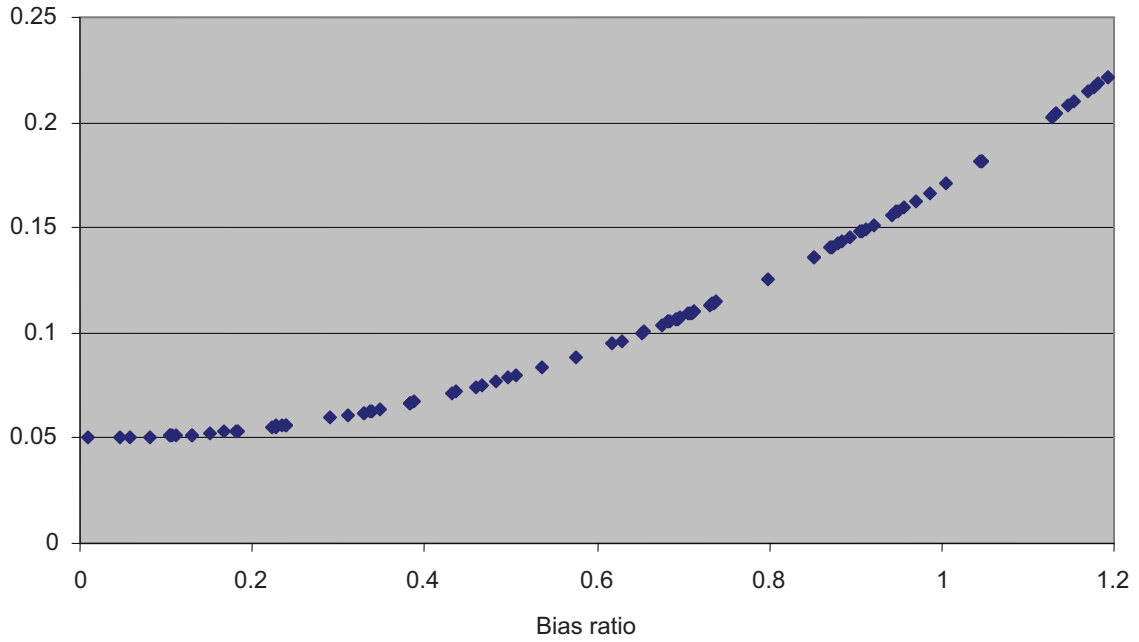
Type I error rate



SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

**Figure K-6. Minimum bias ratio by Type I error for ELS:2002 sample using the panel weight F2F1WT: 2006**

Type I error rate

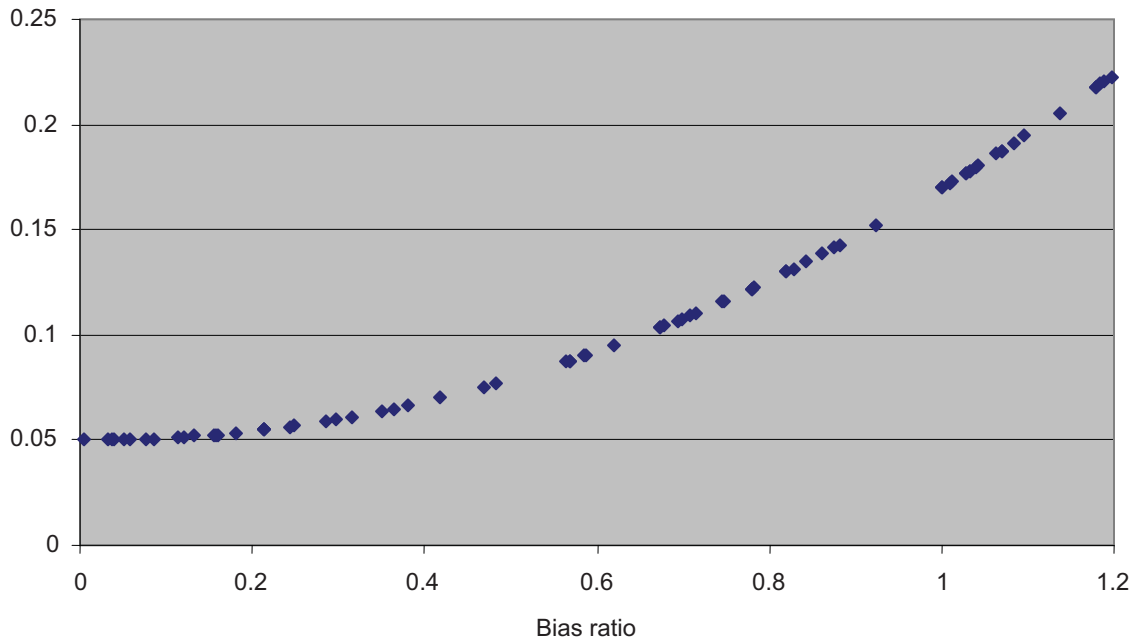


SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."



**Figure K-7. Minimum bias ratio by Type 1 error rate for racial group White/Other using the F2 cross-sectional weight F2QWT: 2006**

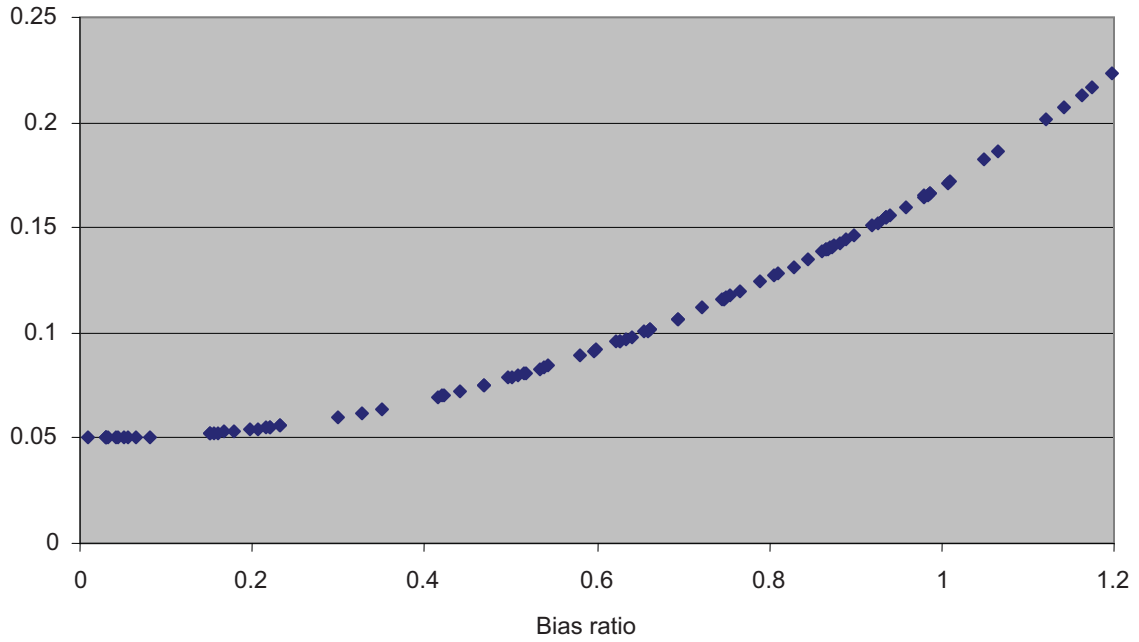
Type I error rate



SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

**Figure K-8. Minimum bias ratio by Type 1 error for racial group White/Other using F2F1 panel weight F2F1WT: 2006**

Type I error rate



SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

**Table K-5. Comparison of item respondents and nonrespondents for date of marriage (F2D02R/F2D02P), by selected sample member characteristics, using the F2 cross-sectional weight F2QWT: 2006**

Demographic characteristics	Sample size respondent	Sample size non-respondent	Percent estimate total	Percent estimate respondent	Percent estimate non-respondent	Estimated bias
F1 student's race/ethnicity						
American Indian/Alaska Native, non-Hispanic	‡	‡	2.34	2.25	2.74	-0.08
Asian, Hawaii/Pacific Islander, non-Hispanic	40	‡	2.99	2.45	5.60	-0.54
Black or African American, non-Hispanic	50	‡	8.41	6.71	16.67	-1.70
Hispanic, no race specified	80	‡	12.65	12.42	13.73	-0.22
Hispanic, race specified	80	‡	12.13	12.98	8.00	0.85
More than one race, non-Hispanic	30	‡	4.61	4.62	4.54	0.01
White, non-Hispanic	380	70	56.88	58.57	48.71	1.68
F1 student's gender						
Male	190	80	34.86	30.83	54.42	-4.03*
Female	480	80	65.14	69.17	45.58	4.03*
F1 school type						
Public school	630	130	97.09	97.67	94.27	0.58
Catholic school	‡	‡	0.96	0.39	3.74	-0.57*
Other private school	30	‡	1.95	1.95	1.99	-0.01
Whether has ever attended postsecondary school						
Yes	290	70	44.08	43.52	46.93	-0.56
No	370	70	55.92	56.48	53.07	0.56
Ever applied to postsecondary school						
Yes	390	90	59.23	57.36	68.77	-1.87*
No	280	50	40.77	42.64	31.23	1.87*
When applied to postsecondary school						
While still in high school	190	50	46.36	46.81	44.43	0.45
Sometime after high school	110	30	31.43	30.52	35.30	-0.91
Both	80	‡	22.21	22.67	20.27	0.46

‡ Counts suppressed for reasons of confidentiality.

\*  $p < .05$ .

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

**Table K-6. Comparison of item respondents and nonrespondents for F2B11NA, by selected sample member characteristics, using the F2 cross-sectional weight F2QWT: 2006**

Demographic characteristics	Sample size respondent	Sample size non-respondent	Percent estimate total	Percent estimate respondent	Percent estimate non-respondent	Estimated bias
<b>F1 student's race/ethnicity</b>						
American Indian/Alaska Native, non-Hispanic	‡	‡	0.26	#	0.67	-0.26
Asian, Hawaii/Pacific Islander, non-Hispanic	‡	‡	4.12	4.04	4.23	-0.07
Black or African American, non-Hispanic	‡	‡	14.57	12.94	17.05	-1.62
Hispanic, no race specified	‡	‡	11.21	9.37	14.03	-1.84
Hispanic, race specified	‡	‡	13.17	13.66	12.43	0.49
More than one race, non-Hispanic	‡	‡	3.73	3.93	3.43	0.20
White, non-Hispanic	80	40	52.94	56.05	48.17	3.11
<b>F1 student's gender</b>						
Male	60	50	48.88	43.80	56.66	-5.08
Female	80	40	51.12	56.20	43.34	5.08
<b>F1 school type</b>						
Public school	120	70	92.22	91.70	93.01	-0.52
Catholic school	‡	‡	4.38	3.98	4.99	-0.40
Other private school	‡	‡	3.40	4.32	2.00	0.92
<b>Whether has ever attended postsecondary school</b>						
Yes	130	90	100.0	100.0	100.0	—
No	—	—	—	—	—	—
<b>Ever applied to postsecondary school</b>						
Yes	120	80	90.96	89.08	93.65	-1.88
No	‡	‡	9.04	10.92	6.35	1.88
<b>When applied to postsecondary school</b>						
While still in high school	30	‡	24.98	27.23	21.92	2.25
Sometime after high school	60	40	51.91	51.34	52.69	-0.57
Both	‡	‡	23.11	21.43	25.39	-1.68

# Rounds to zero.

‡ Counts suppressed for reasons of confidentiality.

— Not applicable.

\*  $p < .05$ .

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

**Table K-7. Comparison of item respondents and nonrespondents for F2B08NA, by selected sample member characteristics, using the F2 cross-sectional weight F2QWT: 2006**

Demographic characteristics	Sample size respondent	Sample size non-respondent	Percent estimate total	Percent estimate respondent	Percent estimate non-respondent	Estimated bias
F1 student's race/ethnicity						
American Indian/Alaska Native, non-Hispanic	‡	‡	2.25	1.02	4.10	-1.23
Asian, Hawaii/Pacific Islander, non-Hispanic	‡	‡	3.09	2.66	3.74	-0.43
Black or African American, non-Hispanic	40	40	16.84	15.62	18.67	-1.22
Hispanic, no race specified	30	‡	9.35	10.04	8.32	0.69
Hispanic, race specified	‡	30	12.71	8.75	18.63	-3.96
More than one race, non-Hispanic	‡	‡	4.29	4.55	3.90	0.26
White, non-Hispanic	160	80	51.47	57.37	42.65	5.89*
F1 student's gender						
Male	140	130	59.61	52.35	70.48	-7.26*
Female	140	60	40.39	47.65	29.52	7.26*
F1 school type						
Public school	260	180	97.71	97.93	97.37	0.23
Catholic school	‡	‡	0.92	1.09	0.66	0.17
Other private school	‡	‡	1.37	0.98	1.97	-0.40
Whether has ever attended postsecondary school						
Yes	—	—	—	—	—	—
No	270	190	100.0	100.0	100.0	—
Ever applied to postsecondary school						
Yes	130	100	47.09	46.84	47.46	-0.25
No	140	100	52.91	53.16	52.54	0.25
When applied to postsecondary school						
While still in high school	50	40	42.91	42.24	43.86	-0.66
Sometime after high school	50	40	39.41	40.34	38.09	0.93
Both	30	‡	17.68	17.42	18.06	-0.26

‡ Counts suppressed for reasons of confidentiality.

— Not applicable.

\* $p < .05$ 

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

**Table K-8. Comparison of item respondents and nonrespondents for F2A04A, by selected sample member characteristics, using the F2 cross-sectional weight F2QWT: 2006**

Demographic characteristics	Sample size respondent	Sample size non-respondent	Percent estimate total	Percent estimate respondent	Percent estimate non-respondent	Estimated bias
F1 student's race/ethnicity						
American Indian/Alaska Native, non-Hispanic	—	—	—	—	—	—
Asian, Hawaii/Pacific Islander, non-Hispanic	‡	‡	2.79	1.54	3.70	-1.25
Black or African American, non-Hispanic	‡	‡	38.26	20.57	51.09	-17.69
Hispanic, no race specified	‡	‡	8.88	5.20	11.55	-3.68
Hispanic, race specified	‡	‡	1.66	0.00	2.87	-1.66
More than one race, non-Hispanic	‡	‡	5.98	3.33	7.91	-2.66
White, non-Hispanic	‡	‡	42.42	69.36	22.87	26.94*
F1 student's gender						
Male	‡	‡	55.19	58.64	52.70	3.45
Female	‡	‡	44.81	41.36	47.30	-3.45
F1 school type						
Public school	‡	30	92.84	85.47	98.18	-7.36
Catholic school	‡	‡	3.10	6.28	0.80	3.17
Other private school	‡	‡	4.06	8.25	1.02	4.19
Whether has ever attended postsecondary school						
Yes	‡	‡	38.96	36.00	40.41	-2.96
No	‡	‡	61.04	64.00	59.59	2.96
Ever applied to postsecondary school						
Yes	‡	‡	56.08	62.77	52.77	6.69
No	‡	‡	43.92	37.23	47.23	-6.69
When applied to postsecondary school						
While still in high school	‡	‡	16.65	18.12	15.78	1.47
Sometime after high school	‡	‡	63.68	50.63	71.35	-13.04
Both	‡	‡	19.68	31.25	12.87	11.57

‡ Counts suppressed for reasons of confidentiality.

— Not applicable.

\*  $p < .05$ .

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002), "Second Follow-up, 2006."

**Appendix L**  
**Variable List for the**  
**ELS:2002 Electronic Codebook (ECB) and**  
**Data Analysis System (DAS)**

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Below is a listing of all variables contained in the ELS:2002 base-year to second follow-up electronic codebook (ECB). ECB variables that also can be directly accessed in the Data Analysis System (DAS) are marked by an asterisk (\*).

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1		Stu_ID	Student ID	ID and Universe Variables
1		Sch_ID	School ID	ID and Universe Variables
1		STRAT_ID	Stratum	ID and Universe Variables
1		PSU	Primary sampling unit	ID and Universe Variables
1		F1SCH_ID	Link to first follow-up school	ID and Universe Variables
1	*	F1UNIV1	Sample member status in BY and F1 rounds	ID and Universe Variables
1	*	F1UNIV2A	Base year status and how sample member entered F1 sample	ID and Universe Variables
1	*	F1UNIV2B	Sample member F1 status	ID and Universe Variables
1	*	F2UNIV1	Sample member status in first 3 rounds	ID and Universe Variables
1	*	G10COHRT	Sophomore cohort member in 2001-2002 school year	ID and Universe Variables
1	*	G12COHRT	Spring 2004 senior cohort member	ID and Universe Variables
1	*	BYSTUWT	Base year student weight	BY Weights and Composites
1		BYEXPWT	Student expanded sample weight (restricted)	BY Weights and Composites
1	*	BYSEX	Sex-composite	BY Weights and Composites
1		BYRACE_R	Student's race/ethnicity-composite (restricted)	BY Weights and Composites
1	*	BYRACE	Student's race/ethnicity-composite	BY Weights and Composites
1		BYRACE2	Student's race/ethnicity-64 category (restricted)	BY Weights and Composites
1		BYSARACE	Student's race/ethnicity-school roster (restricted)	BY Weights and Composites
1		BYRACE_1	Student is White-composite (restricted)	BY Weights and Composites
1		BYRACE_2	Student is Black or African American-composite (restricted)	BY Weights and Composites
1		BYRACE_3	Student is Asian-composite (restricted)	BY Weights and Composites
1		BYRACE_4	Student is Native Hawaiian/Pacific Islander-composite (restricted)	BY Weights and Composites
1		BYRACE_5	Student is American Indian/Alaska Native-composite (restricted)	BY Weights and Composites
1		BYHISPAN	Student's Hispanic subgroup-composite (restricted)	BY Weights and Composites
1		BYASIAN	Student's Asian subgroup-composite (restricted)	BY Weights and Composites
1	*	BYSTLANG	Whether English is student's native language-composite	BY Weights and Composites
1	*	BYHOMLNG	Student's native language-composite	BY Weights and Composites
1		BYDOB_R	Student's date of birth: Year-month-day (restricted)	BY Weights and Composites
1	*	BYDOB_P	Student's year and month of birth	BY Weights and Composites
1		BYPARACR	Parent's race/ethnicity-composite (restricted)	BY Weights and Composites
1	*	BYPARACE	Parent's race/ethnicity-composite	BY Weights and Composites
1	*	BYPARLNG	Parent's native language-composite	BY Weights and Composites
1	*	BYFCOMP	Family composition	BY Weights and Composites
1	*	BYPARED	Parents' highest level of education	BY Weights and Composites
1	*	BYMOTHED	Mother's highest level of education-composite	BY Weights and Composites
1	*	BYFATHED	Father's highest level of education-composite	BY Weights and Composites
1	*	BYOCCUM	Mother/female guardian's occupation-composite	BY Weights and Composites
1	*	BYOCCUF	Father/male guardian's occupation-composite	BY Weights and Composites
1	*	BYINCOME	Total family income from all sources 2001-composite	BY Weights and Composites
1	*	BYSES1	Socio-economic status composite, v.1	BY Weights and Composites
1	*	BYSES1QU	Quartile coding of SES1 variable	BY Weights and Composites
1	*	BYSES2	Socio-economic status composite, v.2	BY Weights and Composites
1	*	BYSES2QU	Quartile coding of SES2 variable	BY Weights and Composites
1	*	BYSTEXP	How far in school student thinks will get-composite	BY Weights and Composites
1	*	BYPARASP	How far in school parent wants 10th grader to go-composite	BY Weights and Composites

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1	*	BYOCCHS	Occupation right after high school-coded	BY Weights and Composites
1	*	BYOCC30	Occupation at age 30-coded	BY Weights and Composites
1	*	BYSCHPRG	High school program reported by student-composite	BY Weights and Composites
1	*	BYSQSTAT	Base year student questionnaire status	BY Weights and Composites
1		BYQXDATR	Date of base year student questionnaire administration (restricted)	BY Weights and Composites
1	*	BYQXDATP	Month/year of base year student questionnaire administration	BY Weights and Composites
1	*	BYTXSTAT	Base year test score status	BY Weights and Composites
1		PISAMFLG	Student in PISA:2003 math score equating sample (restricted)	BY Weights and Composites
1		PISARFLG	Whether included in PISA reading score concordance sample (restricted)	BY Weights and Composites
1	*	BYTEQFLG	At least one teacher reported on 10th grader	BY Weights and Composites
1	*	BYPQSTAT	Base year parent questionnaire status	BY Weights and Composites
1	*	BYTXPAFG	Base year parent questionnaire and test in at least one subject	BY Weights and Composites
1	*	BYADMFLG	Base year school administrator questionnaire completed	BY Weights and Composites
1		BYLMCFLG	Base year library media center questionnaire completed	BY Weights and Composites
1	*	BYIEPFLG	Base year Individualized Education Plan	BY Weights and Composites
1		BYIEPTYP	Federal disability category for base year IEPs (restricted)	BY Weights and Composites
1		BYACCTYP	Base year questionnaire/test accommodations (restricted)	BY Weights and Composites
1	*	BYTXACC	Base year test accommodations	BY Weights and Composites
1	*	BYTXCSTD	Standardized test composite score-math/reading	BY Weights and Composites
1	*	BYTXCQU	Standardized composite test quartile (1=low)	BY Weights and Composites
1	*	BYNELS2M	ELS-NELS 1992 scale equated sophomore math score	BY Weights and Composites
1	*	BYNELS2R	ELS-NELS 1992 scale equated sophomore reading score	BY Weights and Composites
1	*	BYNELS0M	ELS-NELS 1990 scale equated sophomore math score	BY Weights and Composites
1	*	BYPISAME	ELS:2002-PISA:2003 concordance math score	BY Weights and Composites
1	*	BYPISARE	ELS:2002-PISA:2000 concordance reading score	BY Weights and Composites
1	*	BYTXMIRR	Math IRT estimated number right	BY Weights and Composites
1	*	BYTXMSTD	Math test standardized score	BY Weights and Composites
1	*	BYTXMQU	Mathematics quartile (1=low)	BY Weights and Composites
1	*	BYTX1MPP	Mathematics proficiency probability at level 1	BY Weights and Composites
1	*	BYTX2MPP	Mathematics proficiency probability at level 2	BY Weights and Composites
1	*	BYTX3MPP	Mathematics proficiency probability at level 3	BY Weights and Composites
1	*	BYTX4MPP	Mathematics proficiency probability at level 4	BY Weights and Composites
1	*	BYTX5MPP	Mathematics proficiency probability at level 5	BY Weights and Composites
1		BYTXMTH	Math test theta T score (restricted)	BY Weights and Composites
1		BYTXMT1	Math theta T score - multiple imputation value 1 of 5 (restricted)	BY Weights and Composites
1		BYTXMT2	Math theta T score - multiple imputation value 2 of 5 (restricted)	BY Weights and Composites
1		BYTXMT3	Math theta T score - multiple imputation value 3 of 5 (restricted)	BY Weights and Composites
1		BYTXMT4	Math theta T score - multiple imputation value 4 of 5 (restricted)	BY Weights and Composites
1		BYTXMT5	Math theta T score - multiple imputation value 5 of 5 (restricted)	BY Weights and Composites
1		BYTXMTHN	Original BY math theta transformed to the NELS metric (restricted)	BY Weights and Composites
1	*	BYTXRIRR	Reading IRT estimated number right	BY Weights and Composites
1	*	BYTXRSTD	Reading test standardized score	BY Weights and Composites
1	*	BYTXRQU	Reading quartile (1=low)	BY Weights and Composites
1	*	BYTX1RPP	Reading proficiency probability at level 1	BY Weights and Composites
1	*	BYTX2RPP	Reading proficiency probability at level 2	BY Weights and Composites
1	*	BYTX3RPP	Reading proficiency probability at level 3	BY Weights and Composites
1		BYTXRTH	Reading test theta T score (restricted)	BY Weights and Composites
1		BYTXRT1	Reading theta T score - multiple imputation value 1 of 5 (restricted)	BY Weights and Composites

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1		BYTXRTI2	Reading theta T score - multiple imputation value 2 of 5 (restricted)	BY Weights and Composites
1		BYTXRTI3	Reading theta T score - multiple imputation value 3 of 5 (restricted)	BY Weights and Composites
1		BYTXRTI4	Reading theta T score - multiple imputation value 4 of 5 (restricted)	BY Weights and Composites
1		BYTXRTI5	Reading theta T score - multiple imputation value 5 of 5 (restricted)	BY Weights and Composites
1		BYRESZIP	Residential ZIP code for student/family (restricted)	BY Weights and Composites
1		BYSF1R_R	1st friend's race (restricted)	BY Weights and Composites
1	*	BYSF1RCE	1st friend's race	BY Weights and Composites
1		BYSF2R_R	2nd friend's race (restricted)	BY Weights and Composites
1	*	BYSF2RCE	2nd friend's race	BY Weights and Composites
1		BYSF3R_R	3rd friend's race (restricted)	BY Weights and Composites
1	*	BYSF3RCE	3rd friend's race	BY Weights and Composites
1	*	BYBASEBL	Interscholastic baseball participation	BY Weights and Composites
1	*	BYSOFTBL	Interscholastic softball participation	BY Weights and Composites
1	*	BYBSKTBL	Interscholastic basketball participation	BY Weights and Composites
1	*	BYFOOTBL	Interscholastic football participation	BY Weights and Composites
1	*	BYSOCCER	Interscholastic soccer participation	BY Weights and Composites
1	*	BYTEAMSP	Other interscholastic team participation	BY Weights and Composites
1	*	BYSOLOSP	Interscholastic individual sport participation	BY Weights and Composites
1	*	BYCHRDRL	Interscholastic cheerleading/drill team participation	BY Weights and Composites
1	*	BYWORKSY	Student held job for pay during 2001-2002 school year	BY Weights and Composites
1		BYERAC_R	English teacher's race/ethnicity-composite (restricted)	BY Weights and Composites
1	*	BYERACE	English teacher's race/ethnicity-composite	BY Weights and Composites
1	*	BYTEHDEG	Highest degree earned by the English teacher	BY Weights and Composites
1		BYMRAC_R	Math teacher's race/ethnicity-composite (restricted)	BY Weights and Composites
1	*	BYMRACE	Math teacher's race/ethnicity-composite	BY Weights and Composites
1	*	BYTMHDEG	Highest degree earned by math teacher	BY Weights and Composites
1		BYG10ER	Grade 10 enrollment-2001/02 school roster (restricted)	BY Weights and Composites
1	*	BYG10EP	Grade 10 enrollment-2001/02 school roster-categorical	BY Weights and Composites
1	*	BYSCENP	Oct 2001 total school enrollment-administrator quex-categorical	BY Weights and Composites
1	*	BYCTRL	School control	BY Weights and Composites
1	*	BYURBAN	School urbanicity	BY Weights and Composites
1	*	BYREGION	Geographic region of school	BY Weights and Composites
1	*	BYSPANP	Grade span-administrator questionnaire	BY Weights and Composites
1	*	BY10FLP	Grade 10 percent free lunch-categorical	BY Weights and Composites
1		BYCENDIV	Census division of school locale (restricted)	BY Weights and Composites
1		BYSTATE	State code for school locale (restricted)	BY Weights and Composites
1		BYCOUNTY	County code for school locale (restricted)	BY Weights and Composites
1		BYSCHZIP	School ZIP code (restricted)	BY Weights and Composites
1		BYSEXIM	Imputation flag - BYSEX	BY Weights and Composites
1		BYHISPIM	Imputation flag - BYHISPAN (restricted)	BY Weights and Composites
1		BYASNIM	Imputation flag - BYASIAN (restricted)	BY Weights and Composites
1		BYSTLNIM	Imputation flag - BYSTLANG (BYS67)	BY Weights and Composites
1		BYFCMPIM	Imputation flag - BYFCOMP	BY Weights and Composites
1		BYMOEDIM	Imputation flag - BYMOTHED	BY Weights and Composites
1		BYFAEDIM	Imputation flag - BYFATHED	BY Weights and Composites
1		BYOCCMIM	Imputation flag - BYOCCUM	BY Weights and Composites
1		BYOCCFIM	Imputation flag - BYOCCUF	BY Weights and Composites
1		BYINCMIM	Imputation flag - BYINCOME (BYP85)	BY Weights and Composites

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1		BYSTEXIM	Imputation flag - BYSTEXP (BYS56)	BY Weights and Composites
1		BYPASPIM	Imputation flag - BYPARASP (BYP79)	BY Weights and Composites
1		BYSCHPIM	Imputation flag - BYSCHPRG (BYS26)	BY Weights and Composites
1		BYTESTIM	Imputation flag - composite scores	BY Weights and Composites
1		BYMATHIM	Imputation flag - math scores	BY Weights and Composites
1		BYREADIM	Imputation flag - reading scores	BY Weights and Composites
1	*	F1QWT	First follow-up questionnaire (cross-sectional) weight	F1 Weights and Composites
1	*	F1PNLWT	Panel Weight, BY and F1 (2002 and 2004)	F1 Weights and Composites
1		F1EXPWT	F1 expanded sample weight (restricted)	F1 Weights and Composites
1		F1XPNLWT	F1 expanded sample panel weight (restricted)	F1 Weights and Composites
1	*	F1SEX	F1 sex-composite	F1 Weights and Composites
1		F1RACE_R	F1 student's race/ethnicity-composite (restricted)	F1 Weights and Composites
1	*	F1RACE	F1 student's race/ethnicity-composite	F1 Weights and Composites
1		F1RACE2	F1 student's race/ethnicity-64 category (restricted)	F1 Weights and Composites
1		F1SARACE	F1 student's race/ethnicity-school roster (restricted)	F1 Weights and Composites
1		F1RACE_1	F1 student is White-composite (restricted)	F1 Weights and Composites
1		F1RACE_2	F1 student is Black or African American-composite (restricted)	F1 Weights and Composites
1		F1RACE_3	F1 student is Asian-composite (restricted)	F1 Weights and Composites
1		F1RACE_4	F1 student is Native Hawaiian/Pacific Islander-composite (restricted)	F1 Weights and Composites
1		F1RACE_5	F1 student is Native Indian/Alaska Native-composite (restricted)	F1 Weights and Composites
1		F1HISPAN	F1 student's Hispanic subgroup-composite (restricted)	F1 Weights and Composites
1		F1ASIAN	F1 student's Asian subgroup-composite (restricted)	F1 Weights and Composites
1	*	F1STLANG	F1 whether English is student's native language-composite	F1 Weights and Composites
1	*	F1HOMLNG	F1 student's native language-composite	F1 Weights and Composites
1		F1DOB_R	F1 student's date of birth: Year-month-day (restricted)	F1 Weights and Composites
1	*	F1DOB_P	F1 student's year and month of birth	F1 Weights and Composites
1	*	F1FCOMP	F1 family composition	F1 Weights and Composites
1	*	F1PARED	F1 parent's highest level of education	F1 Weights and Composites
1	*	F1MOTHEd	F1 mother's highest level of education-composite	F1 Weights and Composites
1	*	F1FATHED	F1 father's highest level of education-composite	F1 Weights and Composites
1	*	F1OCCUM	F1 mother's/female guardian's occupation-composite	F1 Weights and Composites
1	*	F1OCCUF	F1 father's/male guardian's occupation-composite	F1 Weights and Composites
1		F1SES1R	F1 socio-economic status composite, v.1 (restricted)	F1 Weights and Composites
1		F1SES1QR	F1 quartile coding of SES1 variable (restricted)	F1 Weights and Composites
1	*	F1SES1	F1 socio-economic status composite, v.1	F1 Weights and Composites
1	*	F1SES1QU	F1 quartile coding of SES1 variable	F1 Weights and Composites
1		F1SES2R	F1 socio-economic status composite, v.2 (restricted)	F1 Weights and Composites
1		F1SES2QR	F1 quartile coding of SES2 variable (restricted)	F1 Weights and Composites
1	*	F1SES2	F1 socio-economic status composite, v.2	F1 Weights and Composites
1	*	F1SES2QU	F1 quartile coding of SES2 variable	F1 Weights and Composites
1	*	F1STEXP	F1 how far in school student thinks will get-composite	F1 Weights and Composites
1	*	F1OCCHS	F1 occupation right after high school-coded	F1 Weights and Composites
1	*	F1OCC30	F1 occupation at age 30-coded	F1 Weights and Composites
1		F1NRSTAT	F1 nonresponse status (restricted)	F1 Weights and Composites
1	*	F1QSTAT	F1 student questionnaire status	F1 Weights and Composites
1	*	F1TSTAT	F1 student test status	F1 Weights and Composites
1		F1PNLFLG	BY to F1 panel flag	F1 Weights and Composites
1	*	F1BYTFLG	F1 base year test available	F1 Weights and Composites

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1	*	F1QMODE	F1 mode of quex administration	F1 Weights and Composites
1	*	F1STQFLG	F1 student completed student questionnaire	F1 Weights and Composites
1	*	F1TRQFLG	F1 student completed transfer questionnaire	F1 Weights and Composites
1	*	F1HOQFLG	F1 student completed homeschool questionnaire	F1 Weights and Composites
1	*	F1EGQFLG	F1 sample member completed early graduate questionnaire	F1 Weights and Composites
1	*	F1DOQFLG	F1 sample member completed dropout questionnaire	F1 Weights and Composites
1	*	F1EVERDO	F1 ever dropped out	F1 Weights and Composites
1	*	F1DOSTAT	F1 dropout status	F1 Weights and Composites
1		F1ESSTAT	F1 expanded sample status (restricted)	F1 Weights and Composites
1		F1ACCTYP	F1 accommodation for IEP students in assessment admin (restricted)	F1 Weights and Composites
1	*	F1TXACC	F1 test accommodations	F1 Weights and Composites
1		F1ENRS03	F1 enrollment status-Spring 2003 (restricted)	F1 Weights and Composites
1		F1ENRF03	F1 enrollment status-Fall 2003 (restricted)	F1 Weights and Composites
1		F1ENRS04	F1 enrollment status-Spring 2004 (restricted)	F1 Weights and Composites
1		F1SEPS03	Date separated from BY school-spring 2003 (restricted)	F1 Weights and Composites
1		F1SEPF03	Date separated from BY school-fall 2003 (restricted)	F1 Weights and Composites
1		F1SEPS04	Date separated from BY school-spring 2004 (restricted)	F1 Weights and Composites
1		F1ENRFIN	F1 enrollment status-final (restricted)	F1 Weights and Composites
1	*	F1GRADE	F1 grade attended	F1 Weights and Composites
1	*	F1TXMBIR	F1 math IRT estimated number right for base year scores	F1 Weights and Composites
1	*	F1TXM1IR	F1 math IRT estimated number right for F1 scores	F1 Weights and Composites
1	*	F1TXMSTD	F1 math standardized score	F1 Weights and Composites
1		F1TXMTH	F1 math theta T Score (restricted)	F1 Weights and Composites
1		F1TXMT1	F1 math theta T score - multiple imputation value 1 of 5 (restricted)	F1 Weights and Composites
1		F1TXMT2	F1 math theta T score - multiple imputation value 2 of 5 (restricted)	F1 Weights and Composites
1		F1TXMT3	F1 math theta T score - multiple imputation value 3 of 5 (restricted)	F1 Weights and Composites
1		F1TXMT4	F1 math theta T score - multiple imputation value 4 of 5 (restricted)	F1 Weights and Composites
1		F1TXMT5	F1 math theta T score - multiple imputation value 5 of 5 (restricted)	F1 Weights and Composites
1	*	F1TXMQU	F1 math quartile score	F1 Weights and Composites
1	*	F1NELS2M	F1 NELS-equated math estimated N-right	F1 Weights and Composites
1	*	F1TX1MPP	F1 mathematics proficiency probability at level 1	F1 Weights and Composites
1	*	F1TX2MPP	F1 mathematics proficiency probability at level 2	F1 Weights and Composites
1	*	F1TX3MPP	F1 mathematics proficiency probability at level 3	F1 Weights and Composites
1	*	F1TX4MPP	F1 mathematics proficiency probability at level 4	F1 Weights and Composites
1	*	F1TX5MPP	F1 mathematics proficiency probability at level 5	F1 Weights and Composites
1		F1TXNAEP	NAEP-equated ELS:2002 IRT number-right math score	F1 Weights and Composites
1		F1RESZIP	F1 residential ZIP code for student/family (restricted)	F1 Weights and Composites
1	*	F1QXDATP	F1 date completed interview	F1 Weights and Composites
1		F1QXDATR	F1 date completed interview (restricted)	F1 Weights and Composites
1	*	F1HIMATH	F1 highest math course of a half year or more	F1 Weights and Composites
1	*	F1PSEPLN	F1 postsecondary plans right after high school	F1 Weights and Composites
1		F1SEXIM	Imputation Flag - F1SEX	F1 Weights and Composites
1		F1RACEIM	Imputation Flag - F1RACE	F1 Weights and Composites
1		F1HISPIM	Imputation Flag - F1HISPAN (restricted)	F1 Weights and Composites
1		F1ASNIM	Imputation Flag - F1ASIAN (restricted)	F1 Weights and Composites
1		F1STLNIM	Imputation Flag - F1STLANG	F1 Weights and Composites
1		F1FCMPIM	Imputation Flag - F1FCOMP	F1 Weights and Composites
1		F1MOEDIM	Imputation Flag - F1MOTHED	F1 Weights and Composites

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1		F1FAEDIM	Imputation Flag - F1FATHED	F1 Weights and Composites
1		F1OCCMIM	Imputation Flag - F1OCCUM	F1 Weights and Composites
1		F1OCCFIM	Imputation Flag - F1OCCUF	F1 Weights and Composites
1		F1STEXIM	Imputation Flag - F1STEXP	F1 Weights and Composites
1		F1TESTIM	Imputation Flag - F1 math scores	F1 Weights and Composites
1		F1ENRLIM	Imputation flag - F1ENRFIN (restricted)	F1 Weights and Composites
1		F1GRADIM	Imputation Flag - F1GRADE	F1 Weights and Composites
1	*	F1RTRFLG	Transcript coverage flag	High School Transcript (Student)
1	*	F1TRSCWT	Cross-sectional high school transcript weight	High School Transcript (Student)
1	*	F1RTR09	G9 transcript availability	High School Transcript (Student)
1	*	F1RTR10	G10 transcript availability	High School Transcript (Student)
1	*	F1RTR11	G11 transcript availability	High School Transcript (Student)
1	*	F1RTR12	G12 transcript availability	High School Transcript (Student)
1		F1RTROUT	Transcript indicated outcome	High School Transcript (Student)
1		F1RSCH1	Base-year transcript school ID	High School Transcript (Student)
1		F1RTRFL1	Transcript school 1 flag	High School Transcript (Student)
1		F1RS1CTR	Base-year transcript school classification	High School Transcript (Student)
1		F1RS1URB	Base-year transcript school district type	High School Transcript (Student)
1		F1RS1REG	Base-year transcript school region of country	High School Transcript (Student)
1		F1RS1STA	Base-year transcript school state	High School Transcript (Student)
1		F1RS1CLI	Base-year transcript school course list	High School Transcript (Student)
1		F1RSCH2	Transfer transcript school ID	High School Transcript (Student)
1		F1RTRFL2	Transcript school 2 flag	High School Transcript (Student)
1		F1RS2CTR	Transfer transcript school classification	High School Transcript (Student)
1		F1RS2URB	Transfer transcript school district type	High School Transcript (Student)
1		F1RS2REG	Transfer transcript school region of country	High School Transcript (Student)
1		F1RS2STA	Transfer transcript school state	High School Transcript (Student)
1		F1RS2CLI	Transfer transcript school course list	High School Transcript (Student)
1		F1RSCHL	Last attended transcript school ID	High School Transcript (Student)
1		F1RTRFLL	Last transcript school flag	High School Transcript (Student)
1		F1RSLCTR	Last transcript school classification	High School Transcript (Student)
1		F1RSLURB	Last transcript school district type	High School Transcript (Student)
1		F1RSLREG	Last transcript school region of country	High School Transcript (Student)
1		F1RSLSTA	Last transcript school state	High School Transcript (Student)
1		F1RSLCLI	Last transcript school course list	High School Transcript (Student)
1		F1RSPFLG	Specialized courses or programs	High School Transcript (Student)
1		F1RDTLFT	Year/month/day student left school	High School Transcript (Student)
1		F1RREASL	Reason student left school	High School Transcript (Student)
1		F1RGPA	Transcript reported cumulative GPA	High School Transcript (Student)
1		F1RPSATM	Preliminary Scholastic Aptitude Test (mathematics)	High School Transcript (Student)
1		F1RPSATV	Preliminary Scholastic Aptitude Test (verbal)	High School Transcript (Student)
1		F1RPSATW	Preliminary Scholastic Aptitude Test (written)	High School Transcript (Student)
1		F1RPSAMM	Most recent Preliminary Scholastic Aptitude Test (mathematics)	High School Transcript (Student)
1		F1RPSAVM	Most recent Preliminary Scholastic Aptitude Test (verbal)	High School Transcript (Student)
1		F1RPSAWM	Most recent Preliminary Scholastic Aptitude Test (written)	High School Transcript (Student)
1		F1RPSATD	Date of most recent Preliminary Scholastic Aptitude Test	High School Transcript (Student)
1		F1RHTUN	Total Carnegie units	High School Transcript (Student)
1		F1RHEN_C	Units in English (HS+B/NELS)	High School Transcript (Student)

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
1		F1RHMA_C	Units in mathematics (HS+B/NELS)	High School Transcript (Student)
1		F1RHSC_C	Units in science (HS+B/NELS)	High School Transcript (Student)
1		F1RHSC_C	Units in science (HS+B/NELS)	High School Transcript (Student)
1		F1RHSC_C	Units in science (HS+B/NELS)	High School Transcript (Student)
1		F1RHCO_C	Units in computer science (HS+B/NELS)	High School Transcript (Student)
1		F1RHFO_C	Units in non-English language (HS+B/NELS)	High School Transcript (Student)
1		F1R01_C	Units in agribusiness/ag. production	High School Transcript (Student)
1		F1R02_C	Units in agricultural sciences	High School Transcript (Student)
1		F1R03_C	Units in renewable natural resources	High School Transcript (Student)
1		F1R04_C	Units in architecture/env. design	High School Transcript (Student)
1		F1R05_C	Units in area and ethnic studies	High School Transcript (Student)
1		F1R06_C	Units in business and management	High School Transcript (Student)
1		F1R07_C	Units in business and office	High School Transcript (Student)
1		F1R08_C	Units in marketing and distribution	High School Transcript (Student)
1		F1R09_C	Units in communication	High School Transcript (Student)
1		F1R10_C	Units in communication technologies	High School Transcript (Student)
1		F1R11_C	Units in computer/information sciences	High School Transcript (Student)
1		F1R12_C	Units in consumer/personal services	High School Transcript (Student)
1		F1R13_C	Units in education	High School Transcript (Student)
1		F1R14_C	Units in engineering	High School Transcript (Student)
1		F1R15_C	Units in engineering technologies	High School Transcript (Student)
1		F1R16_C	Units in non-English language	High School Transcript (Student)
1		F1R17_C	Units in allied health	High School Transcript (Student)
1		F1R18_C	Units in health sciences	High School Transcript (Student)
1		F1R19_C	Units in home economics	High School Transcript (Student)
1		F1R20_C	Units in vocational home economics	High School Transcript (Student)
1		F1R21_C	Units in industrial arts	High School Transcript (Student)
1		F1R22_C	Units in law	High School Transcript (Student)
1		F1R23_C	Units in letters/English	High School Transcript (Student)
1		F1R24_C	Units in liberal/general studies	High School Transcript (Student)
1		F1R25_C	Units in library and archival sciences	High School Transcript (Student)
1		F1R26_C	Units in life sciences	High School Transcript (Student)
1		F1R27_C	Units in mathematics	High School Transcript (Student)
1		F1R28_C	Units in military sciences	High School Transcript (Student)
1		F1R29_C	Units in military technologies	High School Transcript (Student)
1		F1R30_C	Units in multi./interdisciplinary studies	High School Transcript (Student)
1		F1R31_C	Units in parks and recreation	High School Transcript (Student)
1		F1R32_C	Units in basic skills	High School Transcript (Student)
1		F1R33_C	Units in citizenship/civic activities	High School Transcript (Student)
1		F1R34_C	Units in health-related activities	High School Transcript (Student)
1		F1R35_C	Units in interpersonal skills	High School Transcript (Student)
1		F1R36_C	Units in leisure and rec. activities	High School Transcript (Student)
1		F1R37_C	Units in personal awareness	High School Transcript (Student)
1		F1R38_C	Units in philosophy and religion	High School Transcript (Student)
1		F1R39_C	Units in theology	High School Transcript (Student)
1		F1R40_C	Units in physical science	High School Transcript (Student)
1		F1R41_C	Units in sciences technologies	High School Transcript (Student)
1		F1R42_C	Units in psychology	High School Transcript (Student)
1		F1R43_C	Units in protective services	High School Transcript (Student)

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1		F1R44_C	Units in public affairs	High School Transcript (Student)
1		F1R45_C	Units in social sciences	High School Transcript (Student)
1		F1R46_C	Units in construction trades	High School Transcript (Student)
1		F1R47_C	Units in mechanics and repairers	High School Transcript (Student)
1		F1R48_C	Units in precision production	High School Transcript (Student)
1		F1R49_C	Units in transportation/material moving	High School Transcript (Student)
1		F1R50_C	Units in visual and performing arts	High School Transcript (Student)
1		F1R51_C	Units in executive internship	High School Transcript (Student)
1		F1R54_C	Units in special education	High School Transcript (Student)
1		F1R55_C	Units in special education/vocational	High School Transcript (Student)
1		F1R56_C	Units in special ed./resource curriculum	High School Transcript (Student)
1		F1RHTAC	Total academic units (SST)	High School Transcript (Student)
1	*	F1RHTACP	Total academic units (SST) - categorical	High School Transcript (Student)
1		F1RMAT_C	Units in mathematics (SST)	High School Transcript (Student)
1	*	F1RMAT_P	Units in mathematics (SST) - categorical	High School Transcript (Student)
1		F1RSCI_C	Units in science (SST)	High School Transcript (Student)
1	*	F1RSCI_P	Units in science (SST) - categorical	High School Transcript (Student)
1		F1RENG_C	Units in English (SST)	High School Transcript (Student)
1	*	F1RENG_P	Units in English (SST) - categorical	High School Transcript (Student)
1		F1RSOC_C	Units in social studies (SST)	High School Transcript (Student)
1	*	F1RSOC_P	Units in social studies (SST) - categorical	High School Transcript (Student)
1		F1RFIN_C	Units in fine arts (SST)	High School Transcript (Student)
1	*	F1RFIN_P	Units in fine arts (SST) - categorical	High School Transcript (Student)
1		F1RNON_C	Units in non-English language (SST)	High School Transcript (Student)
1	*	F1RNON_P	Units in non-English language (SST) - categorical	High School Transcript (Student)
1		F1RHTVO	Total vocational/technical units (SST)	High School Transcript (Student)
1	*	F1RHTVOP	Total vocational/technical units (SST) - categorical	High School Transcript (Student)
1		F1RFAM_C	Units in family/consumer science ed. (SST)	High School Transcript (Student)
1	*	F1RFAM_P	Units in family/consumer science ed. (SST) - categorical	High School Transcript (Student)
1		F1RGLA_C	Units in general labor market prep. (SST)	High School Transcript (Student)
1	*	F1RGLA_P	Units in general labor market prep. (SST) - categorical	High School Transcript (Student)
1		F1RSLA_C	Units in specific labor market prep (SST)	High School Transcript (Student)
1	*	F1RSLA_P	Units in specific labor market prep. (SST) - categorical	High School Transcript (Student)
1		F1RHTEN	Total enrichment/other units (SST)	High School Transcript (Student)
1	*	F1RHTENP	Total enrichment/other units (SST) - categorical	High School Transcript (Student)
1		F1RGEN_C	Units in general skills (SST)	High School Transcript (Student)
1	*	F1RGEN_P	Units in general skills (SST) - categorical	High School Transcript (Student)
1		F1RHEA_C	Units in health/physical/rec. ed. (SST)	High School Transcript (Student)
1	*	F1RHEA_P	Units in health/physical/rec. ed. (SST) - categorical	High School Transcript (Student)
1		F1RREL_C	Units in religion and theology (SST)	High School Transcript (Student)
1	*	F1RREL_P	Units in religion and theology (SST) - categorical	High School Transcript (Student)
1		F1RMIL_C	Units in military science (SST)	High School Transcript (Student)
1		F1RHTCO	Total core subject units	High School Transcript (Student)
1	*	F1RHTCOP	Total core subject units (SST) - categorical	High School Transcript (Student)
1		F1RHTNC	Total non-core subject units	High School Transcript (Student)
1	*	F1RHTNCP	Total non-core subject units (SST) - categorical	High School Transcript (Student)
1		F1RAPCA	Total AP/IB calculus	High School Transcript (Student)
1	*	F1RAPCAP	Total AP/IB Calculus courses - categorical	High School Transcript (Student)



*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1		F1RAPMA	Total AP/IB math courses	High School Transcript (Student)
1	*	F1RAPMAP	Total AP/IB Math courses - categorical	High School Transcript (Student)
1		F1RAPFA	Total AP/IB fine arts courses	High School Transcript (Student)
1	*	F1RAPFAP	Total AP/IB Fine Arts courses - categorical	High School Transcript (Student)
1		F1RAPSC	Total AP/IB science courses	High School Transcript (Student)
1	*	F1RAPSCP	Total AP/IB Science courses	High School Transcript (Student)
1		F1RAPEN	Total AP/IB English courses	High School Transcript (Student)
1	*	F1RAPENP	Total AP/IB English courses - categorical	High School Transcript (Student)
1		F1RAPSO	Total AP/IB social studies courses	High School Transcript (Student)
1	*	F1RAPSOP	Total AP/IB Social Studies courses - categorical	High School Transcript (Student)
1		F1RAPCS	Total AP/IB computer science courses	High School Transcript (Student)
1	*	F1RAPCSP	Total AP/IB Computer Science courses - categorical	High School Transcript (Student)
1		F1RAPNE	Total AP/IB non-English language courses	High School Transcript (Student)
1	*	F1RAPNEP	Total AP/IB Non-English Language courses - categorical	High School Transcript (Student)
1		F1RAPIB	Total AP/IB courses	High School Transcript (Student)
1	*	F1RAPIBP	Total AP/IB Courses - categorical	High School Transcript (Student)
1		F1RAL1_C	Units in algebra I	High School Transcript (Student)
1		F1RGeo_C	Units in geometry	High School Transcript (Student)
1		F1RAL2_C	Units in algebra II	High School Transcript (Student)
1		F1RTRI_C	Units in trigonometry	High School Transcript (Student)
1		F1RPRE_C	Units in pre-calculus	High School Transcript (Student)
1		F1RCAL_C	Units in calculus	High School Transcript (Student)
1	*	F1RMAPIP	Math course taking pipeline	High School Transcript (Student)
1		F1REAR_C	Units in earth science	High School Transcript (Student)
1		F1RBIO_C	Units in biology	High School Transcript (Student)
1		F1RCHE_C	Units in chemistry	High School Transcript (Student)
1		F1RPHY_C	Units in physics	High School Transcript (Student)
1	*	F1RSCPIP	Science course taking pipeline	High School Transcript (Student)
1	*	F1RNEPIP	Non-English language pipeline	High School Transcript (Student)
1	*	F1RNEHI	Highest non-English language	High School Transcript (Student)
1	*	F1RACADC	Academic concentrator	High School Transcript (Student)
1	*	F1ROCCUC	Occupational concentrator	High School Transcript (Student)
1	*	F1RTRCC	Transcript indicated curriculum concentration	High School Transcript (Student)
1	*	F1RNEWB	New basics requirements	High School Transcript (Student)
1		F1RGP9	GPA for all 9th grade courses	High School Transcript (Student)
1	*	F1RGP9P	GPA for all 9th grade courses - categorical	High School Transcript (Student)
1		F1RAGP9	GPA for all academic 9th grade courses	High School Transcript (Student)
1	*	F1RAGP9P	GPA for all academic 9th grade courses - categorical	High School Transcript (Student)
1		F1RGP10	GPA for all 10th grade courses	High School Transcript (Student)
1	*	F1RGP0P	GPA for all 10th grade courses - categorical	High School Transcript (Student)
1		F1RAGP10	GPA for all academic 10th grade courses	High School Transcript (Student)
1	*	F1RAGP0P	GPA for all academic 10th grade courses - categorical	High School Transcript (Student)
1		F1RGP11	GPA for all 11th grade courses	High School Transcript (Student)
1	*	F1RGP1P	GPA for all 11th grade courses - categorical	High School Transcript (Student)
1		F1RAGP11	GPA for all academic 11th grade courses	High School Transcript (Student)
1	*	F1RAGP1P	GPA for all academic 11th grade courses - categorical	High School Transcript (Student)
1		F1RGP12	GPA for all 12th grade courses	High School Transcript (Student)
1	*	F1RGP2P	GPA for all 12th grade courses - categorical	High School Transcript (Student)

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1		F1RAGP12	GPA for all academic 12th grade courses	High School Transcript (Student)
1	*	F1RAGP2P	GPA for all academic 12th grade courses - categorical	High School Transcript (Student)
1		F1RGP	GPA for all courses	High School Transcript (Student)
1	*	F1RGPP	GPA for all courses taken in the 9th - 12th grades - categorical	High School Transcript (Student)
1		F1RAGP	GPA for all academic courses	High School Transcript (Student)
1	*	F1RAGPP	GPA for all academic courses 9th - 12th grades - categorical	High School Transcript (Student)
1		F1RAGPH	GPA for all academic courses, honors weighted	High School Transcript (Student)
1	*	F1RAGPHP	GPA for all academic courses 9th-12th grd; honors wgt - categorical	High School Transcript (Student)
1		F1RAGPN	GPA for all academic courses, failed courses excluded	High School Transcript (Student)
1	*	F1RAGPNP	GPA for all academic courses 9th-12th grd; failed excl - categorical	High School Transcript (Student)
1		F1S51CD1	1st postsecondary school applied to (IPEDS code) - restricted	High School Transcript (Student)
1		F1S51CD2	2nd postsecondary school applied to (IPEDS code) - restricted	High School Transcript (Student)
1		TXACTC	Most recent ACT composite score	College Entrance Test Scores
1		TXACTM	Most recent ACT math component score	College Entrance Test Scores
1		TXACTR	Most recent ACT reading component score	College Entrance Test Scores
1		TXACTE	Most recent ACT English component score	College Entrance Test Scores
1		TXACTS	Most recent ACT science component score	College Entrance Test Scores
1		TXEESATC	Higher entrance exam composite score in terms of SAT	College Entrance Test Scores
1		TXEESATM	Higher entrance exam math score in terms of SAT	College Entrance Test Scores
1		TXEEACTC	Higher entrance exam composite score in terms of ACT	College Entrance Test Scores
1		TXEEACTM	Higher entrance exam math score in terms of ACT	College Entrance Test Scores
1		TXSATM	Most recent SAT math score	College Entrance Test Scores
1		TXSATV	Most recent SAT verbal score	College Entrance Test Scores
1		TXSATC	Most recent SAT composite score	College Entrance Test Scores
1		TXAPBIO	AP exam: Biology	College Entrance Test Scores
1		TXAPCHE	AP exam: Chemistry	College Entrance Test Scores
1		TXAPCGP	AP exam: Comparative government and politics	College Entrance Test Scores
1		TXAPCSA	AP exam: Computer science A	College Entrance Test Scores
1		TXAPCSB	AP exam: Computer science AB	College Entrance Test Scores
1		TXAPLIT	AP exam: English literature and composition	College Entrance Test Scores
1		TXAPLAN	AP exam: English language and composition	College Entrance Test Scores
1		TXAPEUH	AP exam: European history	College Entrance Test Scores
1		TXAPFLA	AP exam: French language	College Entrance Test Scores
1		TXAPFLI	AP exam: French literature	College Entrance Test Scores
1		TXAPGER	AP exam: German language	College Entrance Test Scores
1		TXAPHAR	AP exam: Art History	College Entrance Test Scores
1		TXAPLVE	AP exam: Latin/Vergil	College Entrance Test Scores
1		TXAPCAA	AP exam: Calculus AB	College Entrance Test Scores
1		TXAPCAB	AP exam: Calculus BC	College Entrance Test Scores
1		TXAPMAC	AP exam: Macroeconomics	College Entrance Test Scores
1		TXAPMIC	AP exam: Microeconomics	College Entrance Test Scores
1		TXAPMT	AP exam: Music theory	College Entrance Test Scores
1		TXAPPB	AP exam: Physics B	College Entrance Test Scores
1		TXAPPCE	AP exam: Physics C, E & M	College Entrance Test Scores
1		TXAPPCM	AP exam: Physics C, mechanics	College Entrance Test Scores
1		TXAPPSY	AP exam: Psychology	College Entrance Test Scores
1		TXAPSLA	AP exam: Spanish language	College Entrance Test Scores
1		TXAPSLI	AP exam: Spanish literature	College Entrance Test Scores

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1		TXAPSAD	AP exam: Studio art drawing	College Entrance Test Scores
1		TXAPUSG	AP exam: US government and politics	College Entrance Test Scores
1		TXAPUSH	AP exam: US history	College Entrance Test Scores
1		TXAPENV	AP exam: Environmental science	College Entrance Test Scores
1		TXAPHUM	AP exam: Human geography	College Entrance Test Scores
1		TXAPLAT	AP exam: Latin literature	College Entrance Test Scores
1		TXAPSTA	AP exam: Statistics	College Entrance Test Scores
1		TXAPSA2	AP exam: Studio art 2-d design	College Entrance Test Scores
1		TXAPSA3	AP exam: Studio art 3-d design	College Entrance Test Scores
1		TXAPWOR	AP exam: World history	College Entrance Test Scores
1		TXSATM1	SAT subject test: Mathematics 1	College Entrance Test Scores
1		TXSATM2	SAT subject test: Mathematics 2	College Entrance Test Scores
1		TXSATPH	SAT subject test: Physics	College Entrance Test Scores
1		TXSATCH	SAT subject test: Chemistry	College Entrance Test Scores
1		TXSATBY	SAT subject test: Biology	College Entrance Test Scores
1		TXSATLI	SAT subject test: Literature	College Entrance Test Scores
1		TXSATUS	SAT subject test: U.S. History	College Entrance Test Scores
1		TXSATFR	SAT subject test: French	College Entrance Test Scores
1		TXSATGE	SAT subject test: German	College Entrance Test Scores
1		TXSATLA	SAT subject test: Latin	College Entrance Test Scores
1		TXSATSP	SAT subject test: Spanish	College Entrance Test Scores
1		TXSATMH	SAT subject test: Modern Hebrew	College Entrance Test Scores
1		TXSATCL	SAT subject test: Chinese with listening	College Entrance Test Scores
1		TXSATEP	SAT subject test: English language proficiency	College Entrance Test Scores
1		TXSATFL	SAT subject test: French with listening	College Entrance Test Scores
1		TXSATGL	SAT subject test: German with listening	College Entrance Test Scores
1		TXSATSL	SAT subject test: Spanish with listening	College Entrance Test Scores
1		TXSATWH	SAT subject test: World history	College Entrance Test Scores
1		TXSATWR	SAT subject test: Writing	College Entrance Test Scores
1	*	F2QTSCWT	Second follow-up transcript cross-sectional weight	F2 Weights and Composites
1	*	F2QWT	Second follow-up cross-sectional weight	F2 Weights and Composites
1	*	F2F1WT	Second follow-up first follow-up panel weight	F2 Weights and Composites
1	*	F2BYWT	Second follow-up base year panel weight	F2 Weights and Composites
1		F2NRSTAT	F2 nonresponse status (restricted)	F2 Weights and Composites
1	*	F2QSTAT	F2 questionnaire status	F2 Weights and Composites
1	*	F2QMODE	F2 mode of administration	F2 Weights and Composites
1	*	F2RTYPE	F2 respondent type	F2 Weights and Composites
1	*	F2SEX	Sex - composite	F2 Weights and Composites
1	*	F2EVERDO	F2 ever dropped out	F2 Weights and Composites
1	*	F2DOSTAT	F2 dropout status (as of 2006 interview)	F2 Weights and Composites
1	*	F2SP04DO	Spring 2004 dropout status (updated)	F2 Weights and Composites
1	*	F2F1GRDE	F1 grade level spring term 2004 (updated)	F2 Weights and Composites
1	*	F2HSSTAT	High school completion status in 2006	F2 Weights and Composites
1	*	F2EDLEVL	Highest level of education attempted	F2 Weights and Composites
1	*	F2HIGRDE	Highest grade level attempted	F2 Weights and Composites
1		F2HSCPDR	Year/month received high schl diploma, certificate or GED (restricted)	F2 Weights and Composites
1	*	F2HSCPDP	Year/quarter received high school diploma, certificate or GED	F2 Weights and Composites
1		F2HSLVDR	Year/month last attended high school (restricted)	F2 Weights and Composites

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1	*	F2HSLVDP	Year/quarter last attended high school	F2 Weights and Composites
1	*	F2EVRGED	Ever earned GED/equivalency	F2 Weights and Composites
1	*	F2HSPLAN	Whether plans to get GED or high school diploma/certificate	F2 Weights and Composites
1		F2HSPLDR	Year/month plans to complete HS diploma/certificate/GED (restricted)	F2 Weights and Composites
1	*	F2HSPLDP	Year/quarter plans to complete high school diploma/certificate/GED	F2 Weights and Composites
1	*	F2GEDPRG	Program in which GED was earned	F2 Weights and Composites
1		F2GEDOTH	Other way in which GED was earned	F2 Weights and Composites
1		F2GEDST	State where GED/equivalency was earned	F2 Weights and Composites
1	*	F2WYGED1	Completed GED to improve/advance/keep up to date on current job	F2 Weights and Composites
1	*	F2WYGED2	Completed GED to train for new job/career	F2 Weights and Composites
1	*	F2WYGED3	Completed GED to improve basic reading, writing, or math skills	F2 Weights and Composites
1	*	F2WYGED4	Completed GED to meet requirements for additional study	F2 Weights and Composites
1	*	F2WYGED5	Completed GED because required or encouraged by employer	F2 Weights and Composites
1	*	F2WYGED6	Completed GED because of personal/family/social reasons	F2 Weights and Composites
1	*	F2WYLV1	Left school because got a job	F2 Weights and Composites
1	*	F2WYLV2	Left school because did not like school	F2 Weights and Composites
1	*	F2WYLV3	Left school because could not get along with teachers/students	F2 Weights and Composites
1	*	F2WYLV4	Left school because pregnant/became parent	F2 Weights and Composites
1	*	F2WYLV5	Left school because had to support or care for family	F2 Weights and Composites
1	*	F2WYLV6	Left school because was suspended/expelled	F2 Weights and Composites
1	*	F2WYLV7	Left school because did not feel safe	F2 Weights and Composites
1	*	F2WYLV8	Left school because did not feel belonged there	F2 Weights and Composites
1	*	F2WYLV9	Left school because could not keep up with schoolwork	F2 Weights and Composites
1	*	F2WYLV10	Left school because was getting poor grades/failing school	F2 Weights and Composites
1	*	F2WYLV11	Left school because could not work at same time	F2 Weights and Composites
1	*	F2WYLV12	Left schl b/c thought couldn't complete courses/pass test to graduate	F2 Weights and Composites
1	*	F2WYLV13	Left school because thought it would be easier to get GED	F2 Weights and Composites
1	*	F2WYLV14	Left school because missed too many school days	F2 Weights and Composites
1	*	F2EVRAPP	Ever applied to postsecondary school - composite	F2 Weights and Composites
1	*	F2PSAPSL	Greatest institutional selectivity of postsec institutions-application	F2 Weights and Composites
1	*	F2NAPPLY	Number of schools respondent applied to	F2 Weights and Composites
1	*	F2NACCPT	Number of schools that accepted respondent	F2 Weights and Composites
1	*	F2NATTND	Number of schools respondent attended	F2 Weights and Composites
1	*	F2PSACSL	Greatest institutional selectivity of postsec institutions-acceptances	F2 Weights and Composites
1	*	F2EVRATT	Whether has ever attended a postsecondary institution - composite	F2 Weights and Composites
1		F2PS1	First 'real' postsecondary institution link number (restricted)	F2 Weights and Composites
1	*	F2PS1LVL	Level of offering of first postsecondary institution	F2 Weights and Composites
1		F2PS1CTR	Control of first postsecondary institution	F2 Weights and Composites
1	*	F2PS1SEC	Sector of first postsecondary institution	F2 Weights and Composites
1	*	F2PS1SLC	Institutional selectivity of first attended postsecondary institution	F2 Weights and Composites
1	*	F2PS1GRT	Offered scholarship/grant for first year at first postsec institution	F2 Weights and Composites
1	*	F2PS1LN	Offered loan for first year at first postsecondary institution	F2 Weights and Composites
1	*	F2PS1WKS	Offered work-study for first year at first postsecondary institution	F2 Weights and Composites
1	*	F2PS1WVR	Offered tuition waiver/discount - 1st year at 1st postsec institution	F2 Weights and Composites
1	*	F2PS1AID	Whether offered financial aid 1st yr at 1st postsec institution	F2 Weights and Composites
1	*	F2PS1FTP	Enrollment intensity at first postsecondary institution	F2 Weights and Composites
1	*	F2PS1OUT	Whether 1st postsecondary institution out of state of residence	F2 Weights and Composites

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1	*	F2PSSTRT	When started postsecondary education	F2 Weights and Composites
1	*	F2HS2PS1	Number of months between high school and postsecondary entry	F2 Weights and Composites
1	*	F2PSEND	Last period of postsecondary education	F2 Weights and Composites
1	*	F2PSYR1	Number of months enrolled in a PS inst in the year after HS comp/exit	F2 Weights and Composites
1	*	F2PSMO45	Number of months enrolled in a postsec institution in 04-05 school yr	F2 Weights and Composites
1	*	F2ENRGAP	Whether there was a gap in postsecondary enrollment	F2 Weights and Composites
1	*	F2PSPRE4	Number of months of postsecondary enrollment before January 2004	F2 Weights and Composites
1	*	F2PS0401	Enrolled in postsecondary institution in - 2004/01 (January 2004)	F2 Weights and Composites
1	*	F2PS0402	Enrolled in postsecondary institution in - 2004/02 (February 2004)	F2 Weights and Composites
1	*	F2PS0403	Enrolled in postsecondary institution in - 2004/03 (March 2004)	F2 Weights and Composites
1	*	F2PS0404	Enrolled in postsecondary institution in - 2004/04 (April 2004)	F2 Weights and Composites
1	*	F2PS0405	Enrolled in postsecondary institution in - 2004/05 (May 2004)	F2 Weights and Composites
1	*	F2PS0406	Enrolled in postsecondary institution in - 2004/06 (June 2004)	F2 Weights and Composites
1	*	F2PS0407	Enrolled in postsecondary institution in - 2004/07 (July 2004)	F2 Weights and Composites
1	*	F2PS0408	Enrolled in postsecondary institution in - 2004/08 (August 2004)	F2 Weights and Composites
1	*	F2PS0409	Enrolled in postsecondary institution in - 2004/09 (September 2004)	F2 Weights and Composites
1	*	F2PS0410	Enrolled in postsecondary institution in - 2004/10 (October 2004)	F2 Weights and Composites
1	*	F2PS0411	Enrolled in postsecondary institution in - 2004/11 (November 2004)	F2 Weights and Composites
1	*	F2PS0412	Enrolled in postsecondary institution in - 2004/12 (December 2004)	F2 Weights and Composites
1	*	F2PS0501	Enrolled in postsecondary institution in - 2005/01 (January 2005)	F2 Weights and Composites
1	*	F2PS0502	Enrolled in postsecondary institution in - 2005/02 (February 2005)	F2 Weights and Composites
1	*	F2PS0503	Enrolled in postsecondary institution in - 2005/03 (March 2005)	F2 Weights and Composites
1	*	F2PS0504	Enrolled in postsecondary institution in - 2005/04 (April 2005)	F2 Weights and Composites
1	*	F2PS0505	Enrolled in postsecondary institution in - 2005/05 (May 2005)	F2 Weights and Composites
1	*	F2PS0506	Enrolled in postsecondary institution in - 2005/06 (June 2005)	F2 Weights and Composites
1	*	F2PS0507	Enrolled in postsecondary institution in - 2005/07 (July 2005)	F2 Weights and Composites
1	*	F2PS0508	Enrolled in postsecondary institution in - 2005/08 (August 2005)	F2 Weights and Composites
1	*	F2PS0509	Enrolled in postsecondary institution in - 2005/09 (September 2005)	F2 Weights and Composites
1	*	F2PS0510	Enrolled in postsecondary institution in - 2005/10 (October 2005)	F2 Weights and Composites
1	*	F2PS0511	Enrolled in postsecondary institution in - 2005/11 (November 2005)	F2 Weights and Composites
1	*	F2PS0512	Enrolled in postsecondary institution in - 2005/12 (December 2005)	F2 Weights and Composites
1	*	F2PS0601	Enrolled in postsecondary institution in - 2006/01 (January 2006)	F2 Weights and Composites
1	*	F2PS0602	Enrolled in postsecondary institution in - 2006/02 (February 2006)	F2 Weights and Composites
1	*	F2PS0603	Enrolled in postsecondary institution in - 2006/03 (March 2006)	F2 Weights and Composites
1	*	F2PS0604	Enrolled in postsecondary institution in - 2006/04 (April 2006)	F2 Weights and Composites
1	*	F2PS0605	Enrolled in postsecondary institution in - 2006/05 (May 2006)	F2 Weights and Composites
1	*	F2PS0606	Enrolled in postsecondary institution in - 2006/06 (June 2006)	F2 Weights and Composites
1	*	F2PS0607	Enrolled in postsecondary institution in - 2006/07 (July 2006)	F2 Weights and Composites
1	*	F2PS0608	Enrolled in postsecondary institution in - 2006/08 (August 2006)	F2 Weights and Composites
1	*	F2SWITCH	Whether transferred or switched postsecondary institutions	F2 Weights and Composites
1		F2PS2006	2006 postsecondary institution link number (restricted)	F2 Weights and Composites
1		F2MAJOR4	Major in 2006 4-digit code	F2 Weights and Composites
1	*	F2MAJOR2	Major in 2006 2-digit code	F2 Weights and Composites
1	*	F2STEXP	Highest level of education respondent expects to complete - composite	F2 Weights and Composites
1	*	F2EVRJOB	Ever held a job since leaving high school - composite	F2 Weights and Composites
1	*	F21STOCC	First occupation after high school - SEI based code	F2 Weights and Composites
1		F2ONET16	First occupation after high school 6-digit ONET code	F2 Weights and Composites

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1	*	F2ONET12	First occupation after high school 2-digit ONET code	F2 Weights and Composites
1	*	F2FSTWGE	Standardized first job wage rate (per hour)	F2 Weights and Composites
1		F2OCC1Q	Questionable first post-high school occupation flag	F2 Weights and Composites
1	*	F2CUROCC	Current occupation - SEI based code	F2 Weights and Composites
1		F2ONETC6	Current occupation - 6-digit ONET code	F2 Weights and Composites
1	*	F2ONETC2	Current occupation - 2-digit ONET code	F2 Weights and Composites
1	*	F2CURWGE	Standardized current job wage rate (per hour)	F2 Weights and Composites
1	*	F2NUNEMP	Number of months nonenrollee unemployed since HS completion/exit	F2 Weights and Composites
1	*	F2PUNEMP	Percent of months nonenrollee unemployed since HS completion/exit	F2 Weights and Composites
1		F2ERN05R	Respondent's total 2005 job earnings (restricted)	F2 Weights and Composites
1	*	F2ERN05P	Respondent's total 2005 job earnings	F2 Weights and Composites
1	*	F2OCC30	Occupation at age 30 - SEI based code	F2 Weights and Composites
1		F2ONET36	Occupation at age 30 - 6-digit ONET code	F2 Weights and Composites
1	*	F2ONET32	Occupation at age 30 - 2-digit ONET code	F2 Weights and Composites
1	*	F2EM0206	Employment status - 2002/06 (June 2002)	F2 Weights and Composites
1	*	F2EM0207	Employment status - 2002/07 (July 2002)	F2 Weights and Composites
1	*	F2EM0208	Employment status - 2002/08 (August 2002)	F2 Weights and Composites
1	*	F2EM0209	Employment status - 2002/09 (September 2002)	F2 Weights and Composites
1	*	F2EM0210	Employment status - 2002/10 (October 2002)	F2 Weights and Composites
1	*	F2EM0211	Employment status - 2002/11 (November 2002)	F2 Weights and Composites
1	*	F2EM0212	Employment status - 2002/12 (December 2002)	F2 Weights and Composites
1	*	F2EM0301	Employment status - 2003/01 (January 2003)	F2 Weights and Composites
1	*	F2EM0302	Employment status - 2003/02 (February 2003)	F2 Weights and Composites
1	*	F2EM0303	Employment status - 2003/03 (March 2003)	F2 Weights and Composites
1	*	F2EM0304	Employment status - 2003/04 (April 2003)	F2 Weights and Composites
1	*	F2EM0305	Employment status - 2003/05 (May 2003)	F2 Weights and Composites
1	*	F2EM0306	Employment status - 2003/06 (June 2003)	F2 Weights and Composites
1	*	F2EM0307	Employment status - 2003/07 (July 2003)	F2 Weights and Composites
1	*	F2EM0308	Employment status - 2003/08 (August 2003)	F2 Weights and Composites
1	*	F2EM0309	Employment status - 2003/09 (September 2003)	F2 Weights and Composites
1	*	F2EM0310	Employment status - 2003/10 (October 2003)	F2 Weights and Composites
1	*	F2EM0311	Employment status - 2003/11 (November 2003)	F2 Weights and Composites
1	*	F2EM0312	Employment status - 2003/12 (December 2003)	F2 Weights and Composites
1	*	F2EM0401	Employment status - 2004/01 (January 2004)	F2 Weights and Composites
1	*	F2EM0402	Employment status - 2004/02 (February 2004)	F2 Weights and Composites
1	*	F2EM0403	Employment status - 2004/03 (March 2004)	F2 Weights and Composites
1	*	F2EM0404	Employment status - 2004/04 (April 2004)	F2 Weights and Composites
1	*	F2EM0405	Employment status - 2004/05 (May 2004)	F2 Weights and Composites
1	*	F2EM0406	Employment status - 2004/06 (June 2004)	F2 Weights and Composites
1	*	F2EM0407	Employment status - 2004/07 (July 2004)	F2 Weights and Composites
1	*	F2EM0408	Employment status - 2004/08 (August 2004)	F2 Weights and Composites
1	*	F2EM0409	Employment status - 2004/09 (September 2004)	F2 Weights and Composites
1	*	F2EM0410	Employment status - 2004/10 (October 2004)	F2 Weights and Composites
1	*	F2EM0411	Employment status - 2004/11 (November 2004)	F2 Weights and Composites
1	*	F2EM0412	Employment status - 2004/12 (December 2004)	F2 Weights and Composites
1	*	F2EM0501	Employment status - 2005/01 (January 2005)	F2 Weights and Composites
1	*	F2EM0502	Employment status - 2005/02 (February 2005)	F2 Weights and Composites
1	*	F2EM0503	Employment status - 2005/03 (March 2005)	F2 Weights and Composites

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1	*	F2EM0504	Employment status - 2005/04 (April 2005)	F2 Weights and Composites
1	*	F2EM0505	Employment status - 2005/05 (May 2005)	F2 Weights and Composites
1	*	F2EM0506	Employment status - 2005/06 (June 2005)	F2 Weights and Composites
1	*	F2EM0507	Employment status - 2005/07 (July 2005)	F2 Weights and Composites
1	*	F2EM0508	Employment status - 2005/08 (August 2005)	F2 Weights and Composites
1	*	F2EM0509	Employment status - 2005/09 (September 2005)	F2 Weights and Composites
1	*	F2EM0510	Employment status - 2005/10 (October 2005)	F2 Weights and Composites
1	*	F2EM0511	Employment status - 2005/11 (November 2005)	F2 Weights and Composites
1	*	F2EM0512	Employment status - 2005/12 (December 2005)	F2 Weights and Composites
1	*	F2EM0601	Employment status - 2006/01 (January 2006)	F2 Weights and Composites
1	*	F2EM0602	Employment status - 2006/02 (February 2006)	F2 Weights and Composites
1	*	F2EM0603	Employment status - 2006/03 (March 2006)	F2 Weights and Composites
1	*	F2EM0604	Employment status - 2006/04 (April 2006)	F2 Weights and Composites
1	*	F2EM0605	Employment status - 2006/05 (May 2006)	F2 Weights and Composites
1	*	F2EM0606	Employment status - 2006/06 (June 2006)	F2 Weights and Composites
1	*	F2EM0607	Employment status - 2006/07 (July 2006)	F2 Weights and Composites
1	*	F2EM0608	Employment status - 2006/08 (August 2006)	F2 Weights and Composites
1	*	F2HHTOTL	Number of 2006 household members including respondent	F2 Weights and Composites
1	*	F2HHPAR	Whether sample member lived with parents in 2006	F2 Weights and Composites
1	*	F2NLFEVT	Number of different types of stressful life events in past two years	F2 Weights and Composites
1		F2RESZIP	F2 residential ZIP code for respondent (restricted)	F2 Weights and Composites
1		F2QXDATR	F2 date completed interview (restricted)	F2 Weights and Composites
1	*	F2QXDATP	F2 date completed interview	F2 Weights and Composites
1		F2EVAPIM	Imputation flag - F2EVRAPP (F2B01)	F2 Weights and Composites
1		F2EVATIM	Imputation flag - F2EVRATT (F2B07)	F2 Weights and Composites
1		F2STEXIM	Imputation flag - F2STEXP (F2B30)	F2 Weights and Composites
1		F2EVRJIM	Imputation flag - F2EVRJOB (F2C01)	F2 Weights and Composites
1		F2ERN5IM	Imputation flag - F2ERN05R	F2 Weights and Composites
1	*	F2MTCHAT	Match attempt indicator for extant data sources	External Source Student Data
1		F2CPSTAT	CPS/FAFSA data availability status	External Source Student Data
1		F2NSSTAT	NSLDS loan/Pell grant data availability status	External Source Student Data
1		F2GESTAT	GED Testing Program data availability status	External Source Student Data
1	*	PELL0405	Pell grant 2004-05	External source financial aid data
1	*	PELL0506	Pell grant 2005-06	External source financial aid data
1	*	PELL0607	Pell grant 2006-07 (Fall 2006 only)	External source financial aid data
1	*	PELLCUM	Cumulative Pell	External source financial aid data
1	*	PELLYRS	Pell: number of years received	External source financial aid data
1	*	STSB0405	Stafford subsidized loan 2004-05	External source financial aid data
1	*	STSB0506	Stafford subsidized loan 2005-06	External source financial aid data
1	*	STSB0607	Stafford subsidized loan 2006-07 (Fall 2006 only)	External source financial aid data
1	*	STUN0405	Stafford unsubsidized loan 2004-05	External source financial aid data
1	*	STUN0506	Stafford unsubsidized loan 2005-06	External source financial aid data
1	*	STUN0607	Stafford unsubsidized loan 2006-07 (Fall 2006 only)	External source financial aid data
1	*	PLUS0405	PLUS loan 2004-05	External source financial aid data
1	*	PLUS0506	PLUS loan 2005-06	External source financial aid data

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1	*	PLUS0607	PLUS loan 2006-07 (Fall 2006 only)	External source financial aid data
1	*	PERKCUM	Cumulative Perkins	External source financial aid data
1	*	CNSOWED	Consolidated loan: amount owed	External source financial aid data
1	*	STFY0405	Stafford loan total 2004-05	External source financial aid data
1	*	STFY0506	Stafford loan total 2005-06	External source financial aid data
1	*	STFY0607	Stafford loan total 2006-07 (Fall 2006 only)	External source financial aid data
1	*	STAFTCUM	Cumulative Stafford total	External source financial aid data
1	*	STAFSCUM	Cumulative Stafford subsidized	External source financial aid data
1	*	STAFUCUM	Cumulative Stafford unsubsidized	External source financial aid data
1	*	PLUSCUM	Cumulative PLUS	External source financial aid data
1	*	SSPCUM	Cumulative Stafford sub and Perkins	External source financial aid data
1	*	STPCUM	Cumulative Stafford and Perkins	External source financial aid data
1	*	SPPCUM	Cumulative Stafford, Perkins, PLUS	External source financial aid data
1	*	STAFYRS	Stafford: number of years borrowed	External source financial aid data
1	*	PLUSYRS	PLUS: number of years borrowed	External source financial aid data
1	*	STPOWERD	Stafford and Perkins: amount owed	External source financial aid data
1	*	SPPOWERD	Stafford, Perkins, PLUS: amount owed	External source financial aid data
1	*	TOTOWED	Total amount owed except for PLUS	External source financial aid data
1		BYS14	Sex of student	BY Student Questionnaire
1		BYS15	Student is Hispanic	BY Student Questionnaire
1		BYS16	Student's Hispanic subgroup (restricted)	BY Student Questionnaire
1		BYS17A	Student is White (restricted)	BY Student Questionnaire
1		BYS17B	Student is Black/African American (restricted)	BY Student Questionnaire
1		BYS17C	Student is Asian (restricted)	BY Student Questionnaire
1		BYS17D	Student is Native Hawaiian/Pacific Islander (restricted)	BY Student Questionnaire
1		BYS17E	Student is American Indian/Alaska Native (restricted)	BY Student Questionnaire
1		BYS18	Student's Asian subgroup (restricted)	BY Student Questionnaire
1	*	BYS20A	Students get along well with teachers	BY Student Questionnaire
1	*	BYS20B	There is real school spirit	BY Student Questionnaire
1	*	BYS20C	Students friendly with other racial groups	BY Student Questionnaire
1	*	BYS20D	Other students often disrupt class	BY Student Questionnaire
1	*	BYS20E	The teaching is good	BY Student Questionnaire
1	*	BYS20F	Teachers are interested in students	BY Student Questionnaire
1	*	BYS20G	Teachers praise effort	BY Student Questionnaire
1	*	BYS20H	In class often feels put down by teachers	BY Student Questionnaire
1	*	BYS20I	In class often feels put down by students	BY Student Questionnaire
1	*	BYS20J	Does not feel safe at this school	BY Student Questionnaire
1	*	BYS20K	Disruptions get in way of learning	BY Student Questionnaire
1	*	BYS20L	Misbehaving students often get away with it	BY Student Questionnaire
1	*	BYS20M	There are gangs in school	BY Student Questionnaire
1	*	BYS20N	Racial/ethnic groups often fight	BY Student Questionnaire
1	*	BYS21A	Everyone knows what school rules are	BY Student Questionnaire
1	*	BYS21B	School rules are fair	BY Student Questionnaire
1	*	BYS21C	Punishment same no matter who you are	BY Student Questionnaire



*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
1	*	BYS21D	School rules are strictly enforced	BY Student Questionnaire
1	*	BYS21E	Students know punishment for broken rules	BY Student Questionnaire
1	*	BYS22A	Had something stolen at school	BY Student Questionnaire
1	*	BYS22B	Someone offered drugs at school	BY Student Questionnaire
1	*	BYS22C	Someone threatened to hurt 10th grader at school	BY Student Questionnaire
1	*	BYS22D	Got into a physical fight at school	BY Student Questionnaire
1	*	BYS22E	Someone hit 10th grader	BY Student Questionnaire
1	*	BYS22F	Someone forced money/things from 10th grader	BY Student Questionnaire
1	*	BYS22G	Someone damaged belongings	BY Student Questionnaire
1	*	BYS22H	Someone bullied or picked on 10th grader	BY Student Questionnaire
1	*	BYS23A	Won an academic honor	BY Student Questionnaire
1	*	BYS23B	Recognized for good attendance	BY Student Questionnaire
1	*	BYS23C	Recognized for good grades	BY Student Questionnaire
1	*	BYS23D	Received community service award	BY Student Questionnaire
1	*	BYS23E	Participated in science/math fair	BY Student Questionnaire
1	*	BYS23F	Participated in voc/tech skills competition	BY Student Questionnaire
1	*	BYS24A	How many times late for school	BY Student Questionnaire
1	*	BYS24B	How many times cut/skip classes	BY Student Questionnaire
1	*	BYS24C	How many times absent from school	BY Student Questionnaire
1	*	BYS24D	How many times got in trouble	BY Student Questionnaire
1	*	BYS24E	How many times put on in-school suspension	BY Student Questionnaire
1	*	BYS24F	How many times suspended/put on probation	BY Student Questionnaire
1	*	BYS24G	How many times transferred for disciplinary reasons	BY Student Questionnaire
1	*	BYS25AA	1st friend's sex	BY Student Questionnaire
1	*	BYS25BA	1st friend is Hispanic	BY Student Questionnaire
1		BYS25CAA	1st friend is White (restricted)	BY Student Questionnaire
1		BYS25CAB	1st friend is Black/African American (restricted)	BY Student Questionnaire
1		BYS25CAC	1st friend is Asian (restricted)	BY Student Questionnaire
1		BYS25CAD	1st friend is Native Hawaiian/Pacific Islander (restricted)	BY Student Questionnaire
1		BYS25CAE	1st friend is American Indian/Alaska Native (restricted)	BY Student Questionnaire
1	*	BYS25DA	1st friend's grade level at school	BY Student Questionnaire
1	*	BYS25EA	Importance of grades to 1st friend	BY Student Questionnaire
1	*	BYS25FA	10th grader knows 1st friend's parents	BY Student Questionnaire
1	*	BYS25GA	Parents know 1st friend's parents	BY Student Questionnaire
1	*	BYS25AB	2nd friend's sex	BY Student Questionnaire
1	*	BYS25BB	2nd friend is Hispanic	BY Student Questionnaire
1		BYS25CBA	2nd friend is White (restricted)	BY Student Questionnaire
1		BYS25CBB	2nd friend is Black/African American (restricted)	BY Student Questionnaire
1		BYS25CBC	2nd friend is Asian (restricted)	BY Student Questionnaire
1		BYS25CBD	2nd friend is Native Hawaiian/Pacific Islander (restricted)	BY Student Questionnaire
1		BYS25CBE	2nd friend is American Indian/Alaska Native (restricted)	BY Student Questionnaire
1	*	BYS25DB	2nd friend's grade level at school	BY Student Questionnaire
1	*	BYS25EB	Importance of grades to 2nd friend	BY Student Questionnaire
1	*	BYS25FB	10th grader knows 2nd friend's parents	BY Student Questionnaire
1	*	BYS25GB	Parents know 2nd friend's parents	BY Student Questionnaire
1	*	BYS25AC	3rd friend's sex	BY Student Questionnaire
1	*	BYS25BC	3rd friend is Hispanic	BY Student Questionnaire
1		BYS25CCA	3rd friend is White (restricted)	BY Student Questionnaire

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
1		BYS25CCB	3rd friend is Black/African American (restricted)	BY Student Questionnaire
1		BYS25CCC	3rd friend is Asian (restricted)	BY Student Questionnaire
1		BYS25CCD	3rd friend is Native Hawaiian/Pacific Islander (restricted)	BY Student Questionnaire
1		BYS25CCE	3rd friend is American Indian/Alaska Native (restricted)	BY Student Questionnaire
1	*	BYS25DC	3rd friend's grade level at school	BY Student Questionnaire
1	*	BYS25EC	Importance of grades to 3rd friend	BY Student Questionnaire
1	*	BYS25FC	10th grader knows 3rd friend's parents	BY Student Questionnaire
1	*	BYS25GC	Parents know 3rd friend's parents	BY Student Questionnaire
1	*	BYS26	High school program-student self-report	BY Student Questionnaire
1	*	BYS27A	Classes are interesting and challenging	BY Student Questionnaire
1	*	BYS27B	Satisfied by doing what expected in class	BY Student Questionnaire
1	*	BYS27C	Has nothing better to do than school	BY Student Questionnaire
1	*	BYS27D	Education is important to get a job later	BY Student Questionnaire
1	*	BYS27E	School is a place to meet friends	BY Student Questionnaire
1	*	BYS27F	Plays on a team or belongs to a club	BY Student Questionnaire
1	*	BYS27G	Learns skills for job in school	BY Student Questionnaire
1	*	BYS27H	Teachers expect success in school	BY Student Questionnaire
1	*	BYS27I	Parents expect success in school	BY Student Questionnaire
1	*	BYS28	How much likes school	BY Student Questionnaire
1	*	BYS29A	How often reviews work in math class	BY Student Questionnaire
1	*	BYS29B	How often listens to math teacher lecture	BY Student Questionnaire
1	*	BYS29C	How often copies math teacher's notes from board	BY Student Questionnaire
1	*	BYS29D	How often uses books besides math textbooks	BY Student Questionnaire
1	*	BYS29E	How often does problem-solving in math class	BY Student Questionnaire
1	*	BYS29F	How often uses calculators in math class	BY Student Questionnaire
1	*	BYS29G	How often uses graphing calculators in math class	BY Student Questionnaire
1	*	BYS29H	How often uses computers in math class	BY Student Questionnaire
1	*	BYS29I	How often explains work to math class orally	BY Student Questionnaire
1	*	BYS29J	How often participates in student math discussions	BY Student Questionnaire
1	*	BYS30	Uses computers in math class	BY Student Questionnaire
1	*	BYS31A	How often uses computers to review math work	BY Student Questionnaire
1	*	BYS31B	How often uses computers to solve math problems	BY Student Questionnaire
1	*	BYS31C	How often uses computers for graphing in math class	BY Student Questionnaire
1	*	BYS31D	How often uses computers to practice math drills	BY Student Questionnaire
1	*	BYS31E	How often uses computers to analyze data in math class	BY Student Questionnaire
1	*	BYS31F	How often uses computers to apply learning in math class	BY Student Questionnaire
1	*	BYS31G	How often math teacher uses computer to instruct one-on-one	BY Student Questionnaire
1	*	BYS31H	How often math teacher uses computer to show new topics	BY Student Questionnaire
1	*	BYS32AA	Used computer in 9th grade fall English	BY Student Questionnaire
1	*	BYS32BA	Used computer in 9th grade spring English	BY Student Questionnaire
1	*	BYS32CA	Used computer in 9th grade fall science	BY Student Questionnaire
1	*	BYS32DA	Used computer in 9th grade spring science	BY Student Questionnaire
1	*	BYS32EA	Used computer in 9th grade fall math	BY Student Questionnaire
1	*	BYS32FA	Used computer in 9th grade spring math	BY Student Questionnaire
1	*	BYS32GA	Used computer in 9th grade fall social studies	BY Student Questionnaire
1	*	BYS32HA	Used computer in 9th grade spring social studies	BY Student Questionnaire
1	*	BYS32AB	Uses computer in 10th grade fall English	BY Student Questionnaire
1	*	BYS32BB	Uses computer in 10th grade spring English	BY Student Questionnaire

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
1	*	BYS32CB	Used computer in 10th grade fall science	BY Student Questionnaire
1	*	BYS32DB	Uses computer in 10th grade spring science	BY Student Questionnaire
1	*	BYS32EB	Used computer in 10th grade fall math	BY Student Questionnaire
1	*	BYS32FB	Uses computer in 10th grade spring math	BY Student Questionnaire
1	*	BYS32GB	Used computer in 10th grade fall social studies	BY Student Questionnaire
1	*	BYS32HB	Uses computer in 10th grade spring social studies	BY Student Questionnaire
1	*	BYS33A	Ever in Advanced Placement program	BY Student Questionnaire
1	*	BYS33B	Ever in International Baccalaureate program	BY Student Questionnaire
1	*	BYS33C	Ever in part-time program at regional vocational school	BY Student Questionnaire
1	*	BYS33D	Ever in a remedial English class	BY Student Questionnaire
1	*	BYS33E	Ever in a remedial math class	BY Student Questionnaire
1	*	BYS33F	Ever in bilingual/bicultural class	BY Student Questionnaire
1	*	BYS33G	Ever in English as Second Language program	BY Student Questionnaire
1	*	BYS33H	Ever in dropout prevention program	BY Student Questionnaire
1	*	BYS33I	Ever in special education program	BY Student Questionnaire
1	*	BYS33J	Ever in distance learning course	BY Student Questionnaire
1	*	BYS33K	Ever in career academy	BY Student Questionnaire
1	*	BYS33L	Ever in program to help prepare for college	BY Student Questionnaire
1	*	BYS34A	Hours/week spent on homework in school	BY Student Questionnaire
1	*	BYS34B	Hours/week spent on homework out of school	BY Student Questionnaire
1	*	BYS35A	Hours/week spent on math homework in school	BY Student Questionnaire
1	*	BYS35B	Hours/week spent on math homework out of school	BY Student Questionnaire
1	*	BYS36A	Hours/week spent on English homework in school	BY Student Questionnaire
1	*	BYS36B	Hours/week spent on English homework out of school	BY Student Questionnaire
1	*	BYS37	Importance of good grades to student	BY Student Questionnaire
1	*	BYS38A	How often goes to class without pencil/paper	BY Student Questionnaire
1	*	BYS38B	How often goes to class without books	BY Student Questionnaire
1	*	BYS38C	How often goes to class without homework done	BY Student Questionnaire
1	*	BYS39A	Played intramural baseball	BY Student Questionnaire
1	*	BYS39B	Played intramural softball	BY Student Questionnaire
1	*	BYS39C	Played intramural basketball	BY Student Questionnaire
1	*	BYS39D	Played intramural football	BY Student Questionnaire
1	*	BYS39E	Played intramural soccer	BY Student Questionnaire
1	*	BYS39F	Played other intramural team sport	BY Student Questionnaire
1	*	BYS39G	Played an individual intramural sport	BY Student Questionnaire
1	*	BYS39H	On intramural cheerleading/drill team	BY Student Questionnaire
1	*	BYS40AA	No interscholastic baseball	BY Student Questionnaire
1	*	BYS40AB	Did not participate in interscholastic baseball	BY Student Questionnaire
1	*	BYS40AC	Played junior varsity baseball	BY Student Questionnaire
1	*	BYS40AD	Played varsity baseball	BY Student Questionnaire
1	*	BYS40AE	Varsity baseball captain/co-captain	BY Student Questionnaire
1	*	BYS40BA	No interscholastic softball	BY Student Questionnaire
1	*	BYS40BB	Did not participate in interscholastic softball	BY Student Questionnaire
1	*	BYS40BC	Played junior varsity softball	BY Student Questionnaire
1	*	BYS40BD	Played varsity softball	BY Student Questionnaire
1	*	BYS40BE	Varsity softball captain/co-captain	BY Student Questionnaire
1	*	BYS40CA	No interscholastic basketball	BY Student Questionnaire
1	*	BYS40CB	Did not participate in interscholastic basketball	BY Student Questionnaire

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1	*	BYS40CC	Played junior varsity basketball	BY Student Questionnaire
1	*	BYS40CD	Played varsity basketball	BY Student Questionnaire
1	*	BYS40CE	Varsity basketball captain/co-captain	BY Student Questionnaire
1	*	BYS40DA	No interscholastic football	BY Student Questionnaire
1	*	BYS40DB	Did not participate in interscholastic football	BY Student Questionnaire
1	*	BYS40DC	Played junior varsity football	BY Student Questionnaire
1	*	BYS40DD	Played varsity football	BY Student Questionnaire
1	*	BYS40DE	Varsity football captain/co-captain	BY Student Questionnaire
1	*	BYS40EA	No interscholastic soccer	BY Student Questionnaire
1	*	BYS40EB	Did not participate in interscholastic soccer	BY Student Questionnaire
1	*	BYS40EC	Played junior varsity soccer	BY Student Questionnaire
1	*	BYS40ED	Played varsity soccer	BY Student Questionnaire
1	*	BYS40EE	Varsity soccer captain/co-captain	BY Student Questionnaire
1	*	BYS40FA	No other interscholastic team sport	BY Student Questionnaire
1	*	BYS40FB	Did not participate in other interscholastic team sport	BY Student Questionnaire
1	*	BYS40FC	Played on other junior varsity team	BY Student Questionnaire
1	*	BYS40FD	Played on other varsity team	BY Student Questionnaire
1	*	BYS40FE	Varsity captain/co-captain for other team sport	BY Student Questionnaire
1	*	BYS40GA	No interscholastic individual sport	BY Student Questionnaire
1	*	BYS40GB	Did not participate in interscholastic individual sport	BY Student Questionnaire
1	*	BYS40GC	Played junior varsity individual sport	BY Student Questionnaire
1	*	BYS40GD	Played varsity individual sport	BY Student Questionnaire
1	*	BYS40GE	Varsity captain/co-captain for individual sport	BY Student Questionnaire
1	*	BYS40HA	No interscholastic cheerleading/drill team	BY Student Questionnaire
1	*	BYS40HB	Did not participate on interscholastic cheerleading/drill team	BY Student Questionnaire
1	*	BYS40HC	Participated on junior varsity cheerleading/drill team	BY Student Questionnaire
1	*	BYS40HD	Participated on varsity cheerleading/drill team	BY Student Questionnaire
1	*	BYS40HE	Varsity cheerleading/drill team captain/co-captain	BY Student Questionnaire
1	*	BYS41A	Participated in school band or chorus	BY Student Questionnaire
1	*	BYS41B	Participated in school play or musical	BY Student Questionnaire
1	*	BYS41C	Participated in student government	BY Student Questionnaire
1	*	BYS41D	Participated in academic honor society	BY Student Questionnaire
1	*	BYS41E	Participated in school yearbook or newspaper	BY Student Questionnaire
1	*	BYS41F	Participated in school service clubs	BY Student Questionnaire
1	*	BYS41G	Participated in school academic clubs	BY Student Questionnaire
1	*	BYS41H	Participated in school hobby clubs	BY Student Questionnaire
1	*	BYS41I	Participated in school vocational clubs	BY Student Questionnaire
1	*	BYS42	Hours/week spent on extracurricular activities	BY Student Questionnaire
1	*	BYS43	Hours/week spent reading outside of school	BY Student Questionnaire
1	*	BYS44A	How often visits with friends at local hangout	BY Student Questionnaire
1	*	BYS44B	How often works on hobbies	BY Student Questionnaire
1	*	BYS44C	How often volunteers or performs community service	BY Student Questionnaire
1	*	BYS44D	How often drives or rides around	BY Student Questionnaire
1	*	BYS44E	How often talks on phone with friends	BY Student Questionnaire
1	*	BYS44F	How often takes music, art, language class	BY Student Questionnaire
1	*	BYS44G	How often takes sports lessons	BY Student Questionnaire
1	*	BYS44H	How often plays non-school sports	BY Student Questionnaire
1	*	BYS45A	How often uses computer for fun	BY Student Questionnaire

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
1	*	BYS45B	How often uses computer for school work	BY Student Questionnaire
1	*	BYS45C	How often uses computer to learn on own	BY Student Questionnaire
1	*	BYS46A	Hours/day on computer for school work	BY Student Questionnaire
1	*	BYS46B	Hours/day on computer other than for school	BY Student Questionnaire
1	*	BYS47A	How often uses computer at home	BY Student Questionnaire
1	*	BYS47B	How often uses computer at school	BY Student Questionnaire
1	*	BYS47C	How often uses computer at public library	BY Student Questionnaire
1	*	BYS47D	How often uses computer at friend's house	BY Student Questionnaire
1	*	BYS47E	How often uses computer at another place	BY Student Questionnaire
1	*	BYS48A	Hours/day spent watching TV/DVD on weekdays	BY Student Questionnaire
1	*	BYS48B	Hours/day spent watching TV/DVD on weekends	BY Student Questionnaire
1	*	BYS49A	Hours/day plays video/computer games on weekdays	BY Student Questionnaire
1	*	BYS49B	Hours/day plays video/computer games on weekends	BY Student Questionnaire
1	*	BYS50	School has library media/resource center	BY Student Questionnaire
1	*	BYS51A	Use of school library for assignments	BY Student Questionnaire
1	*	BYS51B	Use of school library for in-school projects	BY Student Questionnaire
1	*	BYS51C	Use of school library for homework	BY Student Questionnaire
1	*	BYS51D	Use of school library for research papers	BY Student Questionnaire
1	*	BYS51E	Use of school library for leisure reading	BY Student Questionnaire
1	*	BYS51F	Use of school library to read magazines/newspapers	BY Student Questionnaire
1	*	BYS51G	Use of school library to read books for fun	BY Student Questionnaire
1	*	BYS51H	Use of school library for interests outside of school	BY Student Questionnaire
1	*	BYS51I	Use of school library for Internet access	BY Student Questionnaire
1	*	BYS52	How useful are school library reference materials	BY Student Questionnaire
1	*	BYS53A	How helpful is library staff with finding research resources	BY Student Questionnaire
1	*	BYS53B	How helpful is library staff with using databases	BY Student Questionnaire
1	*	BYS53C	How helpful is library staff with using Internet	BY Student Questionnaire
1	*	BYS54A	Importance of being successful in line work	BY Student Questionnaire
1	*	BYS54B	Importance of marrying right person/having happy family	BY Student Questionnaire
1	*	BYS54C	Importance of having lots of money	BY Student Questionnaire
1	*	BYS54D	Importance of having strong friendships	BY Student Questionnaire
1	*	BYS54E	Importance of being able to find steady work	BY Student Questionnaire
1	*	BYS54F	Importance of helping others in community	BY Student Questionnaire
1	*	BYS54G	Importance of giving children better opportunities	BY Student Questionnaire
1	*	BYS54H	Importance of living close to parents/relatives	BY Student Questionnaire
1	*	BYS54I	Importance of getting away from this area	BY Student Questionnaire
1	*	BYS54J	Importance of working to correct inequalities	BY Student Questionnaire
1	*	BYS54K	Importance of having children	BY Student Questionnaire
1	*	BYS54L	Importance of having leisure time	BY Student Questionnaire
1	*	BYS54N	Importance of being expert in field of work	BY Student Questionnaire
1	*	BYS54O	Importance of getting good education	BY Student Questionnaire
1	*	BYS55A	Plans to take the PSAT or PACT	BY Student Questionnaire
1	*	BYS55B	Plans to take SAT or ACT	BY Student Questionnaire
1	*	BYS55C	Plans to take Advanced Placement test	BY Student Questionnaire
1	*	BYS55D	Plans to take the ASVAB	BY Student Questionnaire
1	*	BYS56	How far in school student thinks will get	BY Student Questionnaire
1	*	BYS57	Plans to continue education after high school	BY Student Questionnaire
1	*	BYS58	Type of school plans to attend	BY Student Questionnaire

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1	*	BYS59A	Has gone to counselor for college entrance information	BY Student Questionnaire
1	*	BYS59B	Has gone to teacher for college entrance information	BY Student Questionnaire
1	*	BYS59C	Has gone to coach for college entrance information	BY Student Questionnaire
1	*	BYS59D	Has gone to parent for college entrance information	BY Student Questionnaire
1	*	BYS59E	Has gone to friend for college entrance information	BY Student Questionnaire
1	*	BYS59F	Has gone to sibling for college entrance information	BY Student Questionnaire
1	*	BYS59G	Has gone to other relative for college entrance information	BY Student Questionnaire
1	*	BYS59H	Has gone to college publications/websites for entrance information	BY Student Questionnaire
1	*	BYS59I	Has gone to college representatives for entrance information	BY Student Questionnaire
1	*	BYS59J	Has gone to college search guides for entrance information	BY Student Questionnaire
1	*	BYS59K	Did not go to any of these sources	BY Student Questionnaire
1	*	BYS60	Would like to play athletics in college	BY Student Questionnaire
1	*	BYS61	Hopes to receive athletic scholarship for college	BY Student Questionnaire
1	*	BYS62A	Does not like school	BY Student Questionnaire
1	*	BYS62B	Grades are not good enough	BY Student Questionnaire
1	*	BYS62C	Will not need more school for job	BY Student Questionnaire
1	*	BYS62D	Cannot afford school	BY Student Questionnaire
1	*	BYS62E	Would rather work and earn money	BY Student Questionnaire
1	*	BYS62F	Plans to be full-time homemaker	BY Student Questionnaire
1	*	BYS62G	Does not feel school is important	BY Student Questionnaire
1	*	BYS62H	Needs to support family	BY Student Questionnaire
1		BYS63	Occupation expects to have after high school-verbatim (restricted)	BY Student Questionnaire
1		BYS64	Occupation expects to have at age 30-verbatim (restricted)	BY Student Questionnaire
1	*	BYS65A	How far in school mother wants 10th grader to go	BY Student Questionnaire
1	*	BYS65B	How far in school father wants 10th grader to go	BY Student Questionnaire
1	*	BYS66A	Mother's desire for 10th grader after high school	BY Student Questionnaire
1	*	BYS66B	Father's desire for 10th grader after high school	BY Student Questionnaire
1	*	BYS66C	Friend's desire for 10th grader after high school	BY Student Questionnaire
1	*	BYS66D	Close relative's desire for 10th grader after high school	BY Student Questionnaire
1	*	BYS66E	School counselor's desire for 10th grader after high school	BY Student Questionnaire
1	*	BYS66F	Favorite teacher's desire for 10th grader after high school	BY Student Questionnaire
1	*	BYS66G	Coach's desire for 10th grader after high school	BY Student Questionnaire
1	*	BYS67	English is student's native language	BY Student Questionnaire
1		BYS68	Student's native language (restricted)	BY Student Questionnaire
1	*	BYS69A	How often 10th grader speaks native language with mother	BY Student Questionnaire
1	*	BYS69B	How often 10th grader speaks native language with father	BY Student Questionnaire
1	*	BYS69C	How often 10th grader speaks native language with siblings	BY Student Questionnaire
1	*	BYS69D	How often 10th grader speaks native language with friends	BY Student Questionnaire
1	*	BYS70A	How well 10th grader understands spoken English	BY Student Questionnaire
1	*	BYS70B	How well 10th grader speaks English	BY Student Questionnaire
1	*	BYS70C	How well 10th grader reads English	BY Student Questionnaire
1	*	BYS70D	How well 10th grader writes English	BY Student Questionnaire
1	*	BYS71A	Participated in cooperative-education	BY Student Questionnaire
1	*	BYS71B	Participated in internship	BY Student Questionnaire
1	*	BYS71C	Participated in job shadowing/work-site visits	BY Student Questionnaire
1	*	BYS71D	Participated in mentoring	BY Student Questionnaire
1	*	BYS71E	Participated in community service	BY Student Questionnaire
1	*	BYS71F	Participated in school-based enterprise	BY Student Questionnaire

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
1	*	BYS71G	Did not participate in these work-based learning experiences	BY Student Questionnaire
1	*	BYS72	Ever worked for pay not around house	BY Student Questionnaire
1	*	BYS73	Date last worked for pay	BY Student Questionnaire
1	*	BYS74	Date started current/most recent job	BY Student Questionnaire
1	*	BYS75	How many hours usually works a week	BY Student Questionnaire
1	*	BYS76	How many hours works on the weekend	BY Student Questionnaire
1	*	BYS77	Type of work does on current/most recent job	BY Student Questionnaire
1	*	BYS79	How got current/most recent job	BY Student Questionnaire
1	*	BYS80	How closely related job is to desired job after education	BY Student Questionnaire
1		BYS81A	Mother/female guardian's occupation-verbatim (restricted)	BY Student Questionnaire
1		BYS81B	Mother/female guardian's main job duties-verbatim (restricted)	BY Student Questionnaire
1		BYS82A	Father/male guardian's occupation-verbatim (restricted)	BY Student Questionnaire
1		BYS82B	Father/male guardian's main job duties-verbatim (restricted)	BY Student Questionnaire
1	*	BYS83A	Mother's highest level of education	BY Student Questionnaire
1	*	BYS83B	Father's highest level of education	BY Student Questionnaire
1	*	BYS84A	Family has a daily newspaper	BY Student Questionnaire
1	*	BYS84B	Family has regularly received magazine	BY Student Questionnaire
1	*	BYS84C	Family has a computer	BY Student Questionnaire
1	*	BYS84D	Family has access to the Internet	BY Student Questionnaire
1	*	BYS84E	Family has DVD player	BY Student Questionnaire
1	*	BYS84F	Family has an electric dishwasher	BY Student Questionnaire
1	*	BYS84G	Family has a clothes dryer	BY Student Questionnaire
1	*	BYS84H	Family has more than 50 books	BY Student Questionnaire
1	*	BYS84I	Has own room	BY Student Questionnaire
1	*	BYS84J	Family has fax machine	BY Student Questionnaire
1	*	BYS85A	How often parents checks homework	BY Student Questionnaire
1	*	BYS85B	How often parents help with homework	BY Student Questionnaire
1	*	BYS85C	Special privileges given for good grades	BY Student Questionnaire
1	*	BYS85D	Parents limit privileges due to poor grades	BY Student Questionnaire
1	*	BYS85E	Required to work around the house	BY Student Questionnaire
1	*	BYS85F	Parents limit TV watching or video games	BY Student Questionnaire
1	*	BYS85G	Parents limit time with friends	BY Student Questionnaire
1	*	BYS86A	How often discussed school courses with parents	BY Student Questionnaire
1	*	BYS86B	How often discussed school activities with parents	BY Student Questionnaire
1	*	BYS86C	How often discuss things studied in class with parents	BY Student Questionnaire
1	*	BYS86D	How often discussed grades with parents	BY Student Questionnaire
1	*	BYS86E	How often discussed transferring with parents	BY Student Questionnaire
1	*	BYS86F	How often discussed prep for ACT/SAT with parents	BY Student Questionnaire
1	*	BYS86G	How often discussed going to college with parents	BY Student Questionnaire
1	*	BYS86H	How often discussed current events with parents	BY Student Questionnaire
1	*	BYS86I	How often discussed troubling things with parents	BY Student Questionnaire
1	*	BYS87A	Gets totally absorbed in mathematics	BY Student Questionnaire
1	*	BYS87B	Thinks reading is fun	BY Student Questionnaire
1	*	BYS87C	Thinks math is fun	BY Student Questionnaire
1	*	BYS87D	Reads in spare time	BY Student Questionnaire
1	*	BYS87E	Gets totally absorbed in reading	BY Student Questionnaire
1	*	BYS87F	Mathematics is important	BY Student Questionnaire
1	*	BYS88A	Most people can learn to be good at math	BY Student Questionnaire

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1	*	BYS88B	Have to be born with ability to be good at math	BY Student Questionnaire
1	*	BYS89A	Can do excellent job on math tests	BY Student Questionnaire
1	*	BYS89B	Can understand difficult math texts	BY Student Questionnaire
1	*	BYS89C	Can understand difficult English texts	BY Student Questionnaire
1	*	BYS89D	Studies to get a good grade	BY Student Questionnaire
1	*	BYS89E	Can learn something really hard	BY Student Questionnaire
1	*	BYS89F	Can understand difficult English class	BY Student Questionnaire
1	*	BYS89G	Remembers most important things when studies	BY Student Questionnaire
1	*	BYS89H	Studies to increase job opportunities	BY Student Questionnaire
1	*	BYS89I	Can do excellent job on English assignments	BY Student Questionnaire
1	*	BYS89J	Works as hard as possible when studies	BY Student Questionnaire
1	*	BYS89K	Can do excellent job on English tests	BY Student Questionnaire
1	*	BYS89L	Can understand difficult math class	BY Student Questionnaire
1	*	BYS89M	Can master skills in English class	BY Student Questionnaire
1	*	BYS89N	Can get no bad grades if decides to	BY Student Questionnaire
1	*	BYS89O	Keeps studying even if material is difficult	BY Student Questionnaire
1	*	BYS89P	Studies to ensure financial security	BY Student Questionnaire
1	*	BYS89Q	Can get no problems wrong if decides to	BY Student Questionnaire
1	*	BYS89R	Can do excellent job on math assignments	BY Student Questionnaire
1	*	BYS89S	Does best to learn what studies	BY Student Questionnaire
1	*	BYS89T	Can learn something well if wants to	BY Student Questionnaire
1	*	BYS89U	Can master math class skills	BY Student Questionnaire
1	*	BYS89V	Puts forth best effort when studying	BY Student Questionnaire
1	*	BYS90A	Important to friends to attend classes regularly	BY Student Questionnaire
1	*	BYS90B	Important to friends to study	BY Student Questionnaire
1	*	BYS90C	Important to friends to play sports	BY Student Questionnaire
1	*	BYS90D	Important to friends to get good grades	BY Student Questionnaire
1	*	BYS90E	Important to friends to be popular with students	BY Student Questionnaire
1	*	BYS90F	Important to friends to finish high school	BY Student Questionnaire
1	*	BYS90G	Important to friends to have steady boy/girlfriend	BY Student Questionnaire
1	*	BYS90H	Important to friends to continue education past high school	BY Student Questionnaire
1	*	BYS90J	Important to friends to do community work	BY Student Questionnaire
1	*	BYS90K	Important to friends to have job	BY Student Questionnaire
1	*	BYS90L	Important to friends to get together with friends	BY Student Questionnaire
1	*	BYS90M	Important to friends to go to parties	BY Student Questionnaire
1	*	BYS90Q	Important to friends to make money	BY Student Questionnaire
1	*	BYS91	Number of close friends who dropped out	BY Student Questionnaire
1	*	BYS92A	Girls should have same opportunities in sports	BY Student Questionnaire
1	*	BYS92B	Some sports should be just for boys	BY Student Questionnaire
1	*	BYS92C	Girls should have own sports teams	BY Student Questionnaire
1	*	BYS92D	Girls should be on same sports teams as boys	BY Student Questionnaire
1	*	BYS94	Has close friends who were friends in 8th grade	BY Student Questionnaire
1	*	BYS96	Observed students betting on sports	BY Student Questionnaire
1	*	BYS97A	Bets were placed with friends	BY Student Questionnaire
1	*	BYS97B	Bets were placed with family members	BY Student Questionnaire
1	*	BYS97C	Bets were placed with bookie	BY Student Questionnaire
1	*	BYS97D	Bets were placed with a website	BY Student Questionnaire
1	*	BYS97E	Bets were placed through other means	BY Student Questionnaire



*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
1	*	F1S14	Grade level	F1 Student Questionnaire
1	*	F1S15	Diploma or certificate most likely to receive	F1 Student Questionnaire
1	*	F1S16A	Years of General Science coursework	F1 Student Questionnaire
1	*	F1S16B	Years of General Physical Science coursework	F1 Student Questionnaire
1	*	F1S16C	Years of Biology coursework	F1 Student Questionnaire
1	*	F1S16D	Years of Botany/Zoology coursework	F1 Student Questionnaire
1	*	F1S16E	Years of Earth Science coursework	F1 Student Questionnaire
1	*	F1S16F	Years of Chemistry coursework	F1 Student Questionnaire
1	*	F1S16G	Years of Principles of Technology coursework	F1 Student Questionnaire
1	*	F1S16H	Years of Physics coursework	F1 Student Questionnaire
1	*	F1S16I	Years of other science coursework	F1 Student Questionnaire
1	*	F1S17A	Years of General Math coursework	F1 Student Questionnaire
1	*	F1S17B	Years of Pre-Algebra coursework	F1 Student Questionnaire
1	*	F1S17C	Years of Algebra I coursework	F1 Student Questionnaire
1	*	F1S17D	Years of Geometry coursework	F1 Student Questionnaire
1	*	F1S17E	Years of Algebra II coursework	F1 Student Questionnaire
1	*	F1S17F	Years of Trigonometry coursework	F1 Student Questionnaire
1	*	F1S17G	Years of Pre-Calculus coursework	F1 Student Questionnaire
1	*	F1S17H	Years of Calculus coursework	F1 Student Questionnaire
1	*	F1S17I	Years of Consumer/Business Math coursework	F1 Student Questionnaire
1	*	F1S17J	Years of other math coursework	F1 Student Questionnaire
1	*	F1S18A	Can do excellent job on math tests	F1 Student Questionnaire
1	*	F1S18B	Can understand difficult math texts	F1 Student Questionnaire
1	*	F1S18C	Can understand difficult math class	F1 Student Questionnaire
1	*	F1S18D	Can do excellent job on math assignments	F1 Student Questionnaire
1	*	F1S18E	Can master math class skills	F1 Student Questionnaire
1	*	F1S19A	How often uses calculators in math class	F1 Student Questionnaire
1	*	F1S19B	How often uses graphing calculators in math class	F1 Student Questionnaire
1	*	F1S19C	How often uses computers in math class	F1 Student Questionnaire
1	*	F1S20A	Used computer in fall 2003 math	F1 Student Questionnaire
1	*	F1S20B	Uses computer in spring 2004 math	F1 Student Questionnaire
1	*	F1S20C	Uses computer in fall 2003 English	F1 Student Questionnaire
1	*	F1S20D	Uses computer in spring 2004 English	F1 Student Questionnaire
1	*	F1S20E	Used computer in fall 2002 math	F1 Student Questionnaire
1	*	F1S20F	Used computer in spring 2003 math	F1 Student Questionnaire
1	*	F1S20G	Used computer in fall 2002 English	F1 Student Questionnaire
1	*	F1S20H	Used computer in spring 2003 English	F1 Student Questionnaire
1	*	F1S21A	Took or plans to take the PSAT	F1 Student Questionnaire
1	*	F1S21B	Took or plans to take the PLAN	F1 Student Questionnaire
1	*	F1S21C	Took or plans to take SAT or ACT	F1 Student Questionnaire
1	*	F1S21D	Took or plans to take Advanced Placement test	F1 Student Questionnaire
1	*	F1S21E	Took or plans to take the ASVAB	F1 Student Questionnaire
1	*	F1S22A	Took or plans to take SAT/ACT course at high school	F1 Student Questionnaire
1	*	F1S22B	Took or plans to take commercial SAT/ACT preparation course	F1 Student Questionnaire
1	*	F1S22C	Received or plans to receive private tutoring for SAT/ACT	F1 Student Questionnaire
1	*	F1S22D	Studied or plans to study from SAT/ACT preparation books	F1 Student Questionnaire
1	*	F1S22E	Used or plans to use SAT/ACT preparation video tape	F1 Student Questionnaire
1	*	F1S22F	Used or plans to use SAT/ACT preparation computer program	F1 Student Questionnaire

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1	*	F1S23	Participated in college preparation program for disadvantaged	F1 Student Questionnaire
1	*	F1S24A	Highest grade of participation in Talent Search	F1 Student Questionnaire
1	*	F1S24AA	Participated in Talent Search in 9th grade	F1 Student Questionnaire
1	*	F1S24AB	Participated in Talent Search in 10th grade	F1 Student Questionnaire
1	*	F1S24AC	Participated in Talent Search in 11th grade	F1 Student Questionnaire
1	*	F1S24AD	Participated in Talent Search in 12th grade	F1 Student Questionnaire
1	*	F1S24AE	Did not participate in Talent Search	F1 Student Questionnaire
1	*	F1S24B	Highest grade of participation in Upward Bound	F1 Student Questionnaire
1	*	F1S24BA	Participated in Upward Bound in 9th grade	F1 Student Questionnaire
1	*	F1S24BB	Participated in Upward Bound in 10th grade	F1 Student Questionnaire
1	*	F1S24BC	Participated in Upward Bound in 11th grade	F1 Student Questionnaire
1	*	F1S24BD	Participated in Upward Bound in 12th grade	F1 Student Questionnaire
1	*	F1S24BE	Did not participate in Upward Bound	F1 Student Questionnaire
1	*	F1S24C	Highest grade of participation in Gear Up or other program	F1 Student Questionnaire
1	*	F1S24CA	Participated in Gear Up/other similar program in 9th grade	F1 Student Questionnaire
1	*	F1S24CB	Participated in Gear Up/other similar program in 10th grade	F1 Student Questionnaire
1	*	F1S24CC	Participated in Gear Up/other similar program in 11th grade	F1 Student Questionnaire
1	*	F1S24CD	Participated in Gear Up/other similar program in 12th grade	F1 Student Questionnaire
1	*	F1S24CE	Did not participate in Gear Up/other similar program	F1 Student Questionnaire
1	*	F1S25A	Had something stolen at school	F1 Student Questionnaire
1	*	F1S25B	Someone offered drugs at school	F1 Student Questionnaire
1	*	F1S25C	Someone threatened to hurt student at school	F1 Student Questionnaire
1	*	F1S25D	Someone hit student	F1 Student Questionnaire
1	*	F1S26A	Participated in intramural sports	F1 Student Questionnaire
1	*	F1S26B	Participated in interscholastic sports	F1 Student Questionnaire
1	*	F1S26C	Participated in school band or chorus	F1 Student Questionnaire
1	*	F1S26D	Participated in school play or musical	F1 Student Questionnaire
1	*	F1S26E	Participated in student government	F1 Student Questionnaire
1	*	F1S26F	Participated in academic honor society	F1 Student Questionnaire
1	*	F1S26G	Participated in school yearbook or newspaper	F1 Student Questionnaire
1	*	F1S26H	Participated in school service clubs	F1 Student Questionnaire
1	*	F1S26I	Participated in school academic clubs	F1 Student Questionnaire
1	*	F1S26J	Participated in school hobby clubs	F1 Student Questionnaire
1	*	F1S26K	Participated in school vocational clubs	F1 Student Questionnaire
1	*	F1S27	Hours/week spent on extracurricular activities	F1 Student Questionnaire
1	*	F1S28	School has library media/resource center	F1 Student Questionnaire
1	*	F1S29A	Use of school library for assignments	F1 Student Questionnaire
1	*	F1S29B	Use of school library for in-school projects	F1 Student Questionnaire
1	*	F1S29C	Use of school library for homework	F1 Student Questionnaire
1	*	F1S29D	Use of school library for research papers	F1 Student Questionnaire
1	*	F1S29E	Use of school library for leisure reading	F1 Student Questionnaire
1	*	F1S29F	Use of school library to read magazines/newspapers	F1 Student Questionnaire
1	*	F1S29G	Use of school library to read books for fun	F1 Student Questionnaire
1	*	F1S29H	Use of school library for interests outside of school	F1 Student Questionnaire
1	*	F1S29I	Use of school library for Internet access	F1 Student Questionnaire
1	*	F1S30A	Use of public library for assignments	F1 Student Questionnaire
1	*	F1S30B	Use of public library for in-school projects	F1 Student Questionnaire
1	*	F1S30C	Use of public library for homework	F1 Student Questionnaire

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
1	*	F1S30D	Use of public library for research papers	F1 Student Questionnaire
1	*	F1S30E	Use of public library for leisure reading	F1 Student Questionnaire
1	*	F1S30F	Use of public library to read magazines/newspaper	F1 Student Questionnaire
1	*	F1S30G	Use of public library to read books for fun	F1 Student Questionnaire
1	*	F1S30H	Use of public library for personal interests outside of school	F1 Student Questionnaire
1	*	F1S30I	Use of public library for Internet access	F1 Student Questionnaire
1	*	F1S31	Hours/week spent on homework both in and out of school	F1 Student Questionnaire
1	*	F1S32A	Hours/week spent on math homework in school	F1 Student Questionnaire
1	*	F1S32B	Hours/week spent on math homework out of school	F1 Student Questionnaire
1	*	F1S33	Hours/week spent reading outside of school	F1 Student Questionnaire
1	*	F1S34A	Hours/day spent watching TV/videos/DVDs on weekdays	F1 Student Questionnaire
1	*	F1S34B	Hours/day spent watching TV/videos/DVDs on weekends	F1 Student Questionnaire
1	*	F1S35A	Hours/day plays video/computer games on weekdays	F1 Student Questionnaire
1	*	F1S35B	Hours/day plays video/computer games on weekends	F1 Student Questionnaire
1	*	F1S36A	Hours/day on computer for school work	F1 Student Questionnaire
1	*	F1S36B	Hours/day on computer other than for school	F1 Student Questionnaire
1	*	F1S37A	How often uses computer at home	F1 Student Questionnaire
1	*	F1S37B	How often uses computer at school library	F1 Student Questionnaire
1	*	F1S37C	How often uses computer at another place at school	F1 Student Questionnaire
1	*	F1S37D	How often uses computer at public library	F1 Student Questionnaire
1	*	F1S37E	How often uses computer at friend's house	F1 Student Questionnaire
1	*	F1S37F	How often uses computer at another place	F1 Student Questionnaire
1	*	F1S38A	How often uses computer for fun	F1 Student Questionnaire
1	*	F1S38B	How often uses computer for school work	F1 Student Questionnaire
1	*	F1S38C	How often uses computer to learn on own	F1 Student Questionnaire
1	*	F1S39A	How often visits with friends at local hangout	F1 Student Questionnaire
1	*	F1S39B	How often works on hobbies	F1 Student Questionnaire
1	*	F1S39C	How often performs community services	F1 Student Questionnaire
1	*	F1S39D	How often drives or rides around	F1 Student Questionnaire
1	*	F1S39E	How often talks on phone with friends	F1 Student Questionnaire
1	*	F1S39F	How often takes music, art, language class	F1 Student Questionnaire
1	*	F1S39G	How often takes sports lessons	F1 Student Questionnaire
1	*	F1S39H	How often plays non-school sports	F1 Student Questionnaire
1	*	F1S39I	How often talks with friends/relatives via the Internet	F1 Student Questionnaire
1	*	F1S40A	Importance of being successful in line work	F1 Student Questionnaire
1	*	F1S40B	Importance of marrying right person/having happy family	F1 Student Questionnaire
1	*	F1S40C	Importance of having lots of money	F1 Student Questionnaire
1	*	F1S40D	Importance of having strong friendships	F1 Student Questionnaire
1	*	F1S40E	Importance of being able to find steady work	F1 Student Questionnaire
1	*	F1S40F	Importance of helping others in community	F1 Student Questionnaire
1	*	F1S40G	Importance of giving children better opportunities	F1 Student Questionnaire
1	*	F1S40H	Importance of living close to parents/relatives	F1 Student Questionnaire
1	*	F1S40I	Importance of getting away from this area	F1 Student Questionnaire
1	*	F1S40J	Importance of working to correct inequalities	F1 Student Questionnaire
1	*	F1S40K	Importance of having children	F1 Student Questionnaire
1	*	F1S40L	Importance of having leisure time	F1 Student Questionnaire
1	*	F1S40M	Importance of being expert in field of work	F1 Student Questionnaire
1	*	F1S40N	Importance of getting good education	F1 Student Questionnaire

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1	*	F1S40O	Importance of getting good job	F1 Student Questionnaire
1	*	F1S40P	Importance of being an active/informed citizen	F1 Student Questionnaire
1	*	F1S40Q	Importance of supporting environmental causes	F1 Student Questionnaire
1	*	F1S40R	Importance of being patriotic	F1 Student Questionnaire
1	*	F1S41A	Will work part-time in summer 2004	F1 Student Questionnaire
1	*	F1S41B	Will work full-time in summer 2004	F1 Student Questionnaire
1	*	F1S41C	Will take high school courses in summer 2004	F1 Student Questionnaire
1	*	F1S41D	Will take college courses in summer 2004	F1 Student Questionnaire
1	*	F1S41E	Will provide community service in summer 2004	F1 Student Questionnaire
1	*	F1S41F	Will enter the military in summer 2004	F1 Student Questionnaire
1	*	F1S42	How far in school respondent thinks will get	F1 Student Questionnaire
1	*	F1S43A	How far in school mother wants respondent to go	F1 Student Questionnaire
1	*	F1S43B	How far in school father wants respondent to go	F1 Student Questionnaire
1	*	F1S44A	Mother's desire for respondent after high school	F1 Student Questionnaire
1	*	F1S44B	Father's desire for respondent after high school	F1 Student Questionnaire
1	*	F1S44C	Close relative's desire for respondent after high school	F1 Student Questionnaire
1	*	F1S44D	Friend's desire for respondent after high school	F1 Student Questionnaire
1	*	F1S44E	School counselor's desire for respondent after high school	F1 Student Questionnaire
1	*	F1S44F	Favorite teacher's desire for respondent after high school	F1 Student Questionnaire
1	*	F1S44G	Favorite coach's desire for respondent after high school	F1 Student Questionnaire
1	*	F1S45	Plans to go on to school right after high school	F1 Student Questionnaire
1	*	F1S46A	No school right after hs since dislikes school	F1 Student Questionnaire
1	*	F1S46B	No school right after hs since grades are not good enough	F1 Student Questionnaire
1	*	F1S46C	No school right after hs since admission scores not good enough	F1 Student Questionnaire
1	*	F1S46D	No school right after hs since will not need more school for job	F1 Student Questionnaire
1	*	F1S46E	No school right after hs since cannot afford school	F1 Student Questionnaire
1	*	F1S46F	No school right after hs since has not taken right courses	F1 Student Questionnaire
1	*	F1S46G	No school right after hs since no one in family has gone	F1 Student Questionnaire
1	*	F1S46H	No school right after hs since plan to join military	F1 Student Questionnaire
1	*	F1S46I	No school right after hs since would rather work and earn money	F1 Student Questionnaire
1	*	F1S46J	No school right after hs since does not feel school is important	F1 Student Questionnaire
1	*	F1S46K	No school right after hs since counselor/teacher recommends work	F1 Student Questionnaire
1	*	F1S46L	No school right after hs since needs to support family	F1 Student Questionnaire
1	*	F1S47	Plans to continue education some time in future	F1 Student Questionnaire
1	*	F1S48A	Has gone to counselor for college entrance information	F1 Student Questionnaire
1	*	F1S48B	Has gone to teacher for college entrance information	F1 Student Questionnaire
1	*	F1S48C	Has gone to coach for college entrance information	F1 Student Questionnaire
1	*	F1S48D	Has gone to parent for college entrance information	F1 Student Questionnaire
1	*	F1S48E	Has gone to sibling for college entrance information	F1 Student Questionnaire
1	*	F1S48F	Has gone to other relative for college entrance information	F1 Student Questionnaire
1	*	F1S48G	Has gone to friend for college entrance information	F1 Student Questionnaire
1	*	F1S48H	Has gone to college representatives for entrance information	F1 Student Questionnaire
1	*	F1S48I	Has gone to college publications/websites for entrance information	F1 Student Questionnaire
1	*	F1S48J	Has gone to college search guides for entrance information	F1 Student Questionnaire
1	*	F1S48K	Has gone to school library for college entrance information	F1 Student Questionnaire
1	*	F1S48L	Has gone to public library for college entrance information	F1 Student Questionnaire
1	*	F1S48M	Has gone to college library for college entrance information	F1 Student Questionnaire
1	*	F1S48N	Did not go to any of these sources for college entrance information	F1 Student Questionnaire

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
1	*	F1S49	Type of school plans to attend	F1 Student Questionnaire
1	*	F1S50	Number of schools applied to	F1 Student Questionnaire
1	*	F1S52A	Post-sec school's low expenses important to respondent	F1 Student Questionnaire
1	*	F1S52B	Availability of post-sec financial aid important to respondent	F1 Student Questionnaire
1	*	F1S52C	Post-sec school's courses/curriculum important to respondent	F1 Student Questionnaire
1	*	F1S52D	Post-sec school's athletic program important to respondent	F1 Student Questionnaire
1	*	F1S52E	Post-sec school's active social life important to respondent	F1 Student Questionnaire
1	*	F1S52F	Living at home while attending post-sec important to respondent	F1 Student Questionnaire
1	*	F1S52G	Away from home while attending post-sec important to respondent	F1 Student Questionnaire
1	*	F1S52H	Post-sec school's low crime important to respondent	F1 Student Questionnaire
1	*	F1S52I	Post-sec school's job placement record important to respondent	F1 Student Questionnaire
1	*	F1S52J	Post-sec school's grad school placement important to respondent	F1 Student Questionnaire
1	*	F1S52K	Post-sec school's academic reputation important to respondent	F1 Student Questionnaire
1	*	F1S52L	Post-sec school's easy admission important to respondent	F1 Student Questionnaire
1	*	F1S52M	Post-sec school has degree in chosen field important to respondent	F1 Student Questionnaire
1	*	F1S52N	Post-sec school's racial/ethnic makeup important to respondent	F1 Student Questionnaire
1	*	F1S52O	Post-sec school's size important to respondent	F1 Student Questionnaire
1	*	F1S52P	Post-sec school's geographic location important to respondent	F1 Student Questionnaire
1	*	F1S52Q	Post-sec school same as one parent attended important to respondent	F1 Student Questionnaire
1	*	F1S52R	Post-sec school's acceptance of college credit important to respondent	F1 Student Questionnaire
1	*	F1S53	Plans to work right after high school	F1 Student Questionnaire
1	*	F1S54	Has regular full-time job lined up	F1 Student Questionnaire
1	*	F1S55A	Guidance counselor helped select possible jobs	F1 Student Questionnaire
1	*	F1S55B	Vocational/technical teacher helped select possible jobs	F1 Student Questionnaire
1	*	F1S55C	Other teacher helped select possible jobs	F1 Student Questionnaire
1	*	F1S55D	Coach helped select possible jobs	F1 Student Questionnaire
1	*	F1S55E	Other school staff helped select possible jobs	F1 Student Questionnaire
1		F1S56	Occupation expects to have after high school-verbatim (restricted)	F1 Student Questionnaire
1		F1S57	Occupation expects to have at age 30-verbatim (restricted)	F1 Student Questionnaire
1	*	F1S58	How much education respondent thinks will be needed for job at age 30	F1 Student Questionnaire
1	*	F1S59	Ever worked for pay not around house	F1 Student Questionnaire
1	*	F1S60	How many hours usually works a week during school year	F1 Student Questionnaire
1	*	F1S61	How many hours works on the weekend during school year	F1 Student Questionnaire
1	*	F1S62	Performed unpaid volunteer/community service work	F1 Student Questionnaire
1	*	F1S63A	Volunteered with youth organization	F1 Student Questionnaire
1	*	F1S63B	Volunteered with school/community service organization	F1 Student Questionnaire
1	*	F1S63C	Volunteered with political club/organization	F1 Student Questionnaire
1	*	F1S63D	Volunteered with church/church related group	F1 Student Questionnaire
1	*	F1S63E	Volunteered with community center/social-action group	F1 Student Questionnaire
1	*	F1S63F	Volunteered with hospital/nursing home group	F1 Student Questionnaire
1	*	F1S63G	Volunteered with education organization	F1 Student Questionnaire
1	*	F1S63H	Volunteered with conservation/environmental group	F1 Student Questionnaire
1	*	F1S64A	How often discussed school courses with parents	F1 Student Questionnaire
1	*	F1S64B	How often discussed school activities with parents	F1 Student Questionnaire
1	*	F1S64C	How often discuss things studied in class with parents	F1 Student Questionnaire
1	*	F1S64D	How often discussed grades with parents	F1 Student Questionnaire
1	*	F1S64E	How often discussed what jobs would like to have with parents	F1 Student Questionnaire

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1	*	F1S64F	How often discussed jobs to apply for after high school with parents	F1 Student Questionnaire
1	*	F1S64G	How often discussed preparation for ACT/SAT with parents	F1 Student Questionnaire
1	*	F1S64H	How often discussed going to college with parents	F1 Student Questionnaire
1	*	F1S64I	How often discussed current events with parents	F1 Student Questionnaire
1	*	F1S64J	How often discussed troubling things with parents	F1 Student Questionnaire
1	*	F1S65A	How many friends dropped out of high school	F1 Student Questionnaire
1	*	F1S65B	How many friends plan to have full-time job after high school	F1 Student Questionnaire
1	*	F1S65C	How many friends plan to attend 2-year community college	F1 Student Questionnaire
1	*	F1S65D	How many friends plan to attend 4-year college/university	F1 Student Questionnaire
1	*	F1D19	Month and year last attended school (DO)	F1 Dropout Questionnaire
1	*	F1D20	Grade when last attended school (DO)	F1 Dropout Questionnaire
1	*	F1D21	Whether passed last grade attended	F1 Dropout Questionnaire
1	*	F1D22	Left school for more than a month before last left	F1 Dropout Questionnaire
1	*	F1D23	Month and year first left school for more than a month	F1 Dropout Questionnaire
1	*	F1D24	Month and year returned to school	F1 Dropout Questionnaire
1	*	F1D25	Attended school during 2002-2003 school year	F1 Dropout Questionnaire
1	*	F1D26	Number of school days missed during 2002-2003 school year	F1 Dropout Questionnaire
1	*	F1D27A	Years of General Science coursework (DO)	F1 Dropout Questionnaire
1	*	F1D27B	Years of General Physical Science coursework (DO)	F1 Dropout Questionnaire
1	*	F1D27C	Years of Biology coursework (DO)	F1 Dropout Questionnaire
1	*	F1D27D	Years of Botany/Zoology coursework (DO)	F1 Dropout Questionnaire
1	*	F1D27E	Years of Earth Science coursework (DO)	F1 Dropout Questionnaire
1	*	F1D27F	Years of Chemistry coursework (DO)	F1 Dropout Questionnaire
1	*	F1D27G	Years of Principles of Technology coursework (DO)	F1 Dropout Questionnaire
1	*	F1D27H	Years of Physics coursework (DO)	F1 Dropout Questionnaire
1	*	F1D27I	Years of other science coursework (DO)	F1 Dropout Questionnaire
1	*	F1D28A	Years of General Math coursework (DO)	F1 Dropout Questionnaire
1	*	F1D28B	Years of Pre-Algebra coursework (DO)	F1 Dropout Questionnaire
1	*	F1D28C	Years of Algebra I coursework (DO)	F1 Dropout Questionnaire
1	*	F1D28D	Years of Geometry coursework (DO)	F1 Dropout Questionnaire
1	*	F1D28E	Years of Algebra II coursework (DO)	F1 Dropout Questionnaire
1	*	F1D28F	Years of Trigonometry coursework (DO)	F1 Dropout Questionnaire
1	*	F1D28G	Years of Pre-Calculus coursework (DO)	F1 Dropout Questionnaire
1	*	F1D28H	Years of Calculus coursework (DO)	F1 Dropout Questionnaire
1	*	F1D28I	Years of Consumer/Business Math coursework (DO)	F1 Dropout Questionnaire
1	*	F1D28J	Years of other math coursework (DO)	F1 Dropout Questionnaire
1	*	F1D29A	Left school because got a job (DO)	F1 Dropout Questionnaire
1	*	F1D29B	Left school because did not like school (DO)	F1 Dropout Questionnaire
1	*	F1D29C	Left school because could not get along with teachers (DO)	F1 Dropout Questionnaire
1	*	F1D29D	Left school because could not get along with other students (DO)	F1 Dropout Questionnaire
1	*	F1D29E	Left school because was pregnant (DO)	F1 Dropout Questionnaire
1	*	F1D29F	Left school because became father/mother of a baby (DO)	F1 Dropout Questionnaire
1	*	F1D29G	Left school because had to support family (DO)	F1 Dropout Questionnaire
1	*	F1D29H	Left school because was suspended (DO)	F1 Dropout Questionnaire
1	*	F1D29I	Left school because did not feel safe (DO)	F1 Dropout Questionnaire
1	*	F1D29J	Left school to care for a member of family (DO)	F1 Dropout Questionnaire
1	*	F1D29K	Left school because was expelled (DO)	F1 Dropout Questionnaire
1	*	F1D29L	Left school because did not feel belonged there (DO)	F1 Dropout Questionnaire

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1	*	F1D29M	Left school because could not keep up with schoolwork (DO)	F1 Dropout Questionnaire
1	*	F1D29N	Left school because was getting poor grades/failing school (DO)	F1 Dropout Questionnaire
1	*	F1D29O	Left school because got married/planned to get married (DO)	F1 Dropout Questionnaire
1	*	F1D29P	Left school because changed schools and did not like new one (DO)	F1 Dropout Questionnaire
1	*	F1D29Q	Left school because could not work at same time (DO)	F1 Dropout Questionnaire
1	*	F1D29R	Left school because thought would fail competency test (DO)	F1 Dropout Questionnaire
1	*	F1D29S	Left school because thought couldn't complete course requirements (DO)	F1 Dropout Questionnaire
1	*	F1D29T	Left school because thought it would be easier to get GED (DO)	F1 Dropout Questionnaire
1	*	F1D29U	Left school because missed too many school days (DO)	F1 Dropout Questionnaire
1	*	F1D30	Feels that leaving school was a good decision (DO)	F1 Dropout Questionnaire
1	*	F1D31A	Someone from school offered to send you to another school	F1 Dropout Questionnaire
1	*	F1D31B	Someone from school offered to put you in special program	F1 Dropout Questionnaire
1	*	F1D31C	Someone from school offered special tutoring	F1 Dropout Questionnaire
1	*	F1D31D	Someone from school offered to help make up missed work	F1 Dropout Questionnaire
1	*	F1D31E	Someone from school offered to help with personal problems	F1 Dropout Questionnaire
1	*	F1D31F	Someone from school told you that you could return if kept grades up	F1 Dropout Questionnaire
1	*	F1D31G	Someone from school told you you could return if attendance improved	F1 Dropout Questionnaire
1	*	F1D31H	Someone from school told you you could return if followed school rules	F1 Dropout Questionnaire
1	*	F1D31I	Someone from school tried to talk you into staying	F1 Dropout Questionnaire
1	*	F1D31J	Someone from school told you that you couldn't come back	F1 Dropout Questionnaire
1	*	F1D31K	Someone from school expelled or suspended you	F1 Dropout Questionnaire
1	*	F1D31L	Someone from school called or visited your home	F1 Dropout Questionnaire
1	*	F1D32A	Parents/guardians offered to send you to another school	F1 Dropout Questionnaire
1	*	F1D32B	Parents/guardians offered to put you in special program	F1 Dropout Questionnaire
1	*	F1D32C	Parents/guardians offered special tutoring	F1 Dropout Questionnaire
1	*	F1D32D	Parents/guardians offered to help make up missed work	F1 Dropout Questionnaire
1	*	F1D32E	Parents/guardians offered to help with personal problems	F1 Dropout Questionnaire
1	*	F1D32F	Parents/guardians tried to talk you into staying	F1 Dropout Questionnaire
1	*	F1D32G	Parents/guardians told you it was okay to leave	F1 Dropout Questionnaire
1	*	F1D32H	Parents/guardians told you they were upset	F1 Dropout Questionnaire
1	*	F1D32I	Parents/guardians punished you for leaving school	F1 Dropout Questionnaire
1	*	F1D32J	Parents/guardians told you it was your decision	F1 Dropout Questionnaire
1	*	F1D32K	Parents/guardians called principle or teacher	F1 Dropout Questionnaire
1	*	F1D32L	Parents/guardians called school counselor	F1 Dropout Questionnaire
1	*	F1D32M	Parents/guardians offered to arrange for outside counseling	F1 Dropout Questionnaire
1	*	F1D33A	Looked into alternative school in past 2 years	F1 Dropout Questionnaire
1	*	F1D33B	Saw counselor/social worker in past 2 years	F1 Dropout Questionnaire
1	*	F1D33C	Went to youth center/outreach program in past 2 years	F1 Dropout Questionnaire
1	*	F1D33D	Went to family counseling in past 2 years	F1 Dropout Questionnaire
1	*	F1D33E	Did work for religious group in past 2 years	F1 Dropout Questionnaire
1	*	F1D33F	In drug rehabilitation program in past 2 years	F1 Dropout Questionnaire
1	*	F1D33G	In alcohol rehabilitation program in past 2 years	F1 Dropout Questionnaire
1	*	F1D33H	Failed competency test required for graduation in past 2 years	F1 Dropout Questionnaire
1	*	F1D33I	Held back a grade in past 2 years	F1 Dropout Questionnaire
1	*	F1D33J	Failed a course in past 2 years	F1 Dropout Questionnaire
1	*	F1D34	Participated in an alternative program	F1 Dropout Questionnaire
1	*	F1D35	Month and year entered most recent alternative program	F1 Dropout Questionnaire

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1	*	F1D36	Still enrolled in alternative program	F1 Dropout Questionnaire
1	*	F1D37	Month and year left/completed most recent alternative program	F1 Dropout Questionnaire
1	*	F1D38A	Parents referred you to this alternative program	F1 Dropout Questionnaire
1	*	F1D38B	Siblings referred you to this alternative program	F1 Dropout Questionnaire
1	*	F1D38C	Teacher referred you to this alternative program	F1 Dropout Questionnaire
1	*	F1D38D	School principal referred you to this alternative program	F1 Dropout Questionnaire
1	*	F1D38E	School counselor referred you to this alternative program	F1 Dropout Questionnaire
1	*	F1D38F	Friend referred you to this alternative program	F1 Dropout Questionnaire
1	*	F1D38G	Relative referred you to this alternative program	F1 Dropout Questionnaire
1	*	F1D38I	Social worker/clergy referred you to this alternative program	F1 Dropout Questionnaire
1	*	F1D38J	Adult friend/acquaintance referred you to this alternative program	F1 Dropout Questionnaire
1	*	F1D38K	Respondent referred self to this alternative program	F1 Dropout Questionnaire
1	*	F1D39A	Received special instructional programs from this program	F1 Dropout Questionnaire
1	*	F1D39B	Received vocational/technical/trade skills training from this program	F1 Dropout Questionnaire
1	*	F1D39C	Received tutoring by teachers from this program	F1 Dropout Questionnaire
1	*	F1D39D	Received tutoring by other students from this program	F1 Dropout Questionnaire
1	*	F1D39E	Received rewards for attendance/class performance from this program	F1 Dropout Questionnaire
1	*	F1D39F	Received individual/group counseling from this program	F1 Dropout Questionnaire
1	*	F1D39G	Received career counseling from this program	F1 Dropout Questionnaire
1	*	F1D39H	Received job placement assistance from this program	F1 Dropout Questionnaire
1	*	F1D39I	Received health care or referrals from this program	F1 Dropout Questionnaire
1	*	F1D39J	Received childcare from this program	F1 Dropout Questionnaire
1	*	F1D40	Number of alternative programs participated in	F1 Dropout Questionnaire
1	*	F1D41	Plan to get GED or high school diploma	F1 Dropout Questionnaire
1		F1D42	Program in which GED was earned (DO) - restricted	F1 Dropout Questionnaire
1		F1D42A	Other way in which GED was earned (DO) - restricted	F1 Dropout Questionnaire
1	*	F1D43A	Completed GED to improve/advance/keep up to date on current job (DO)	F1 Dropout Questionnaire
1	*	F1D43B	Completed GED to train for new job/career (DO)	F1 Dropout Questionnaire
1	*	F1D43C	Completed GED to improve basic reading writing or math skills (DO)	F1 Dropout Questionnaire
1	*	F1D43D	Completed GED to meet requirements for additional study (DO)	F1 Dropout Questionnaire
1	*	F1D43E	Completed GED because required or encouraged by employer (DO)	F1 Dropout Questionnaire
1	*	F1D43F	Completed GED because of personal/family/social reasons (DO)	F1 Dropout Questionnaire
1		F1D44	State where GED/equivalency was earned (DO) - restricted	F1 Dropout Questionnaire
1	*	F1D45	Month and year when received GED/equivalency (DO)	F1 Dropout Questionnaire
1	*	F1D46	Currently taking class to prepare for GED examination	F1 Dropout Questionnaire
1	*	F1D47A	Plan to go back to school to get high school diploma	F1 Dropout Questionnaire
1	*	F1D47B	Plan to enroll in class to prepare for GED or equivalent	F1 Dropout Questionnaire
1	*	F1D48	Month and year expects to receive high school diploma/GED	F1 Dropout Questionnaire
1	*	F1D49A	Use of public library for leisure reading (DO)	F1 Dropout Questionnaire
1	*	F1D49B	Use of public library to read magazines/newspaper (DO)	F1 Dropout Questionnaire
1	*	F1D49C	Use of public library to read books for fun (DO)	F1 Dropout Questionnaire
1	*	F1D49D	Use of public library for personal interests (DO)	F1 Dropout Questionnaire
1	*	F1D49E	Use of public library for Internet access (DO)	F1 Dropout Questionnaire
1	*	F1D50	Hours/week spent reading (DO)	F1 Dropout Questionnaire
1	*	F1D51A	Hours/day spent watching TV/DVD on weekdays (DO)	F1 Dropout Questionnaire
1	*	F1D51B	Hours/day spent watching TV/DVD on weekends (DO)	F1 Dropout Questionnaire
1	*	F1D52A	Hours/day plays video/computer games on weekdays (DO)	F1 Dropout Questionnaire



*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
1	*	F1D52B	Hours/day plays video/computer games on weekends (DO)	F1 Dropout Questionnaire
1	*	F1D53	Hours/day uses computer (DO)	F1 Dropout Questionnaire
1	*	F1D54A	How often uses computer at home (DO)	F1 Dropout Questionnaire
1	*	F1D54B	How often uses computer at public library (DO)	F1 Dropout Questionnaire
1	*	F1D54C	How often uses computer at friend's house (DO)	F1 Dropout Questionnaire
1	*	F1D54D	How often uses computer at another place (DO)	F1 Dropout Questionnaire
1	*	F1D55A	How often visits with friends at local hangout (DO)	F1 Dropout Questionnaire
1	*	F1D55B	How often works on hobbies (DO)	F1 Dropout Questionnaire
1	*	F1D55C	How often performs community services (DO)	F1 Dropout Questionnaire
1	*	F1D55D	How often drives or rides around (DO)	F1 Dropout Questionnaire
1	*	F1D55E	How often talks on phone with friends (DO)	F1 Dropout Questionnaire
1	*	F1D55F	How often takes music, art, language class (DO)	F1 Dropout Questionnaire
1	*	F1D55G	How often takes sports lessons (DO)	F1 Dropout Questionnaire
1	*	F1D55H	How often plays sports (DO)	F1 Dropout Questionnaire
1	*	F1D55I	How often talks with friends/relatives via the Internet (DO)	F1 Dropout Questionnaire
1	*	F1D56A	Importance of being successful in line work (DO)	F1 Dropout Questionnaire
1	*	F1D56B	Importance of marrying right person/having happy family (DO)	F1 Dropout Questionnaire
1	*	F1D56C	Importance of having lots of money (DO)	F1 Dropout Questionnaire
1	*	F1D56D	Importance of having strong friendships (DO)	F1 Dropout Questionnaire
1	*	F1D56E	Importance of being able to find steady work (DO)	F1 Dropout Questionnaire
1	*	F1D56F	Importance of helping others in community (DO)	F1 Dropout Questionnaire
1	*	F1D56G	Importance of giving children better opportunities (DO)	F1 Dropout Questionnaire
1	*	F1D56H	Importance of living close to parents/relatives (DO)	F1 Dropout Questionnaire
1	*	F1D56I	Importance of getting away from this area (DO)	F1 Dropout Questionnaire
1	*	F1D56J	Importance of working to correct inequalities (DO)	F1 Dropout Questionnaire
1	*	F1D56K	Importance of having children (DO)	F1 Dropout Questionnaire
1	*	F1D56L	Importance of having leisure time (DO)	F1 Dropout Questionnaire
1	*	F1D56M	Importance of being expert in field of work (DO)	F1 Dropout Questionnaire
1	*	F1D56N	Importance of getting good education (DO)	F1 Dropout Questionnaire
1	*	F1D56O	Importance of getting good job (DO)	F1 Dropout Questionnaire
1	*	F1D56P	Importance of being an active/informed citizen (DO)	F1 Dropout Questionnaire
1	*	F1D56Q	Importance of supporting environmental causes (DO)	F1 Dropout Questionnaire
1	*	F1D56R	Importance of being patriotic (DO)	F1 Dropout Questionnaire
1	*	F1D57	How far in school respondent thinks will get (DO)	F1 Dropout Questionnaire
1	*	F1D58A	How far in school mother wants respondent to go (DO)	F1 Dropout Questionnaire
1	*	F1D58B	How far in school father wants respondent to go (DO)	F1 Dropout Questionnaire
1	*	F1D59	Number of jobs held since left high school (DO)	F1 Dropout Questionnaire
1		F1D60	Current/most recent job or occupation (DO) - restricted	F1 Dropout Questionnaire
1	*	F1D61	Month and year started working at this job (DO)	F1 Dropout Questionnaire
1	*	F1D62	Still have this job (DO)	F1 Dropout Questionnaire
1	*	F1D63	Month and year left most recent job (DO)	F1 Dropout Questionnaire
1	*	F1D64	Current/most recent pay per hour (DO)	F1 Dropout Questionnaire
1	*	F1D65	Number of hours/week usually worked at this job (DO)	F1 Dropout Questionnaire
1		F1D66	Occupation expects to have at age 30-verbatim (DO) - restricted	F1 Dropout Questionnaire
1	*	F1D67	Education respondent thinks will be needed for job at age 30 (DO)	F1 Dropout Questionnaire
1	*	F1D68	Performed unpaid volunteer/community service work (DO)	F1 Dropout Questionnaire
1	*	F1D69A	How many friends dropped out of high school (DO)	F1 Dropout Questionnaire
1	*	F1D69B	How many friends plan to have full-time job after high school (DO)	F1 Dropout Questionnaire

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1	*	F1D69C	How many friends plan to attend 2-year community college (DO)	F1 Dropout Questionnaire
1	*	F1D69D	How many friends plan to attend 4-year college/university (DO)	F1 Dropout Questionnaire
1	*	F1T15	When began going to transfer school	F1 Transfer Questionnaire
1	*	F1T16A	Transferred because family moved	F1 Transfer Questionnaire
1	*	F1T16B	Transferred for programs/offerings	F1 Transfer Questionnaire
1	*	F1T16C	Transferred for quality of instruction	F1 Transfer Questionnaire
1	*	F1T16D	Transferred because did not feel safe at other school	F1 Transfer Questionnaire
1	*	F1T16E	Transferred for other reasons	F1 Transfer Questionnaire
1		F1T16ETX	Other reasons for transferring (restricted)	F1 Transfer Questionnaire
1		F1T16ECD	Transferred for other reasons code (restricted)	F1 Transfer Questionnaire
1	*	F1T17A	Students get along well with teachers at transfer school	F1 Transfer Questionnaire
1	*	F1T17B	There is real school spirit at transfer school	F1 Transfer Questionnaire
1	*	F1T17C	The teaching is good at transfer school	F1 Transfer Questionnaire
1	*	F1T17D	Teachers are interested in the students at transfer school	F1 Transfer Questionnaire
1	*	F1T17E	Teachers praise effort at transfer school	F1 Transfer Questionnaire
1	*	F1T17F	Does not feel safe at transfer school	F1 Transfer Questionnaire
1	*	F1T17G	Disruptions get in way of learning at transfer school	F1 Transfer Questionnaire
1	*	F1T17H	Misbehaving students often get away with it at transfer school	F1 Transfer Questionnaire
1	*	F1T17I	There are gangs in transfer school	F1 Transfer Questionnaire
1	*	F1E20	Month and year last attended school (EG)	F1 Early Graduate Questionnaire
1	*	F1E21	Grade when last attended school (EG)	F1 Early Graduate Questionnaire
1	*	F1E22A	Left school because got a job (EG)	F1 Early Graduate Questionnaire
1	*	F1E22B	Left school because did not like school (EG)	F1 Early Graduate Questionnaire
1	*	F1E22C	Left school because could not get along with teachers (EG)	F1 Early Graduate Questionnaire
1	*	F1E22D	Left school because could not get along with other students (EG)	F1 Early Graduate Questionnaire
1	*	F1E22E	Left school because was pregnant (EG)	F1 Early Graduate Questionnaire
1	*	F1E22F	Left school because became father/mother of a baby (EG)	F1 Early Graduate Questionnaire
1	*	F1E22G	Left school because had to support family (EG)	F1 Early Graduate Questionnaire
1	*	F1E22H	Left school because was suspended (EG)	F1 Early Graduate Questionnaire
1	*	F1E22I	Left school because did not feel safe (EG)	F1 Early Graduate Questionnaire
1	*	F1E22J	Left school to care for a member of family (EG)	F1 Early Graduate Questionnaire
1	*	F1E22K	Left school because was expelled (EG)	F1 Early Graduate Questionnaire
1	*	F1E22L	Left school because did not feel belonged there (EG)	F1 Early Graduate Questionnaire
1	*	F1E22M	Left school because could not keep up with schoolwork (EG)	F1 Early Graduate Questionnaire
1	*	F1E22N	Left school because was getting poor grades/failing school (EG)	F1 Early Graduate Questionnaire
1	*	F1E22O	Left school because got married/planned to get married (EG)	F1 Early Graduate Questionnaire
1	*	F1E22P	Left school because changed schools and did not like new one (EG)	F1 Early Graduate Questionnaire
1	*	F1E22Q	Left school because could not work at same time (EG)	F1 Early Graduate Questionnaire
1	*	F1E22R	Left school because thought would fail competency test (EG)	F1 Early Graduate Questionnaire
1	*	F1E22S	Left school because thought couldn't complete course requirements (EG)	F1 Early Graduate Questionnaire
1	*	F1E22T	Left school because thought it would be easier to get GED (EG)	F1 Early Graduate Questionnaire
1	*	F1E22U	Left school because missed too many school days (EG)	F1 Early Graduate Questionnaire

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
1	*	F1E23	Feels that leaving school was a good decision (EG)	F1 Early Graduate Questionnaire
1	*	F1E24	Program in which GED was earned (EG)	F1 Early Graduate Questionnaire
1		F1E24A	Other way in which GED was earned (EG) - restricted	F1 Early Graduate Questionnaire
1	*	F1E25A	Completed GED to improve/advance/keep up to date on current job (EG)	F1 Early Graduate Questionnaire
1	*	F1E25B	Completed GED to train for new job/career (EG)	F1 Early Graduate Questionnaire
1	*	F1E25C	Completed GED to improve basic reading writing or math skills (EG)	F1 Early Graduate Questionnaire
1	*	F1E25D	Completed GED to meet requirements for additional study (EG)	F1 Early Graduate Questionnaire
1	*	F1E25E	Completed GED because required or encouraged by employer (EG)	F1 Early Graduate Questionnaire
1	*	F1E25F	Completed GED because of personal/family/social reasons (EG)	F1 Early Graduate Questionnaire
1		F1E26	State where GED/equivalency was earned (EG) - restricted	F1 Early Graduate Questionnaire
1	*	F1E27	Month and year graduated/received equivalency from high school (EG)	F1 Early Graduate Questionnaire
1	*	F1E28A	Graduated early to gain early admission to college	F1 Early Graduate Questionnaire
1	*	F1E28B	Graduated early to start a job	F1 Early Graduate Questionnaire
1	*	F1E28C	Graduated early to join military	F1 Early Graduate Questionnaire
1	*	F1E28D	Graduated early because bored with high school	F1 Early Graduate Questionnaire
1	*	F1E28E	Graduated early to move to another city	F1 Early Graduate Questionnaire
1	*	F1E28F	Graduated early to start a family	F1 Early Graduate Questionnaire
1	*	F1E38D	How often uses a computer at an educational institution	F1 Early Graduate Questionnaire
1	*	F1E43	Enrolled in an educational institution since high school	F1 Early Graduate Questionnaire
1	*	F1E49	Number of jobs held since left high school (EG)	F1 Early Graduate Questionnaire
1		F1E50	Current/most recent job or occupation (EG) - restricted	F1 Early Graduate Questionnaire
1	*	F1E51	Month and year started working at this job (EG)	F1 Early Graduate Questionnaire
1	*	F1E52	Still have this job (EG)	F1 Early Graduate Questionnaire
1	*	F1E53	Month and year left most recent job (EG)	F1 Early Graduate Questionnaire
1	*	F1E54	Current/most recent pay per hour (EG)	F1 Early Graduate Questionnaire
1	*	F1E55	Number of hours/week usually worked at this job (EG)	F1 Early Graduate Questionnaire
1	*	F1N02	Sex	F1 New Participant Supplement
1	*	F1N03	Student is Hispanic	F1 New Participant Supplement
1		F1N04	Student's Hispanic subdivision (restricted)	F1 New Participant Supplement
1		F1N05A	Student is White (restricted)	F1 New Participant Supplement
1		F1N05B	Student is Black/African American (restricted)	F1 New Participant Supplement
1		F1N05C	Student is Asian (restricted)	F1 New Participant Supplement
1		F1N05D	Student is Native Hawaiian/Pacific Islander (restricted)	F1 New Participant Supplement
1		F1N05E	Student is American Indian/Alaska Native (restricted)	F1 New Participant Supplement
1		F1N06	Student's Asian subdivision (restricted)	F1 New Participant Supplement
1	*	F1N07	English is student's native language	F1 New Participant Supplement
1		F1N08	Student's native language (restricted)	F1 New Participant Supplement
1	*	F1N09A	How well respondent understands spoken English	F1 New Participant Supplement
1	*	F1N09B	How well respondent speaks English	F1 New Participant Supplement
1	*	F1N09C	How well respondent reads English	F1 New Participant Supplement
1	*	F1N09D	How well respondent writes English	F1 New Participant Supplement
1	*	F1N11	Ever held back a grade	F1 New Participant Supplement

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1	*	F1N12A	Repeated kindergarten	F1 New Participant Supplement
1	*	F1N12B	Repeated 1st grade	F1 New Participant Supplement
1	*	F1N12C	Repeated 2nd grade	F1 New Participant Supplement
1	*	F1N12D	Repeated 3rd grade	F1 New Participant Supplement
1	*	F1N12E	Repeated 4th grade	F1 New Participant Supplement
1	*	F1N12F	Repeated 5th grade	F1 New Participant Supplement
1	*	F1N12G	Repeated 6th grade	F1 New Participant Supplement
1	*	F1N12H	Repeated 7th grade	F1 New Participant Supplement
1	*	F1N12I	Repeated 8th grade	F1 New Participant Supplement
1	*	F1N12J	Repeated 9th grade	F1 New Participant Supplement
1	*	F1N12K	Repeated 10th grade	F1 New Participant Supplement
1	*	F1N12L	Repeated 11th grade	F1 New Participant Supplement
1	*	F1N12M	Repeated 12th grade	F1 New Participant Supplement
1	*	F1N13A	Mother lives in same household at least half the time	F1 New Participant Supplement
1	*	F1N13B	Father lives in same household at least half the time	F1 New Participant Supplement
1	*	F1N13C	Other female guardian lives in same household at least half the time	F1 New Participant Supplement
1	*	F1N13D	Other male guardian lives in same household at least half the time	F1 New Participant Supplement
1		F1N14A	Mother/female guardian's occupation-verbatim (restricted)	F1 New Participant Supplement
1		F1N14B	Mother/female guardian's main job duties-verbatim (restricted)	F1 New Participant Supplement
1		F1N15A	Father/male guardian's occupation-verbatim (restricted)	F1 New Participant Supplement
1		F1N15B	Father/male guardian's main job duties-verbatim (restricted)	F1 New Participant Supplement
1	*	F1N16A	Mother's highest level of education	F1 New Participant Supplement
1	*	F1N16B	Father's highest level of education	F1 New Participant Supplement
1	*	F1N17A	Family has a daily newspaper	F1 New Participant Supplement
1	*	F1N17B	Family has regularly received magazine	F1 New Participant Supplement
1	*	F1N17C	Family has a computer	F1 New Participant Supplement
1	*	F1N17D	Family has access to the Internet	F1 New Participant Supplement
1	*	F1N17E	Family has DVD player	F1 New Participant Supplement
1	*	F1N17F	Family has an electric dishwasher	F1 New Participant Supplement
1	*	F1N17G	Family has a clothes dryer	F1 New Participant Supplement
1	*	F1N17H	Family has more than 50 books	F1 New Participant Supplement
1	*	F1N17I	Has own room	F1 New Participant Supplement
1	*	F1N17J	Family has fax machine	F1 New Participant Supplement
1		F2PHSDG	Type of HS credential received-diploma/certificate/GED - F2 preload	F2 Survey (High School)
1		F2PHSDT	Year/month received diploma, certificate or GED - F2 preload	F2 Survey (High School)
1		F2A01	Has received diploma, certificate, GED or equivalency	F2 Survey (High School)
1		F2A02	Type of high school credential received-diploma/certificate/GED	F2 Survey (High School)
1		F2A03	Year/month received diploma, certificate or GED	F2 Survey (High School)
1		F2A04	Program in which GED was earned	F2 Survey (High School)
1		F2A04A	Program in which GED was earned-other specify	F2 Survey (High School)
1		F2A05	State where GED/equivalency was earned	F2 Survey (High School)
1		F2A06A	Completed GED to improve/advance/keep up to date on current job	F2 Survey (High School)
1		F2A06B	Completed GED to train for a new job/career	F2 Survey (High School)
1		F2A06C	Completed GED to improve basic reading, writing, or math skills	F2 Survey (High School)
1		F2A06D	Completed GED to meet requirements for additional study	F2 Survey (High School)
1		F2A06E	Completed GED because required or encouraged by employer	F2 Survey (High School)
1		F2A06F	Completed GED because of personal/family/social reasons	F2 Survey (High School)
1		F2A07	Current high school activity	F2 Survey (High School)

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1		F2A08	Current/last high school grade level	F2 Survey (High School)
1		F2A09	Plans to get GED or high school diploma/certificate	F2 Survey (High School)
1		F2A10	Year/month expects to receive high school diploma/certificate/GED	F2 Survey (High School)
1		F2A11	Year/month last attended high school	F2 Survey (High School)
1		F2A12	Grade level in spring 2004	F2 Survey (High School)
1		F2A13	Whether out of school for 4 or more weeks in a row in spring 2004	F2 Survey (High School)
1		F2A14A	Left school because got a job	F2 Survey (High School)
1		F2A14B	Left school because did not like school	F2 Survey (High School)
1		F2A14C	Left school because could not get along with teachers/students	F2 Survey (High School)
1		F2A14D	Left school because was pregnant or became mother/father	F2 Survey (High School)
1		F2A14E	Left school because had to support family or care for family member	F2 Survey (High School)
1		F2A14F	Left school because was suspended or expelled	F2 Survey (High School)
1		F2A14G	Left school because did not feel safe	F2 Survey (High School)
1		F2A14H	Left school because did not feel belonged there	F2 Survey (High School)
1		F2A14I	Left school because could not keep up with schoolwork	F2 Survey (High School)
1		F2A14J	Left school because was getting poor grades/failing school	F2 Survey (High School)
1		F2A14K	Left school because could not work at same time	F2 Survey (High School)
1		F2A14L	Left school because couldn't complete courses or pass competency test	F2 Survey (High School)
1		F2A14M	Left school because thought it would be easier to get GED	F2 Survey (High School)
1		F2A14N	Left school because missed too many school days	F2 Survey (High School)
1		F2B01	Ever applied to postsecondary school	F2 Survey (Postsecondary Education)
1	*	F2B02	When applied to postsecondary school	F2 Survey (Postsecondary Education)
1	*	F2B03	Number of postsecondary schools applied to	F2 Survey (Postsecondary Education)
1	*	F2B04	Whether applied for financial aid	F2 Survey (Postsecondary Education)
1	*	F2B05A	Did not apply for aid because application process too difficult	F2 Survey (Postsecondary Education)
1	*	F2B05B	Did not apply for aid because thought to be ineligible	F2 Survey (Postsecondary Education)
1	*	F2B05C	Did not apply for aid because loan payback not affordable	F2 Survey (Postsecondary Education)
1	*	F2B05D	Did not apply for aid because able to pay without aid	F2 Survey (Postsecondary Education)
1	*	F2B05E	Did not apply for aid because did not want to report info	F2 Survey (Postsecondary Education)
1	*	F2B05F	Did not apply for aid because offered aid without applying	F2 Survey (Postsecondary Education)
1	*	F2B05G	Did not apply for aid because of other reason	F2 Survey (Postsecondary Education)
1	*	F2B06	Offered financial aid usable at more than one school	F2 Survey (Postsecondary Education)
1		F2B07	Whether has ever attended postsecondary school	F2 Survey (Postsecondary Education)
1	*	F2B08A	Did not continue education after HS because do not like school	F2 Survey (Postsecondary Education)
1	*	F2B08B	Did not continue education after HS because grades not high	F2 Survey (Postsecondary Education)
1	*	F2B08C	Did not continue education after HS because scores not high	F2 Survey (Postsecondary Education)
1	*	F2B08D	Did not continue educ after high school because won't need more educ	F2 Survey (Postsecondary Education)
1	*	F2B08E	Did not continue education after HS because cannot afford school	F2 Survey (Postsecondary Education)
1	*	F2B08F	Did not continue education after HS because rather work/make money	F2 Survey (Postsecondary Education)
1	*	F2B08G	Did not continue education after HS because school not important	F2 Survey (Postsecondary Education)
1	*	F2B08H	Did not continue education after HS for family reasons	F2 Survey (Postsecondary Education)
1	*	F2B08I	Did not continue education after HS because have a good job	F2 Survey (Postsecondary Education)

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1	*	F2B08J	Did not continue education after HS because was not accepted	F2 Survey (Postsecondary Education)
1	*	F2B08K	Did not continue education after HS because of traumatic experience	F2 Survey (Postsecondary Education)
1	*	F2B08L	Did not continue education after HS because of health reasons	F2 Survey (Postsecondary Education)
1	*	F2B08N	Did not continue education after HS because incarcerated/other reason	F2 Survey (Postsecondary Education)
1		F2B08NA	Did not continue education after HS because of specified reason	F2 Survey (Postsecondary Education)
1	*	F2B09	Main reason has not continued education after high school	F2 Survey (Postsecondary Education)
1	*	F2B10	Number of postsecondary schools attended since high school	F2 Survey (Postsecondary Education)
1	*	F2B11A	Delayed continuing educ because could not afford school	F2 Survey (Postsecondary Education)
1	*	F2B11B	Delayed continuing educ because needed to earn money	F2 Survey (Postsecondary Education)
1	*	F2B11C	Delayed continuing educ because not enough financial aid	F2 Survey (Postsecondary Education)
1	*	F2B11D	Delayed continuing educ because was not accepted	F2 Survey (Postsecondary Education)
1	*	F2B11E	Delayed continuing educ because needed to improve acad qualifications	F2 Survey (Postsecondary Education)
1	*	F2B11F	Delayed continuing educ because school was deferred	F2 Survey (Postsecondary Education)
1	*	F2B11G	Delayed continuing educ because wanted to work	F2 Survey (Postsecondary Education)
1	*	F2B11H	Delayed continuing educ because wanted to serve in military	F2 Survey (Postsecondary Education)
1	*	F2B11I	Delayed continuing educ for family reasons	F2 Survey (Postsecondary Education)
1	*	F2B11J	Delayed continuing educ because wanted to travel or pursue interests	F2 Survey (Postsecondary Education)
1	*	F2B11K	Delayed continuing educ because of traumatic experience	F2 Survey (Postsecondary Education)
1	*	F2B11L	Delayed continuing educ because of health reasons	F2 Survey (Postsecondary Education)
1	*	F2B11N	Delayed continuing educ b/c incarcerated/other reason	F2 Survey (Postsecondary Education)
1		F2B11NA	Delayed continuing educ because of specified reason	F2 Survey (Postsecondary Education)
1	*	F2B12	Main reason delayed continuing education	F2 Survey (Postsecondary Education)
1	*	F2B13A	Chose school for program	F2 Survey (Postsecondary Education)
1	*	F2B13B	Chose school for reputation	F2 Survey (Postsecondary Education)
1	*	F2B13C	Chose school for cost	F2 Survey (Postsecondary Education)
1	*	F2B13D	Chose school for location	F2 Survey (Postsecondary Education)
1	*	F2B13E	Chose school for personal or family reasons	F2 Survey (Postsecondary Education)
1	*	F2B13F	Chose school for another reason	F2 Survey (Postsecondary Education)
1	*	F2B14	Main reason chose school	F2 Survey (Postsecondary Education)
1	*	F2B15	Field of study most likely to pursue upon entering	F2 Survey (Postsecondary Education)
1	*	F2B16A	Took remedial course to improve reading skills	F2 Survey (Postsecondary Education)
1	*	F2B16B	Took remedial course to improve writing skills	F2 Survey (Postsecondary Education)
1	*	F2B16C	Took remedial course to improve math skills	F2 Survey (Postsecondary Education)
1	*	F2B17A	High school math prepared for first postsecondary school	F2 Survey (Postsecondary Education)
1	*	F2B17B	High school science prepared for first postsecondary school	F2 Survey (Postsecondary Education)
1	*	F2B17C	High school English/writing prepared for first postsecondary school	F2 Survey (Postsecondary Education)
1	*	F2B17D	High school voc/tech courses prepared for first postsecondary school	F2 Survey (Postsecondary Education)
1	*	F2B18A	Talk with faculty about academic matters outside of class	F2 Survey (Postsecondary Education)
1	*	F2B18B	Meet with advisor about academic plans	F2 Survey (Postsecondary Education)

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
				Education)
1	*	F2B18C	Work on coursework at school library	F2 Survey (Postsecondary Education)
1	*	F2B18D	Use the web to access school library for coursework	F2 Survey (Postsecondary Education)
1	*	F2B18E	Participate in intramural or nonvarsity sports	F2 Survey (Postsecondary Education)
1	*	F2B18F	Participate in varsity or intercollegiate sports	F2 Survey (Postsecondary Education)
1	*	F2B18G	Participate in other extracurricular activities	F2 Survey (Postsecondary Education)
1	*	F2B19A	Took a break because completed degree or certificate	F2 Survey (Postsecondary Education)
1	*	F2B19B	Took a break because finished taking desired classes	F2 Survey (Postsecondary Education)
1	*	F2B19C	Took a break because of academic problems	F2 Survey (Postsecondary Education)
1	*	F2B19D	Took a break because classes not available/convenient	F2 Survey (Postsecondary Education)
1	*	F2B19E	Took a break because of dissatisfaction with school	F2 Survey (Postsecondary Education)
1	*	F2B19F	Took a break because of financial reasons	F2 Survey (Postsecondary Education)
1	*	F2B19G	Took a break because of family responsibilities	F2 Survey (Postsecondary Education)
1	*	F2B19H	Took a break for personal health reasons	F2 Survey (Postsecondary Education)
1	*	F2B19I	Took a break because called for military service	F2 Survey (Postsecondary Education)
1	*	F2B19J	Took a break because of a traumatic experience	F2 Survey (Postsecondary Education)
1	*	F2B19K	Took a break for another reason	F2 Survey (Postsecondary Education)
1	*	F2B20A	Enrolled part-time for financial reasons	F2 Survey (Postsecondary Education)
1	*	F2B20B	Enrolled part-time because full-time program was not available	F2 Survey (Postsecondary Education)
1	*	F2B20C	Enrolled part-time because of family responsibilities	F2 Survey (Postsecondary Education)
1	*	F2B20D	Enrolled part-time because working	F2 Survey (Postsecondary Education)
1	*	F2B20E	Enrolled part-time because of other interests/hobbies	F2 Survey (Postsecondary Education)
1	*	F2B20F	Enrolled part-time for personal health reasons	F2 Survey (Postsecondary Education)
1	*	F2B20G	Enrolled part-time because of a traumatic experience	F2 Survey (Postsecondary Education)
1	*	F2B20H	Enrolled part-time for another reason	F2 Survey (Postsecondary Education)
1	*	F2B21A	Transferred because completed degree or certificate	F2 Survey (Postsecondary Education)
1	*	F2B21B	Transferred because finished classes	F2 Survey (Postsecondary Education)
1	*	F2B21C	Transferred to pursue bachelor's degree	F2 Survey (Postsecondary Education)
1	*	F2B21D	Transferred due to academic problems	F2 Survey (Postsecondary Education)
1	*	F2B21E	Transferred due to scheduling problems	F2 Survey (Postsecondary Education)
1	*	F2B21F	Transferred due to dissatisfaction with school	F2 Survey (Postsecondary Education)
1	*	F2B21G	Transferred because of location	F2 Survey (Postsecondary Education)
1	*	F2B21H	Transferred for financial reasons	F2 Survey (Postsecondary Education)
1	*	F2B21I	Transferred due to family responsibilities	F2 Survey (Postsecondary Education)
1	*	F2B21J	Transferred due to personal health reasons	F2 Survey (Postsecondary Education)
1	*	F2B21K	Transferred because of a traumatic experience	F2 Survey (Postsecondary Education)
1	*	F2B21L	Transferred for another reason	F2 Survey (Postsecondary Education)
1	*	F2B22	Major declared/undeclared	F2 Survey (Postsecondary Education)
1		F2B23A	Major - primary string	F2 Survey (Postsecondary Education)

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1		F2B24	Major - secondary string	F2 Survey (Postsecondary Education)
1	*	F2B25A	Postsecondary education paid with grants/scholarships	F2 Survey (Postsecondary Education)
1	*	F2B25B	Postsecondary education paid with student loans	F2 Survey (Postsecondary Education)
1	*	F2B25C	Postsecondary education paid with parent loans	F2 Survey (Postsecondary Education)
1	*	F2B25D	Postsecondary education paid with college work-study	F2 Survey (Postsecondary Education)
1	*	F2B25E	Postsecondary education paid with savings/job earnings	F2 Survey (Postsecondary Education)
1	*	F2B25F	Postsecondary education paid with contributions from family	F2 Survey (Postsecondary Education)
1	*	F2B25G	Postsecondary education paid with employer assistance	F2 Survey (Postsecondary Education)
1	*	F2B25H	Postsecondary education paid another way	F2 Survey (Postsecondary Education)
1		F2B26R	Amount borrowed for undergraduate loans	F2 Survey (Postsecondary Education)
1	*	F2B26P	Amount borrowed for undergraduate loans - categorical	F2 Survey (Postsecondary Education)
1	*	F2B27	Whether parents helping to repay loans	F2 Survey (Postsecondary Education)
1		F2B28R	Amount expects in undergraduate student loans in future	F2 Survey (Postsecondary Education)
1	*	F2B28P	Amount expects in undergraduate student loans in future - categorical	F2 Survey (Postsecondary Education)
1	*	F2B29A	No longer enrolled due to completion of degree/certificate	F2 Survey (Postsecondary Education)
1	*	F2B29B	No longer enrolled due to finishing desired classes	F2 Survey (Postsecondary Education)
1	*	F2B29C	No longer enrolled due to academic problems	F2 Survey (Postsecondary Education)
1	*	F2B29D	No longer enrolled due to scheduling problems	F2 Survey (Postsecondary Education)
1	*	F2B29E	No longer enrolled due to dissatisfaction with school	F2 Survey (Postsecondary Education)
1	*	F2B29F	No longer enrolled for financial reasons	F2 Survey (Postsecondary Education)
1	*	F2B29G	No longer enrolled due to family responsibilities	F2 Survey (Postsecondary Education)
1	*	F2B29H	No longer enrolled due to personal health reasons	F2 Survey (Postsecondary Education)
1	*	F2B29I	No longer enrolled due to call for military service	F2 Survey (Postsecondary Education)
1	*	F2B29J	No longer enrolled due to traumatic experience	F2 Survey (Postsecondary Education)
1	*	F2B29K	No longer enrolled due to another reason	F2 Survey (Postsecondary Education)
1		F2B30	Highest level of education respondent expects to complete	F2 Survey (Postsecondary Education)
1		F2C01	Ever held a job since leaving high school	F2 Survey (Employment)
1	*	F2C02	Whether held job between high school/first postsecondary attendance	F2 Survey (Employment)
1		F2C03A	First job after high school - title	F2 Survey (Employment)
1		F2C03B	First job after high school - duties	F2 Survey (Employment)
1		F2C04R	Year/month started first job after high school	F2 Survey (Employment)
1	*	F2C04P	Year/quarter started first job after high school	F2 Survey (Employment)
1		F2C05R	Hours per week on first job after high school	F2 Survey (Employment)
1	*	F2C05P	Hours per week on first job after high school - categorical	F2 Survey (Employment)
1		F2C06A	Earnings on first job after high school (dollars)	F2 Survey (Employment)
1		F2C06B	Earnings on first job after high school (time unit)	F2 Survey (Employment)
1	*	F2C07	Type of employer - first job	F2 Survey (Employment)
1	*	F2C08A	Job placement due to responding to advertisement	F2 Survey (Employment)
1	*	F2C08B	Job placement due to sending resume or contacting employers	F2 Survey (Employment)
1	*	F2C08C	Job placement due to networking with friends or relatives	F2 Survey (Employment)
1	*	F2C08D	Job placement due to school assistance	F2 Survey (Employment)



*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
1	*	F2C08E	Job placement due to another way	F2 Survey (Employment)
1	*	F2C09	Still employed by first employer after high school	F2 Survey (Employment)
1		F2C10R	Year/month stopped working for first employer	F2 Survey (Employment)
1	*	F2C10P	Year/quarter stopped working for first employer	F2 Survey (Employment)
1	*	F2C11	Reason no longer working for first employer	F2 Survey (Employment)
1	*	F2C12	Has job with another employer at which works more hours	F2 Survey (Employment)
1	*	F2C13	Whether currently employed	F2 Survey (Employment)
1	*	F2C14	Whether current position with first employer is same job	F2 Survey (Employment)
1	*	F2C15	Main reason for not currently working	F2 Survey (Employment)
1		F2C16A	Current job - title	F2 Survey (Employment)
1		F2C16B	Current job - duties	F2 Survey (Employment)
1		F2C17R	Year/month started current job	F2 Survey (Employment)
1	*	F2C17P	Year/quarter started current job	F2 Survey (Employment)
1		F2C18R	Hours per week on current job	F2 Survey (Employment)
1	*	F2C18P	Hours per week on current job - categorical	F2 Survey (Employment)
1		F2C19A	Earnings on current job (dollars)	F2 Survey (Employment)
1		F2C19B	Earnings on current job (time unit)	F2 Survey (Employment)
1	*	F2C20	Type of employer - current job	F2 Survey (Employment)
1	*	F2C21	Whether current employer offers health insurance	F2 Survey (Employment)
1	*	F2C22A	Satisfaction with pay/fringe benefits of current job	F2 Survey (Employment)
1	*	F2C22B	Satisfaction with working conditions of current job	F2 Survey (Employment)
1	*	F2C22C	Satisfaction with promotion opportunities of current job	F2 Survey (Employment)
1	*	F2C22D	Satisfaction with security of current job	F2 Survey (Employment)
1	*	F2C23	Description of current job's purpose	F2 Survey (Employment)
1	*	F2C24	Number of jobs during 2004-2005 school year	F2 Survey (Employment)
1	*	F2C25A	Held internship or co-op job while enrolled in 2004-2005 school year	F2 Survey (Employment)
1	*	F2C25B	Held work-study job while enrolled in 2004-2005 school year	F2 Survey (Employment)
1	*	F2C25C	Held job related to studies while enrolled in 2004-2005 school year	F2 Survey (Employment)
1		F2C26R	Hours worked weekly during 2004-2005 school year	F2 Survey (Employment)
1	*	F2C26P	Hours worked weekly during 2004-2005 school year - categorical	F2 Survey (Employment)
1	*	F2C27	Main reason for working while enrolled in 2004-2005 school year	F2 Survey (Employment)
1	*	F2C28	Whether could have afforded school without working in 2004-2005	F2 Survey (Employment)
1	*	F2C29	Number of jobs during 2005-2006 school year	F2 Survey (Employment)
1	*	F2C30A	Held internship or co-op job while enrolled in 2005-2006 school year	F2 Survey (Employment)
1	*	F2C30B	Held work-study job while enrolled in 2005-2006 school year	F2 Survey (Employment)
1	*	F2C30C	Held job related to studies while enrolled in 2005-2006 school year	F2 Survey (Employment)
1		F2C31R	Hours worked weekly during 2005-2006 school year	F2 Survey (Employment)
1	*	F2C31P	Hours worked weekly during 2005-2006 school year - categorical	F2 Survey (Employment)
1	*	F2C32	Main reason for working while enrolled in 2005-2006 school year	F2 Survey (Employment)
1	*	F2C33	Whether could have afforded school without working in 2005-2006	F2 Survey (Employment)
1		F2C34	Respondent's total 2005 job earnings	F2 Survey (Employment)
1		F2C35	Respondent's total 2005 job earnings-categorical	F2 Survey (Employment)
1	*	F2C36	Contribute to children's or anyone else's support	F2 Survey (Employment)
1	*	F2C37	Number of credit cards in own name	F2 Survey (Employment)
1	*	F2C38	Whether used credit to pay tuition	F2 Survey (Employment)
1	*	F2C39	Payoff or carry credit balance	F2 Survey (Employment)
1		F2C40A	Job expected at age 30-title	F2 Survey (Employment)
1		F2C40B	Job expected at age 30-duties	F2 Survey (Employment)

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1	*	F2C41	How much education respondent thinks will be needed for job at age 30	F2 Survey (Employment)
1	*	F2D01	Marital status	F2 Survey (Community)
1		F2D02R	Year/month of first marriage	F2 Survey (Community)
1	*	F2D02P	Year/quarter of first marriage	F2 Survey (Community)
1	*	F2D03	Whether has biological children	F2 Survey (Community)
1	*	F2D04	Number of biological children	F2 Survey (Community)
1		F2D05R	Year/month first biological child was born	F2 Survey (Community)
1	*	F2D05P	Year/quarter first biological child was born	F2 Survey (Community)
1	*	F2D06	Residence when first enrolled	F2 Survey (Community)
1	*	F2D07	Residence while enrolled in spring 2006	F2 Survey (Community)
1	*	F2D08A	Household composition-father or male guardian	F2 Survey (Community)
1	*	F2D08B	Household composition-mother or female guardian	F2 Survey (Community)
1	*	F2D08C	Household composition-friends or roommates	F2 Survey (Community)
1	*	F2D08D	Household composition-siblings	F2 Survey (Community)
1	*	F2D08E	Household composition-spouse	F2 Survey (Community)
1	*	F2D08F	Household composition-biological children	F2 Survey (Community)
1	*	F2D08G	Household composition-other children	F2 Survey (Community)
1	*	F2D08H	Household composition-others	F2 Survey (Community)
1	*	F2D09	Whether performed volunteer/community service work in past 2 years	F2 Survey (Community)
1	*	F2D10A	Volunteered with youth organization	F2 Survey (Community)
1	*	F2D10B	Volunteered with school/community organizations	F2 Survey (Community)
1	*	F2D10C	Volunteered with political organization	F2 Survey (Community)
1	*	F2D10D	Volunteered with church-related group	F2 Survey (Community)
1	*	F2D10E	Volunteered with neighborhood/social action associations	F2 Survey (Community)
1	*	F2D10F	Volunteered with hospital or nursing home	F2 Survey (Community)
1	*	F2D10G	Volunteered with education organizations	F2 Survey (Community)
1	*	F2D10H	Volunteered with conservation/environmental group	F2 Survey (Community)
1	*	F2D11	Frequency of volunteer service	F2 Survey (Community)
1	*	F2D12	Voted in local or state election in past 2 years	F2 Survey (Community)
1	*	F2D13	Voted in 2004 Presidential election	F2 Survey (Community)
1	*	F2D14	Whether served in military	F2 Survey (Community)
1	*	F2D15A	Parents/guardians divorced in last 2 years	F2 Survey (Community)
1	*	F2D15B	Parent/guardian lost job in last 2 years	F2 Survey (Community)
1	*	F2D15C	Parent/guardian died in last 2 years	F2 Survey (Community)
1	*	F2D15D	A close relative/friend died in last 2 years	F2 Survey (Community)
1	*	F2D15E	Respondent became seriously ill or disabled in last 2 years	F2 Survey (Community)
1	*	F2D15F	Family member became seriously injured/disabled in last 2 years	F2 Survey (Community)
1	*	F2D15G	Respondent was victim of violence in last 2 years	F2 Survey (Community)
1	*	BYP01	Relationship to 10th grader	BY Parent Questionnaire
1	*	BYP02	Biological/adoptive parent lives with 10th grader	BY Parent Questionnaire
1	*	BYP03	Lives with a spouse or partner	BY Parent Questionnaire
1	*	BYP04	Spouse/partner's relationship to 10th grader	BY Parent Questionnaire
1	*	BYP05	How often 10th grader lives with respondent	BY Parent Questionnaire
1	*	BYP06	# of dependents	BY Parent Questionnaire
1	*	BYP07A	# full/adoptive brothers live with 10th grader	BY Parent Questionnaire
1	*	BYP07B	# half-brothers live with 10th grader	BY Parent Questionnaire
1	*	BYP07C	# step-brothers live with 10th grader	BY Parent Questionnaire
1	*	BYP07D	# full/adoptive sisters live with 10th grader	BY Parent Questionnaire

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
1	*	BYP07E	# half-sisters live with 10th grader	BY Parent Questionnaire
1	*	BYP07F	# step-sisters live with 10th grader	BY Parent Questionnaire
1	*	BYP07G	# of 10th grader's children live with 10th grader	BY Parent Questionnaire
1	*	BYP07H	# grandparents live with 10th grader	BY Parent Questionnaire
1	*	BYP07I	# other relatives under 18 live with 10th grader	BY Parent Questionnaire
1	*	BYP07J	# other relatives 18 or older live with 10th grader	BY Parent Questionnaire
1	*	BYP07K	# non-relatives under 18 live with 10th grader	BY Parent Questionnaire
1	*	BYP07L	# non-relatives 18 or older live with 10th grader	BY Parent Questionnaire
1	*	BYP08	# of siblings 10th grader has	BY Parent Questionnaire
1	*	BYP09	# of siblings who dropped out of high school	BY Parent Questionnaire
1	*	BYP10	Current marital status of parent respondent	BY Parent Questionnaire
1	*	BYP11	Parent respondent's year of birth	BY Parent Questionnaire
1	*	BYP12	Spouse/partner's year of birth	BY Parent Questionnaire
1	*	BYP13	Parent is Hispanic	BY Parent Questionnaire
1		BYP14	Parent's Hispanic subgroup (restricted)	BY Parent Questionnaire
1		BYP15A	Parent is White (restricted)	BY Parent Questionnaire
1		BYP15B	Parent is Black or African American (restricted)	BY Parent Questionnaire
1		BYP15C	Parent is Asian (restricted)	BY Parent Questionnaire
1		BYP15D	Parent is Native Hawaiian/Pacific Islander (restricted)	BY Parent Questionnaire
1		BYP15E	Parent is American Indian/Alaska Native (restricted)	BY Parent Questionnaire
1		BYP16	Parent's Asian subgroup (restricted)	BY Parent Questionnaire
1	*	BYP17	Whether 10th grader's mother's birthplace in US or elsewhere	BY Parent Questionnaire
1	*	BYP18	# of years ago mother came to US	BY Parent Questionnaire
1		BYP19A	Mother's occupation before coming to US (restricted)	BY Parent Questionnaire
1		BYP19B	Mother's main job duties outside US (restricted)	BY Parent Questionnaire
1	*	BYP20	Whether 10th grader's father's birthplace in US or elsewhere	BY Parent Questionnaire
1	*	BYP21	# of years ago father came to US	BY Parent Questionnaire
1		BYP22A	Father's occupation before coming to US (restricted)	BY Parent Questionnaire
1		BYP22B	Father's job main duties outside US (restricted)	BY Parent Questionnaire
1	*	BYP23	Whether 10th grader's birthplace in US or elsewhere	BY Parent Questionnaire
1	*	BYP24	# of years ago 10th grader came to US	BY Parent Questionnaire
1	*	BYP25	10th grader attended school outside US	BY Parent Questionnaire
1	*	BYP26A	10th grader completed kindergarten outside US	BY Parent Questionnaire
1	*	BYP26B	10th grader completed 1st grade outside US	BY Parent Questionnaire
1	*	BYP26C	10th grader completed 2nd grade outside US	BY Parent Questionnaire
1	*	BYP26D	10th grader completed 3rd grade outside US	BY Parent Questionnaire
1	*	BYP26E	10th grader completed 4th grade outside US	BY Parent Questionnaire
1	*	BYP26F	10th grader completed 5th grade outside US	BY Parent Questionnaire
1	*	BYP26G	10th grader completed 6th grade outside US	BY Parent Questionnaire
1	*	BYP26H	10th grader completed 7th grade outside US	BY Parent Questionnaire
1	*	BYP26I	10th grader completed 8th grade outside US	BY Parent Questionnaire
1	*	BYP26J	10th grader completed 9th grade outside US	BY Parent Questionnaire
1	*	BYP26K	10th grader completed 10th grade outside US	BY Parent Questionnaire
1	*	BYP26L	10th grader did not complete any grades outside US	BY Parent Questionnaire
1	*	BYP27	Grade student placed in when started school in US	BY Parent Questionnaire
1	*	BYP28	English is parent respondent's native language	BY Parent Questionnaire
1		BYP29	Native language of parent respondent (restricted)	BY Parent Questionnaire
1	*	BYP30A	How often parent speaks native language with spouse/partner	BY Parent Questionnaire

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1	*	BYP30B	How often parent speaks native language with children	BY Parent Questionnaire
1	*	BYP30C	How often parent speaks native language with other relatives	BY Parent Questionnaire
1	*	BYP30D	How often parent speaks native language with friends	BY Parent Questionnaire
1	*	BYP31A	How well parent understands spoken English	BY Parent Questionnaire
1	*	BYP31B	How well parent speaks English	BY Parent Questionnaire
1	*	BYP31C	How well parent reads English	BY Parent Questionnaire
1	*	BYP31D	How well parent writes English	BY Parent Questionnaire
1	*	BYP32A	Problems reading English books/magazines	BY Parent Questionnaire
1	*	BYP32B	Problems parent has filling out forms in English	BY Parent Questionnaire
1	*	BYP32C	Problems parent has understanding 10th grader's teachers	BY Parent Questionnaire
1	*	BYP32D	Problems parent has making self understood by teachers	BY Parent Questionnaire
1	*	BYP32E	Problems helping 10th grader with homework in English	BY Parent Questionnaire
1	*	BYP33	Religious background of parent respondent	BY Parent Questionnaire
1	*	BYP34A	Parent's highest level of education completed	BY Parent Questionnaire
1	*	BYP34B	Spouse/partner's highest level of education completed	BY Parent Questionnaire
1	*	BYP35A	Parent's mother's highest level of education	BY Parent Questionnaire
1	*	BYP35B	Parent's father's highest level of education	BY Parent Questionnaire
1	*	BYP35C	Spouse/partner's mother's highest level education	BY Parent Questionnaire
1	*	BYP35D	Spouse/partner's father's highest level education	BY Parent Questionnaire
1	*	BYP36	Parent working for pay during past week	BY Parent Questionnaire
1	*	BYP37	Parent's current work status	BY Parent Questionnaire
1	*	BYP38	Whether parent ever held regular job for pay in US	BY Parent Questionnaire
1		BYP39A	Parent's current/most recent job for pay in US (restricted)	BY Parent Questionnaire
1		BYP39B	Parent's main job duties (restricted)	BY Parent Questionnaire
1	*	BYP39C	Parent's job description category	BY Parent Questionnaire
1	*	BYP40	Spouse/partner working for pay during past week	BY Parent Questionnaire
1	*	BYP41	Spouse/partner's current work status	BY Parent Questionnaire
1	*	BYP42	Whether spouse/partner ever held regular job for pay in US	BY Parent Questionnaire
1		BYP43A	Spouse/partner's current/most recent job for pay in US (restricted)	BY Parent Questionnaire
1		BYP43B	Spouse/partner's main job duties (restricted)	BY Parent Questionnaire
1	*	BYP43C	Spouse/partner's job description category	BY Parent Questionnaire
1	*	BYP44A	10th grader attended day care program	BY Parent Questionnaire
1	*	BYP44B	10th grader attended nursery/pre-school	BY Parent Questionnaire
1	*	BYP44C	10th grader attended Head Start program	BY Parent Questionnaire
1	*	BYP44D	10th grader attended kindergarten	BY Parent Questionnaire
1	*	BYP45	# times 10th grader changed schools other than promotions	BY Parent Questionnaire
1	*	BYP46	10th grader ever held back a grade	BY Parent Questionnaire
1	*	BYP47A	10th grader held back because of parental request	BY Parent Questionnaire
1	*	BYP47B	10th grader held back because of school request	BY Parent Questionnaire
1	*	BYP47C	10th grader held back for other reason	BY Parent Questionnaire
1	*	BYP48A	10th grader repeated kindergarten	BY Parent Questionnaire
1	*	BYP48B	10th grader repeated 1st grade	BY Parent Questionnaire
1	*	BYP48C	10th grader repeated 2nd grade	BY Parent Questionnaire
1	*	BYP48D	10th grader repeated 3rd grade	BY Parent Questionnaire
1	*	BYP48E	10th grader repeated 4th grade	BY Parent Questionnaire
1	*	BYP48F	10th grader repeated 5th grade	BY Parent Questionnaire
1	*	BYP48G	10th grader repeated 6th grade	BY Parent Questionnaire
1	*	BYP48H	10th grader repeated 7th grade	BY Parent Questionnaire

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
1	*	BYP48I	10th grader repeated 8th grade	BY Parent Questionnaire
1	*	BYP48J	10th grader repeated 9th grade	BY Parent Questionnaire
1	*	BYP48K	10th grader repeated 10th grade	BY Parent Questionnaire
1	*	BYP49	Thinks 10th grader has disability	BY Parent Questionnaire
1	*	BYP50A	10th grader has specific learning disabilities	BY Parent Questionnaire
1	*	BYP50B	10th grader has speech/language impairments	BY Parent Questionnaire
1	*	BYP50C	10th grader has mental retardation	BY Parent Questionnaire
1	*	BYP50D	10th grader has emotional disturbance	BY Parent Questionnaire
1	*	BYP50E	10th grader has hearing impairments	BY Parent Questionnaire
1	*	BYP50F	10th grader has orthopedic impairments	BY Parent Questionnaire
1	*	BYP50G	10th grader has visual impairments	BY Parent Questionnaire
1	*	BYP50H	10th grader has other disability	BY Parent Questionnaire
1	*	BYP51	10th grader ever had behavior problem at school	BY Parent Questionnaire
1	*	BYP52A	School contacted parent about poor performance	BY Parent Questionnaire
1	*	BYP52B	School contacted parent about school program for year	BY Parent Questionnaire
1	*	BYP52C	School contacted parent about plans after high school	BY Parent Questionnaire
1	*	BYP52D	School contacted parent about course selection	BY Parent Questionnaire
1	*	BYP52E	School contacted parent about poor attendance	BY Parent Questionnaire
1	*	BYP52F	School contacted parent about problem behavior	BY Parent Questionnaire
1	*	BYP52G	School contacted parent about positive/good behavior	BY Parent Questionnaire
1	*	BYP52H	School contacted parent about fundraising/volunteer work	BY Parent Questionnaire
1	*	BYP52I	School contacted parent about helping with homework	BY Parent Questionnaire
1	*	BYP52J	School contacted parent to obtain information for records	BY Parent Questionnaire
1	*	BYP53A	Parent contacted school about poor performance	BY Parent Questionnaire
1	*	BYP53B	Parent contacted school about school program for year	BY Parent Questionnaire
1	*	BYP53C	Parent contacted school about plans after high school	BY Parent Questionnaire
1	*	BYP53D	Parent contacted school about course selection	BY Parent Questionnaire
1	*	BYP53E	Parent contacted school about poor attendance	BY Parent Questionnaire
1	*	BYP53F	Parent contacted school about problem behavior	BY Parent Questionnaire
1	*	BYP53G	Parent contacted school about positive/good behavior	BY Parent Questionnaire
1	*	BYP53H	Parent contacted school about fundraising/volunteer work	BY Parent Questionnaire
1	*	BYP53I	Parent contacted school about helping with homework	BY Parent Questionnaire
1	*	BYP53J	Parent contacted school to provide information for records	BY Parent Questionnaire
1	*	BYP54A	Belong to parent-teacher organization	BY Parent Questionnaire
1	*	BYP54B	Attend parent-teacher organization meetings	BY Parent Questionnaire
1	*	BYP54C	Take part in parent-teach organization activities	BY Parent Questionnaire
1	*	BYP54D	Act as a volunteer at the school	BY Parent Questionnaire
1	*	BYP54E	Belong to other organization with parents from school	BY Parent Questionnaire
1	*	BYP55A	How often check that homework completed	BY Parent Questionnaire
1	*	BYP55B	How often discuss report card	BY Parent Questionnaire
1	*	BYP55C	How often know whereabouts	BY Parent Questionnaire
1	*	BYP55D	How often make/enforce school night curfews	BY Parent Questionnaire
1	*	BYP56A	Provide advice about selecting courses or programs	BY Parent Questionnaire
1	*	BYP56B	Provide advice about plans for college entrance exams	BY Parent Questionnaire
1	*	BYP56C	Provide advice about applying to college/school after hs	BY Parent Questionnaire
1	*	BYP56D	Provide advice about jobs to apply for after high school	BY Parent Questionnaire
1	*	BYP56E	Provide information about community/national/world events	BY Parent Questionnaire
1	*	BYP56F	Provide advice about things troubling 10th grader	BY Parent Questionnaire

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1	*	BYP57A	Attended school activities with 10th grader	BY Parent Questionnaire
1	*	BYP57B	Worked on homework/school projects with 10th grader	BY Parent Questionnaire
1	*	BYP57C	Attended concerts/plays/movies with 10th grader	BY Parent Questionnaire
1	*	BYP57D	Attended sports events outside school with 10th grader	BY Parent Questionnaire
1	*	BYP57E	Attended religious services with 10th grader	BY Parent Questionnaire
1	*	BYP57F	Attended family social functions with 10th grader	BY Parent Questionnaire
1	*	BYP57G	Took day trips/vacations with 10th grader	BY Parent Questionnaire
1	*	BYP57H	Worked on hobby/played sports with 10th grader	BY Parent Questionnaire
1	*	BYP57I	Went shopping with 10th grader	BY Parent Questionnaire
1	*	BYP57J	Went to restaurants with 10th grader	BY Parent Questionnaire
1	*	BYP57K	Spent time talking with 10th grader	BY Parent Questionnaire
1	*	BYP57L	Did something else fun with 10th grader	BY Parent Questionnaire
1	*	BYP58A	Most people can learn to be good at math-parent's opinion	BY Parent Questionnaire
1	*	BYP58B	Must be born w/ability to be good at math-parent's opinion	BY Parent Questionnaire
1	*	BYP59BA	1st friend attends same school	BY Parent Questionnaire
1	*	BYP59CA	Knows 10th grader's 1st friend	BY Parent Questionnaire
1	*	BYP59DA	Knows mother of 10th grader's 1st friend	BY Parent Questionnaire
1	*	BYP59EA	Knows father of 10th grader's 1st friend	BY Parent Questionnaire
1	*	BYP59BB	2nd friend attends same school	BY Parent Questionnaire
1	*	BYP59CB	Knows 10th grader's 2nd friend	BY Parent Questionnaire
1	*	BYP59DB	Knows mother of 10th grader's 2nd friend	BY Parent Questionnaire
1	*	BYP59EB	Knows father of 10th grader's 2nd friend	BY Parent Questionnaire
1	*	BYP59BC	3rd friend attends same school	BY Parent Questionnaire
1	*	BYP59CC	Knows 10th grader's 3rd friend	BY Parent Questionnaire
1	*	BYP59DC	Knows mother of 10th grader's 3rd friend	BY Parent Questionnaire
1	*	BYP59EC	Knows father of 10th grader's 3rd friend	BY Parent Questionnaire
1	*	BYP60A	Friend's parent gave advice about teachers/courses	BY Parent Questionnaire
1	*	BYP60B	Friend's parent did favor	BY Parent Questionnaire
1	*	BYP60C	Friend's parent received favor	BY Parent Questionnaire
1	*	BYP60D	Friend's parent supervised 10th grader on field trip	BY Parent Questionnaire
1	*	BYP61	10th grader has biological/adoptive parent living outside home	BY Parent Questionnaire
1	*	BYP62	10th grader has contact with non-resident parent	BY Parent Questionnaire
1	*	BYP63	Non-resident parent's participation in education decisions	BY Parent Questionnaire
1	*	BYP64A	Non-resident parent attended school open-house	BY Parent Questionnaire
1	*	BYP64B	Non-resident parent attended PTA/PTO meeting	BY Parent Questionnaire
1	*	BYP64C	Non-resident parent attended parent/teacher conference	BY Parent Questionnaire
1	*	BYP64D	Non-resident parent attended school/class event	BY Parent Questionnaire
1	*	BYP65	# of years parent has lived in current neighborhood	BY Parent Questionnaire
1	*	BYP66	How involved parent feels in neighborhood/community	BY Parent Questionnaire
1	*	BYP67	Level of crime in neighborhood	BY Parent Questionnaire
1	*	BYP68	How safe is neighborhood	BY Parent Questionnaire
1	*	BYP69A	Family rules for 10th grader about maintaining grade average	BY Parent Questionnaire
1	*	BYP69B	Family rules for 10th grader about doing homework	BY Parent Questionnaire
1	*	BYP69C	Family rules for 10th grader about doing household chores	BY Parent Questionnaire
1	*	BYP69D	Family rules for 10th grader about watching TV	BY Parent Questionnaire
1	*	BYP70	Days/week eat at least one meal with 10th grader	BY Parent Questionnaire
1	*	BYP71	Computer in home that 10th grader may use	BY Parent Questionnaire
1	*	BYP72	Computer has access to Internet	BY Parent Questionnaire

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
1	*	BYP73	Uses computer to communicate with 10th grader's school	BY Parent Questionnaire
1	*	BYP74A	How often e-mails teachers/staff about 10th grader	BY Parent Questionnaire
1	*	BYP74B	How often uses computer to learn about school events	BY Parent Questionnaire
1	*	BYP74C	How often uses computer to express concern over policy	BY Parent Questionnaire
1	*	BYP74D	How often uses computer to select classes for 10th grader	BY Parent Questionnaire
1	*	BYP74E	How often uses computer to get information about homework	BY Parent Questionnaire
1	*	BYP75	School has voice-messaging system	BY Parent Questionnaire
1	*	BYP76	How often use voice-messaging system	BY Parent Questionnaire
1	*	BYP77A	School assigns too little homework	BY Parent Questionnaire
1	*	BYP77B	10th grader challenged at school	BY Parent Questionnaire
1	*	BYP77C	10th grader working hard at school	BY Parent Questionnaire
1	*	BYP77D	School preparing students well for jobs in workplace	BY Parent Questionnaire
1	*	BYP77E	School preparing students well for college	BY Parent Questionnaire
1	*	BYP77F	The school is a safe place	BY Parent Questionnaire
1	*	BYP77G	Parents have adequate say in setting school policy	BY Parent Questionnaire
1	*	BYP77H	Parents work together supporting school policy	BY Parent Questionnaire
1	*	BYP77I	10th grader's teachers are well trained	BY Parent Questionnaire
1	*	BYP77J	Drinking on school grounds is problem	BY Parent Questionnaire
1	*	BYP77K	Drug use on school grounds is problem	BY Parent Questionnaire
1	*	BYP77L	Sale/use of drugs on way to/from school is problem	BY Parent Questionnaire
1	*	BYP77M	Theft on school grounds is problem	BY Parent Questionnaire
1	*	BYP77N	Violence on school grounds is problem	BY Parent Questionnaire
1	*	BYP77O	Lack of discipline in class is problem	BY Parent Questionnaire
1	*	BYP78	Satisfaction with 10th grader's education up to now	BY Parent Questionnaire
1	*	BYP79	How far in school wants 10th grader to go	BY Parent Questionnaire
1	*	BYP80A	Post-sec school's low expenses important to parent	BY Parent Questionnaire
1	*	BYP80B	Availability of post-sec financial aid important to parent	BY Parent Questionnaire
1	*	BYP80C	Post-sec school's courses/curriculum important to parent	BY Parent Questionnaire
1	*	BYP80D	Post-sec school's athletic program important to parent	BY Parent Questionnaire
1	*	BYP80E	Post-sec school's active social life important to parent	BY Parent Questionnaire
1	*	BYP80F	Living at home while attending post-sec important to parent	BY Parent Questionnaire
1	*	BYP80G	Away from home while attending post-sec important to parent	BY Parent Questionnaire
1	*	BYP80H	Post-sec school's religious environment important to parent	BY Parent Questionnaire
1	*	BYP80I	Post-sec school's low crime important to parent	BY Parent Questionnaire
1	*	BYP80J	Post-sec school's job placement record important to parent	BY Parent Questionnaire
1	*	BYP80K	Post-sec school's grad school placement important to parent	BY Parent Questionnaire
1	*	BYP80L	Post-sec school's academic reputation important to parent	BY Parent Questionnaire
1	*	BYP80M	Post-sec school's easy admission important to parent	BY Parent Questionnaire
1	*	BYP80N	Post-sec school's racial/ethnic makeup important to parent	BY Parent Questionnaire
1	*	BYP80O	Post-sec school's size important to parent	BY Parent Questionnaire
1	*	BYP81	How far in school parent expects 10th grader will go	BY Parent Questionnaire
1	*	BYP82	Savings efforts for 10th grader's education after high school	BY Parent Questionnaire
1	*	BYP83A	Started a savings account	BY Parent Questionnaire
1	*	BYP83B	Bought an insurance policy	BY Parent Questionnaire
1	*	BYP83C	Bought U.S. savings bonds	BY Parent Questionnaire
1	*	BYP83D	Made investments in stocks/real estate	BY Parent Questionnaire
1	*	BYP83E	Set up a college investment fund	BY Parent Questionnaire
1	*	BYP83F	Started working another job/more hours	BY Parent Questionnaire

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1	*	BYP83G	Established another form of savings	BY Parent Questionnaire
1	*	BYP83H	Reduced other expenses in some way	BY Parent Questionnaire
1	*	BYP83I	Planned to reduce other expenses in some way	BY Parent Questionnaire
1	*	BYP83J	Remortgaged property/took out home-equity loan	BY Parent Questionnaire
1	*	BYP83K	Planned to remortgage property/take out home-equity loan	BY Parent Questionnaire
1	*	BYP83L	Had 10th grader put aside earnings	BY Parent Questionnaire
1	*	BYP83M	Participated in state-sponsored college savings program	BY Parent Questionnaire
1	*	BYP84	Amount of money set aside for 10th grader's future education	BY Parent Questionnaire
1	*	BYP85	Total family income from all sources 2001	BY Parent Questionnaire
1	*	BYP86	# of earners contributed to family income	BY Parent Questionnaire
1	*	BYP97	Received help in completing questionnaire	BY Parent Questionnaire
1	*	BYP98A	10th grader helped with questionnaire	BY Parent Questionnaire
1	*	BYP98B	Spouse/partner helped with questionnaire	BY Parent Questionnaire
1	*	BYP98C	Other family member helped with questionnaire	BY Parent Questionnaire
1	*	BYP98D	A friend helped with questionnaire	BY Parent Questionnaire
1	*	BYP98E	Other person in community helped with questionnaire	BY Parent Questionnaire
1	*	BYP99	Year/month parent questionnaire completed	BY Parent Questionnaire
1	*	BYTE01	Taught student in fall 2001 (English)	BY Teacher Questionnaire (English)
1	*	BYTE02	How well remembers student from fall semester (English)	BY Teacher Questionnaire (English)
1	*	BYTE03	Taught student in spring 2002 (English)	BY Teacher Questionnaire (English)
1	*	BYTE04	Student usually works hard for good grades (English)	BY Teacher Questionnaire (English)
1	*	BYTE05	Student relates well to others (English)	BY Teacher Questionnaire (English)
1	*	BYTE06	Student is exceptionally passive (English)	BY Teacher Questionnaire (English)
1	*	BYTE07	Student talks with teacher outside of class (English)	BY Teacher Questionnaire (English)
1	*	BYTE08A	Spoke to parents about poor performance (English)	BY Teacher Questionnaire (English)
1	*	BYTE08B	Spoke to parents about disruptive behavior (English)	BY Teacher Questionnaire (English)
1	*	BYTE08C	Spoke to parents about not doing homework (English)	BY Teacher Questionnaire (English)
1	*	BYTE08D	Spoke to parents about absenteeism (English)	BY Teacher Questionnaire (English)
1	*	BYTE08E	Spoke to parents about accomplishments (English)	BY Teacher Questionnaire (English)
1	*	BYTE09	Parents' level of involvement in academic performance (English)	BY Teacher Questionnaire (English)
1	*	BYTE10	Difficulty of class for student (English)	BY Teacher Questionnaire (English)
1	*	BYTE11	Student has disability that affects school work (English)	BY Teacher Questionnaire (English)
1	*	BYTE12	Student has fallen behind in school work (English)	BY Teacher Questionnaire (English)
1	*	BYTE12A	Student behind due to health problem (English)	BY Teacher Questionnaire (English)
1	*	BYTE12B	Student behind due to LEP (English)	BY Teacher Questionnaire (English)
1	*	BYTE12C	Student behind due to disciplinary action (English)	BY Teacher Questionnaire (English)
1	*	BYTE12D	Student behind due to lack of effort (English)	BY Teacher Questionnaire (English)
1	*	BYTE12E	Student behind due to other reason (English)	BY Teacher Questionnaire (English)
1	*	BYTE13	How often student completes homework (English)	BY Teacher Questionnaire (English)
1	*	BYTE14	How often student is absent (English)	BY Teacher Questionnaire (English)
1	*	BYTE15	How often student is tardy (English)	BY Teacher Questionnaire (English)
1	*	BYTE16	How often student is attentive in class (English)	BY Teacher Questionnaire (English)



*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1	*	BYTE17	How often student is disruptive in class (English)	BY Teacher Questionnaire (English)
1	*	BYTE18A	Spoke to counselor about poor performance (English)	BY Teacher Questionnaire (English)
1	*	BYTE18B	Spoke to counselor about disruptive behavior (English)	BY Teacher Questionnaire (English)
1	*	BYTE19	Recommended student for AP/honors classes/academic honors (English)	BY Teacher Questionnaire (English)
1	*	BYTE20	How far teacher expects student to get in school (English)	BY Teacher Questionnaire (English)
1	*	BYTE21A	How well student organizes ideas (English)	BY Teacher Questionnaire (English)
1	*	BYTE21B	How well student uses grammar (English)	BY Teacher Questionnaire (English)
1	*	BYTE21C	How well student uses appropriate detail (English)	BY Teacher Questionnaire (English)
1	*	BYTE21D	How well student expresses critical/creative thought (English)	BY Teacher Questionnaire (English)
1	*	BYTE22	Teacher's sex (English)	BY Teacher Questionnaire (English)
1	*	BYTE23	Teacher is Hispanic (English)	BY Teacher Questionnaire (English)
1		BYTE24A	Teacher is White (English) - restricted	BY Teacher Questionnaire (English)
1		BYTE24B	Teacher is Black/African American (English) - restricted	BY Teacher Questionnaire (English)
1		BYTE24C	Teacher is Asian (English) - restricted	BY Teacher Questionnaire (English)
1		BYTE24D	Teacher is Native Hawaiian/Pacific Islander (English) - restricted	BY Teacher Questionnaire (English)
1		BYTE24E	Teacher is American Indian/Alaska Native (English) - restricted	BY Teacher Questionnaire (English)
1	*	BYTE25	Teacher's year of birth (English)	BY Teacher Questionnaire (English)
1	*	BYTE26A	Years teaching at elementary level/K-6 (English)	BY Teacher Questionnaire (English)
1	*	BYTE26B	Years teaching at secondary level/7-12 (English)	BY Teacher Questionnaire (English)
1	*	BYTE26C	Total years teaching/K-12 (English)	BY Teacher Questionnaire (English)
1	*	BYTE27	Total years teaching in this school (English)	BY Teacher Questionnaire (English)
1	*	BYTE28	Employment status in this school/system (English)	BY Teacher Questionnaire (English)
1	*	BYTE29	Type of certification held in English (English)	BY Teacher Questionnaire (English)
1	*	BYTE30A	No academic degree held (English)	BY Teacher Questionnaire (English)
1	*	BYTE30B	Associate degree held (English)	BY Teacher Questionnaire (English)
1	*	BYTE30C	Bachelor's degree held (English)	BY Teacher Questionnaire (English)
1	*	BYTE30D	Education specialist degree held (English)	BY Teacher Questionnaire (English)
1	*	BYTE30E	Master's degree held (English)	BY Teacher Questionnaire (English)
1	*	BYTE30F	Doctorate degree held (English)	BY Teacher Questionnaire (English)
1	*	BYTE30G	First professional degree held (English)	BY Teacher Questionnaire (English)
1	*	BYTE31A	Bachelor's degree major (English)	BY Teacher Questionnaire (English)
1	*	BYTE31B	Bachelor's degree minor/2nd major (English)	BY Teacher Questionnaire (English)
1	*	BYTE32A	Highest graduate degree major (English)	BY Teacher Questionnaire (English)
1	*	BYTE32B	Highest graduate degree minor/2nd major (English)	BY Teacher Questionnaire (English)
1	*	BYTE33A	# undergraduate English courses taken (English)	BY Teacher Questionnaire (English)
1	*	BYTE33B	# graduate English courses taken (English)	BY Teacher Questionnaire (English)
1	*	BYTE34	If starting over whether would be a teacher again (English)	BY Teacher Questionnaire (English)
1	*	BYTE35A	How often use computer to create materials (English)	BY Teacher Questionnaire (English)
1	*	BYTE35B	How often use WWW sites to plan lessons (English)	BY Teacher Questionnaire

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
				(English)
1	*	BYTE35C	How often access model lesson plans from Internet (English)	BY Teacher Questionnaire (English)
1	*	BYTE35D	How often research teaching on Internet (English)	BY Teacher Questionnaire (English)
1	*	BYTE35E	How often take professional development courses on Internet (English)	BY Teacher Questionnaire (English)
1	*	BYTE35F	How often use Internet for colleague discussions (English)	BY Teacher Questionnaire (English)
1	*	BYTE35G	How often download instructional software from Internet (English)	BY Teacher Questionnaire (English)
1	*	BYTE35H	How often use computer to give class presentations (English)	BY Teacher Questionnaire (English)
1	*	BYTE35I	How often use computer for administrative records (English)	BY Teacher Questionnaire (English)
1	*	BYTE35J	How often use computer to prepare multimedia presentations (English)	BY Teacher Questionnaire (English)
1	*	BYTE35K	How often use computer to communicate w/colleagues (English)	BY Teacher Questionnaire (English)
1	*	BYTE35L	How often use computer to communicate w/parents (English)	BY Teacher Questionnaire (English)
1	*	BYTE35M	How often use computer to communicate w/students (English)	BY Teacher Questionnaire (English)
1	*	BYTE35N	How often use computer to post homework/information (English)	BY Teacher Questionnaire (English)
1	*	BYTE36	Hours of training on teaching special education students (English)	BY Teacher Questionnaire (English)
1	*	BYTE37	Has had eight hours training on teaching LEP students (English)	BY Teacher Questionnaire (English)
1	*	BYTE38A	Received training in basic computer skills (English)	BY Teacher Questionnaire (English)
1	*	BYTE38B	Received training in software applications (English)	BY Teacher Questionnaire (English)
1	*	BYTE38C	Received training in use of Internet (English)	BY Teacher Questionnaire (English)
1	*	BYTE38D	Received training in use of other technology (English)	BY Teacher Questionnaire (English)
1	*	BYTE38E	Received training in integrating technology in curriculum (English)	BY Teacher Questionnaire (English)
1	*	BYTE38F	Received follow-up or advanced training (English)	BY Teacher Questionnaire (English)
1	*	BYTE39	Days missed teaching during 1st semester (English)	BY Teacher Questionnaire (English)
1	*	BYTE40	Holds additional full-time job (English)	BY Teacher Questionnaire (English)
1	*	BYTE41	Additional full-time job related to education (English)	BY Teacher Questionnaire (English)
1	*	BYTE42	Holds additional part-time job (English)	BY Teacher Questionnaire (English)
1	*	BYTE43	Additional part-time job related to education (English)	BY Teacher Questionnaire (English)
1	*	BYTE44A	Importance of home background to student success (English)	BY Teacher Questionnaire (English)
1	*	BYTE44B	Importance of intellectual ability to student success (English)	BY Teacher Questionnaire (English)
1	*	BYTE44C	Importance of student's enthusiasm to student success (English)	BY Teacher Questionnaire (English)
1	*	BYTE44D	Importance of teacher's attention to student success (English)	BY Teacher Questionnaire (English)
1	*	BYTE44E	Importance of teaching methods to student success (English)	BY Teacher Questionnaire (English)
1	*	BYTE44F	Importance of teacher's enthusiasm to student success (English)	BY Teacher Questionnaire (English)
1	*	BYTE47	Date teacher questionnaire completed (English)	BY Teacher Questionnaire (English)
1	*	BYTM01	Taught student in fall 2001 (math)	BY Teacher Questionnaire (Math)
1	*	BYTM02	How well remembers student from fall semester (math)	BY Teacher Questionnaire (Math)
1	*	BYTM03	Taught student in spring 2002 (math)	BY Teacher Questionnaire (Math)
1	*	BYTM04	Student usually works hard for good grades (math)	BY Teacher Questionnaire (Math)
1	*	BYTM05	Student relates well to others (math)	BY Teacher Questionnaire (Math)
1	*	BYTM06	Student is exceptionally passive (math)	BY Teacher Questionnaire (Math)

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
1	*	BYTM07	Student talks with teacher outside of class (math)	BY Teacher Questionnaire (Math)
1	*	BYTM08A	Spoke to parents about poor performance (math)	BY Teacher Questionnaire (Math)
1	*	BYTM08B	Spoke to parents about disruptive behavior (math)	BY Teacher Questionnaire (Math)
1	*	BYTM08C	Spoke to parents about not doing homework (math)	BY Teacher Questionnaire (Math)
1	*	BYTM08D	Spoke to parents about absenteeism (math)	BY Teacher Questionnaire (Math)
1	*	BYTM08E	Spoke to parents about accomplishments (math)	BY Teacher Questionnaire (Math)
1	*	BYTM09	Parents' level of involvement (math)	BY Teacher Questionnaire (Math)
1	*	BYTM10	Difficulty of class for student (math)	BY Teacher Questionnaire (Math)
1	*	BYTM11	Student has disability that affects school work (math)	BY Teacher Questionnaire (Math)
1	*	BYTM12	Student has fallen behind in school work (math)	BY Teacher Questionnaire (Math)
1	*	BYTM12A	Student behind due to health problem (math)	BY Teacher Questionnaire (Math)
1	*	BYTM12B	Student behind due to LEP (math)	BY Teacher Questionnaire (Math)
1	*	BYTM12C	Student behind due to disciplinary action (math)	BY Teacher Questionnaire (Math)
1	*	BYTM12D	Student behind due to lack of effort (math)	BY Teacher Questionnaire (Math)
1	*	BYTM12E	Student behind due to other reason (math)	BY Teacher Questionnaire (Math)
1	*	BYTM13	How often student completes homework (math)	BY Teacher Questionnaire (Math)
1	*	BYTM14	How often student is absent (math)	BY Teacher Questionnaire (Math)
1	*	BYTM15	How often student is tardy (math)	BY Teacher Questionnaire (Math)
1	*	BYTM16	How often student is attentive in class (math)	BY Teacher Questionnaire (Math)
1	*	BYTM17	How often student is disruptive in class (math)	BY Teacher Questionnaire (Math)
1	*	BYTM18A	Spoke to counselor about poor performance (math)	BY Teacher Questionnaire (Math)
1	*	BYTM18B	Spoke to counselor about disruptive behavior (math)	BY Teacher Questionnaire (Math)
1	*	BYTM19	Recommended student for AP/honors classes/academic honors (math)	BY Teacher Questionnaire (Math)
1	*	BYTM20	How far teacher expects student to get in school (math)	BY Teacher Questionnaire (Math)
1	*	BYTM22	Teacher's sex (math)	BY Teacher Questionnaire (Math)
1	*	BYTM23	Teacher is Hispanic (math)	BY Teacher Questionnaire (Math)
1		BYTM24A	Teacher is White (math) - restricted	BY Teacher Questionnaire (Math)
1		BYTM24B	Teacher is Black/African American (math) - restricted	BY Teacher Questionnaire (Math)
1		BYTM24C	Teacher is Asian (math) - restricted	BY Teacher Questionnaire (Math)
1		BYTM24D	Teacher is Native Hawaiian/Pacific Islander (math) - restricted	BY Teacher Questionnaire (Math)
1		BYTM24E	Teacher is American Indian/Alaska Native (math) - restricted	BY Teacher Questionnaire (Math)
1	*	BYTM25	Teacher's year of birth (math)	BY Teacher Questionnaire (Math)
1	*	BYTM26A	Years teaching at elementary level/K-6 (math)	BY Teacher Questionnaire (Math)
1	*	BYTM26B	Years teaching at secondary level/7-12 (math)	BY Teacher Questionnaire (Math)
1	*	BYTM26C	Total years teaching/K-12 (math)	BY Teacher Questionnaire (Math)
1	*	BYTM27	Total years teaching in this school (math)	BY Teacher Questionnaire (Math)
1	*	BYTM28	Employment status in this school/system (math)	BY Teacher Questionnaire (Math)
1	*	BYTM29	Type of certification held in math (math)	BY Teacher Questionnaire (Math)
1	*	BYTM30A	No academic degree held (math)	BY Teacher Questionnaire

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
				(Math)
1	*	BYTM30B	Associate degree held (math)	BY Teacher Questionnaire (Math)
1	*	BYTM30C	Bachelor's degree held (math)	BY Teacher Questionnaire (Math)
1	*	BYTM30D	Education specialist degree held (math)	BY Teacher Questionnaire (Math)
1	*	BYTM30E	Master's degree held (math)	BY Teacher Questionnaire (Math)
1	*	BYTM30F	Doctorate degree held (math)	BY Teacher Questionnaire (Math)
1	*	BYTM30G	First professional degree held (math)	BY Teacher Questionnaire (Math)
1	*	BYTM31A	Bachelor's degree major (math)	BY Teacher Questionnaire (Math)
1	*	BYTM31B	Bachelor's degree minor/2nd major (math)	BY Teacher Questionnaire (Math)
1	*	BYTM32A	Highest graduate degree major (math)	BY Teacher Questionnaire (Math)
1	*	BYTM32B	Highest graduate degree minor/2nd major (math)	BY Teacher Questionnaire (Math)
1	*	BYTM33C	# undergraduate math courses taken (math)	BY Teacher Questionnaire (Math)
1	*	BYTM33D	# graduate math courses taken (math)	BY Teacher Questionnaire (Math)
1	*	BYTM34	If starting over whether would be a teacher again (math)	BY Teacher Questionnaire (Math)
1	*	BYTM35A	How often use computer to create materials (math)	BY Teacher Questionnaire (Math)
1	*	BYTM35B	How often use Web sites to plan lessons (math)	BY Teacher Questionnaire (Math)
1	*	BYTM35C	How often use model lesson plans from Internet (math)	BY Teacher Questionnaire (Math)
1	*	BYTM35D	How often use Internet for research on teaching (math)	BY Teacher Questionnaire (Math)
1	*	BYTM35E	How often take professional development courses via Internet (math)	BY Teacher Questionnaire (Math)
1	*	BYTM35F	How often use Internet for colleague discussions (math)	BY Teacher Questionnaire (Math)
1	*	BYTM35G	How often download instructional software from Internet (math)	BY Teacher Questionnaire (Math)
1	*	BYTM35H	How often use computer to give class presentations (math)	BY Teacher Questionnaire (Math)
1	*	BYTM35I	How often use computer for administrative records (math)	BY Teacher Questionnaire (Math)
1	*	BYTM35J	How often use computer to prepare multimedia presentations (math)	BY Teacher Questionnaire (Math)
1	*	BYTM35K	How often use computer to communicate w/colleagues (math)	BY Teacher Questionnaire (Math)
1	*	BYTM35L	How often use computer to communicate w/parents (math)	BY Teacher Questionnaire (Math)
1	*	BYTM35M	How often use computer to communicate w/students (math)	BY Teacher Questionnaire (Math)
1	*	BYTM35N	How often use computer to post homework/information (math)	BY Teacher Questionnaire (Math)
1	*	BYTM36	Hours of training on teaching special education students (math)	BY Teacher Questionnaire (Math)
1	*	BYTM37	Had eight hours training on teaching LEP students (math)	BY Teacher Questionnaire (Math)
1	*	BYTM38A	Received training in basic computer skills (math)	BY Teacher Questionnaire (Math)
1	*	BYTM38B	Received training in software applications (math)	BY Teacher Questionnaire (Math)
1	*	BYTM38C	Received training in use of Internet (math)	BY Teacher Questionnaire (Math)
1	*	BYTM38D	Received training in use of other technology (math)	BY Teacher Questionnaire (Math)
1	*	BYTM38E	Received training in integrating technology in curriculum (math)	BY Teacher Questionnaire (Math)
1	*	BYTM38F	Received follow-up or advanced training (math)	BY Teacher Questionnaire (Math)
1	*	BYTM39	Days missed teaching during 1st semester (math)	BY Teacher Questionnaire (Math)
1	*	BYTM40	Holds additional full-time job (math)	BY Teacher Questionnaire (Math)
1	*	BYTM41	Additional full-time job related to education (math)	BY Teacher Questionnaire (Math)

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1	*	BYTM42	Holds additional part-time job (math)	BY Teacher Questionnaire (Math)
1	*	BYTM43	Additional part-time job related to education (math)	BY Teacher Questionnaire (Math)
1	*	BYTM44A	Importance of home background to student success (math)	BY Teacher Questionnaire (Math)
1	*	BYTM44B	Importance of intellectual ability to student success (math)	BY Teacher Questionnaire (Math)
1	*	BYTM44C	Importance of student's enthusiasm to student success (math)	BY Teacher Questionnaire (Math)
1	*	BYTM44D	Importance of teacher's attention to student success (math)	BY Teacher Questionnaire (Math)
1	*	BYTM44E	Importance of teaching methods to student success (math)	BY Teacher Questionnaire (Math)
1	*	BYTM44F	Importance of teacher's enthusiasm to student success (math)	BY Teacher Questionnaire (Math)
1	*	BYTM45A	People can learn to be good at math (math)	BY Teacher Questionnaire (Math)
1	*	BYTM45B	People must be born with math ability (math)	BY Teacher Questionnaire (Math)
1	*	BYTM47	Date teacher questionnaire completed (math)	BY Teacher Questionnaire (Math)
1		BYADMSTA	Base year administrator questionnaire status	BY School Composites
1		BYSCMDST	Base Year library media center questionnaire status (restricted)	BY School Composites
1		BYSCMDFG	Base year library media center questionnaire flag	BY School Composites
1	*	BYFFTP	Number of full-time teachers categorical	BY School Composites
1		F1ADMSTA	F1 administrator questionnaire status	F1 School Composites
1	*	F1SCENP	Oct 2003 total school enrollment-administrator quex-categorical	F1 School Composites
1	*	F1SCFLP	F1 School percent free lunch-categorical	F1 School Composites
1	*	F1FFTP	F1 Number of full-time teachers categorical	F1 School Composites
1		NCESDI	NCES school district ID number (restricted)	External Source School Data
1		NCESSI	School identification number from CCD or PSS (restricted)	External Source School Data
1		CP01FLUN	Percent free lunch-2000/01 CCD (restricted)	External Source School Data
1		CP01FTE	Number FTE teachers-2000/01 CCD (restricted)	External Source School Data
1		CP01G9EN	Grade 9 enrollment-2000/01 CCD (restricted)	External Source School Data
1		CP01GRHI	Highest Grade-2000/01 CCD (restricted)	External Source School Data
1		CP01GRLO	Lowest Grade-2000/01 CCD (restricted)	External Source School Data
1		CP01LOC	School locale-2000/01 CCD (restricted)	External Source School Data
1		CP01PMIN	Percent minority-2000/01 CCD (restricted)	External Source School Data
1		CP01STEN	Total school enrollment-2000/01 CCD (restricted)	External Source School Data
1		CP01STRO	Student/teacher ratio-2000/01 CCD (restricted)	External Source School Data
1		CP01STYP	School type-2000/01 CCD (restricted)	External Source School Data
1		CP02FLUN	Percent free lunch-2001/02 CCD/PSS (restricted)	External Source School Data
1		CP02FTE	Number FTE teachers-2001/02 CCD/PSS (restricted)	External Source School Data
1		CP02G10E	Grade 10 enrollment-2001/02 CCD/PSS (restricted)	External Source School Data
1		CP02GRHI	Highest Grade-2001/02 CCD/PSS (restricted)	External Source School Data
1		CP02GRLO	Lowest Grade-2001/02 CCD/PSS (restricted)	External Source School Data
1		CP02LOC	School locale-2001/02 CCD/PSS (restricted)	External Source School Data
1		CP02PMIN	Percent minority-2001/02 CCD/PSS (restricted)	External Source School Data
1		CP02STEN	Total school enrollment-2001/02 CCD/PSS (restricted)	External Source School Data
1		CP02STRO	Student/teacher ratio-2001/02 CCD/PSS (restricted)	External Source School Data
1		CP02STYP	School type-2001/02 CCD/PSS (restricted)	External Source School Data
1		CP03FLUN	Percent free lunch-2002/03 CCD (restricted)	External Source School Data
1		CP03FTE	Number FTE teachers-2002/03 CCD (restricted)	External Source School Data
1		CP03G11E	Grade 11 enrollment-2002/03 CCD (restricted)	External Source School Data
1		CP03GRHI	Highest Grade-2002/03 CCD (restricted)	External Source School Data

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1		CP03GRLO	Lowest Grade-2002/03 CCD (restricted)	External Source School Data
1		CP03LOC	School locale-2002/03 CCD (restricted)	External Source School Data
1		CP03PMIN	Percent minority-2002/03 CCD (restricted)	External Source School Data
1		CP03STEN	Total school enrollment-2002/03 CCD (restricted)	External Source School Data
1		CP03STRO	Student/teacher ratio-2002/03 CCD (restricted)	External Source School Data
1		CP03STYP	School type-2002/03 CCD (restricted)	External Source School Data
1		CP04FLUN	Percent free lunch-2003/04 CCD/PSS (restricted)	External Source School Data
1		CP04FTE	Number FTE teachers-2003/04 CCD/PSS (restricted)	External Source School Data
1		CP04G12E	Grade 12 enrollment-2003/04 CCD/PSS (restricted)	External Source School Data
1		CP04GRHI	Highest Grade-2003/04 CCD/PSS (restricted)	External Source School Data
1		CP04GRLO	Lowest Grade-2003/04 CCD/PSS (restricted)	External Source School Data
1		CP04LOC	School locale-2003/04 CCD/PSS (restricted)	External Source School Data
1		CP04PMIN	Percent minority-2003/04 CCD/PSS (restricted)	External Source School Data
1		CP04STEN	Total school enrollment-2003/04 CCD/PSS (restricted)	External Source School Data
1		CP04STRO	Student/teacher ratio-2003/04 CCD/PSS (restricted)	External Source School Data
1		CP04STYP	School type-2003/04 CCD/PSS (restricted)	External Source School Data
1		BYA01	Total student enrollment as of October 2001 (restricted)	BY Administrator Questionnaire
1		BYA02A	School has pre-kindergarten (restricted)	BY Administrator Questionnaire
1		BYA02B	School has kindergarten (restricted)	BY Administrator Questionnaire
1		BYA02C	School has 1st grade (restricted)	BY Administrator Questionnaire
1		BYA02D	School has 2nd grade (restricted)	BY Administrator Questionnaire
1		BYA02E	School has 3rd grade (restricted)	BY Administrator Questionnaire
1		BYA02F	School has 4th grade (restricted)	BY Administrator Questionnaire
1		BYA02G	School has 5th grade (restricted)	BY Administrator Questionnaire
1		BYA02H	School has 6th grade (restricted)	BY Administrator Questionnaire
1		BYA02I	School has 7th grade (restricted)	BY Administrator Questionnaire
1		BYA02J	School has 8th grade (restricted)	BY Administrator Questionnaire
1		BYA02K	School has 9th grade (restricted)	BY Administrator Questionnaire
1		BYA02L	School has 10th grade (restricted)	BY Administrator Questionnaire
1		BYA02M	School has 11th grade (restricted)	BY Administrator Questionnaire
1		BYA02N	School has 12th grade (restricted)	BY Administrator Questionnaire
1		BYA02O	School has 13th grade or higher (restricted)	BY Administrator Questionnaire
1		BYA03A	Comprehensive public school (restricted)	BY Administrator Questionnaire
1		BYA03B	Public magnet school (restricted)	BY Administrator Questionnaire
1		BYA03C	Public magnet school with theme (restricted)	BY Administrator Questionnaire
1		BYA03D	Public school of choice (restricted)	BY Administrator Questionnaire
1		BYA03E	Year round school (restricted)	BY Administrator Questionnaire
1		BYA03F	Area vocational school/center (restricted)	BY Administrator Questionnaire
1		BYA03G	Full-time technical/vocational school (restricted)	BY Administrator Questionnaire
1		BYA03H	Other technical or vocational school (restricted)	BY Administrator Questionnaire
1		BYA03I	Catholic diocesan school (restricted)	BY Administrator Questionnaire
1		BYA03J	Catholic parish (restricted)	BY Administrator Questionnaire
1		BYA03K	Catholic religious order (restricted)	BY Administrator Questionnaire
1		BYA03L	Catholic independent school (restricted)	BY Administrator Questionnaire
1		BYA03M	Other private school with religious affiliation (restricted)	BY Administrator Questionnaire
1		BYA03N	Private school without religious affiliation (restricted)	BY Administrator Questionnaire
1		BYA03O	Boarding school (restricted)	BY Administrator Questionnaire
1		BYA03P	Indian reservation school (restricted)	BY Administrator Questionnaire

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
1		BYA03Q	Military academy (restricted)	BY Administrator Questionnaire
1		BYA03R	Alternative/dropout prevention/continuation school (restricted)	BY Administrator Questionnaire
1		BYA03S	Charter school (restricted)	BY Administrator Questionnaire
1	*	BYA04	Way of teaching students with different abilities	BY Administrator Questionnaire
1	*	BYA05	Crime in students' neighborhood	BY Administrator Questionnaire
1	*	BYA06	Type of academic calendar	BY Administrator Questionnaire
1	*	BYA07	# of days in school year for 10th graders	BY Administrator Questionnaire
1	*	BYA08	# class periods in day for 10th graders	BY Administrator Questionnaire
1	*	BYA09	# of minutes of average 10th grade class period	BY Administrator Questionnaire
1	*	BYA10	Typical semester class load for 10th graders	BY Administrator Questionnaire
1	*	BYA11	School is coeducational	BY Administrator Questionnaire
1	*	BYA12A	% in school-sponsored community service	BY Administrator Questionnaire
1	*	BYA12B	% in work study program	BY Administrator Questionnaire
1	*	BYA12C	% in academic counseling program	BY Administrator Questionnaire
1	*	BYA12D	% in vocational counseling program	BY Administrator Questionnaire
1	*	BYA12E	% in dropout prevention program	BY Administrator Questionnaire
1	*	BYA12F	% in gang prevention program	BY Administrator Questionnaire
1	*	BYA12G	% in alcohol/drug prevention program	BY Administrator Questionnaire
1	*	BYA12H	% in AIDS education program	BY Administrator Questionnaire
1	*	BYA12I	% in crisis prevention program	BY Administrator Questionnaire
1	*	BYA13	When parents notified of absences	BY Administrator Questionnaire
1	*	BYA14A	% 10th graders in general high school program	BY Administrator Questionnaire
1	*	BYA14B	% 10th graders in college prep program	BY Administrator Questionnaire
1	*	BYA14C	% 10th graders in other specialized programs	BY Administrator Questionnaire
1	*	BYA14D	% 10th graders in voc/tech/business program	BY Administrator Questionnaire
1	*	BYA14E	% 10th graders in special ed program	BY Administrator Questionnaire
1	*	BYA14F	% 10th graders in alternative program	BY Administrator Questionnaire
1	*	BYA14G	% 10th graders receive bilingual education	BY Administrator Questionnaire
1	*	BYA14H	% 10th graders receive ESL	BY Administrator Questionnaire
1	*	BYA14I	% 10th graders receive remedial reading	BY Administrator Questionnaire
1	*	BYA14J	% 10th graders receive remedial math	BY Administrator Questionnaire
1	*	BYA14K	% 10th graders in after school/summer outreach	BY Administrator Questionnaire
1	*	BYA15A	Students develop career plan	BY Administrator Questionnaire
1	*	BYA15B	Students select career major/pathway	BY Administrator Questionnaire
1	*	BYA15C	Students in program to prepare for college	BY Administrator Questionnaire
1	*	BYA16	Vocational-technical programs offered	BY Administrator Questionnaire
1	*	BYA17A	Agriculture/renewable resource courses offered	BY Administrator Questionnaire
1	*	BYA17B	Business courses offered	BY Administrator Questionnaire
1	*	BYA17C	Marketing/distribution courses offered	BY Administrator Questionnaire
1	*	BYA17D	Health care courses offered	BY Administrator Questionnaire
1	*	BYA17E	Public/protective service courses offered	BY Administrator Questionnaire
1	*	BYA17F	Construction courses offered	BY Administrator Questionnaire
1	*	BYA17G	Mechanics and repair courses offered	BY Administrator Questionnaire
1	*	BYA17H	Precisions production courses offered	BY Administrator Questionnaire
1	*	BYA17I	Trade/industry/transportation courses offered	BY Administrator Questionnaire
1	*	BYA17J	Computer technology courses offered	BY Administrator Questionnaire
1	*	BYA17K	Communication technology courses offered	BY Administrator Questionnaire
1	*	BYA17L	Other technology courses offered	BY Administrator Questionnaire

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1	*	BYA17M	Food service and hospitality courses offered	BY Administrator Questionnaire
1	*	BYA17N	Child care/education courses offered	BY Administrator Questionnaire
1	*	BYA17O	Personal and other services courses offered	BY Administrator Questionnaire
1	*	BYA17P	Other occupational courses offered	BY Administrator Questionnaire
1	*	BYA17Q	Family/consumer sciences courses offered	BY Administrator Questionnaire
1	*	BYA17R	Industrial arts/technology courses offered	BY Administrator Questionnaire
1	*	BYA18A	Cooperative education offered to 10th graders	BY Administrator Questionnaire
1	*	BYA18B	Internships offered to 10th graders	BY Administrator Questionnaire
1	*	BYA18C	Job shadowing offered to 10th graders	BY Administrator Questionnaire
1	*	BYA18D	Mentoring offered to 10th graders	BY Administrator Questionnaire
1	*	BYA18E	Community service offered to 10th graders	BY Administrator Questionnaire
1	*	BYA18F	School-based enterprise offered to 10th graders	BY Administrator Questionnaire
1	*	BYA19AA	Baseball offered to males	BY Administrator Questionnaire
1	*	BYA19AB	Baseball offered to females	BY Administrator Questionnaire
1	*	BYA19BA	Softball offered to males	BY Administrator Questionnaire
1	*	BYA19BB	Softball offered to females	BY Administrator Questionnaire
1	*	BYA19CA	Basketball offered to males	BY Administrator Questionnaire
1	*	BYA19CB	Basketball offered to females	BY Administrator Questionnaire
1	*	BYA19DA	Football offered to males	BY Administrator Questionnaire
1	*	BYA19DB	Football offered to females	BY Administrator Questionnaire
1	*	BYA19EA	Soccer offered to males	BY Administrator Questionnaire
1	*	BYA19EB	Soccer offered to females	BY Administrator Questionnaire
1	*	BYA19FA	Swim team offered to males	BY Administrator Questionnaire
1	*	BYA19FB	Swim team offered to females	BY Administrator Questionnaire
1	*	BYA19GA	Ice hockey offered to males	BY Administrator Questionnaire
1	*	BYA19GB	Ice hockey offered to females	BY Administrator Questionnaire
1	*	BYA19HA	Field hockey offered to males	BY Administrator Questionnaire
1	*	BYA19HB	Field hockey offered to females	BY Administrator Questionnaire
1	*	BYA19IA	Volleyball offered to males	BY Administrator Questionnaire
1	*	BYA19IB	Volleyball offered to females	BY Administrator Questionnaire
1	*	BYA19JA	Lacrosse offered to males	BY Administrator Questionnaire
1	*	BYA19JB	Lacrosse offered to females	BY Administrator Questionnaire
1	*	BYA19KA	Tennis offered to males	BY Administrator Questionnaire
1	*	BYA19KB	Tennis offered to females	BY Administrator Questionnaire
1	*	BYA19LA	Cross-country offered to males	BY Administrator Questionnaire
1	*	BYA19LB	Cross-country offered to females	BY Administrator Questionnaire
1	*	BYA19MA	Track offered to males	BY Administrator Questionnaire
1	*	BYA19MB	Track offered to females	BY Administrator Questionnaire
1	*	BYA19NA	Golf offered to males	BY Administrator Questionnaire
1	*	BYA19NB	Golf offered to females	BY Administrator Questionnaire
1	*	BYA19OA	Gymnastics offered to males	BY Administrator Questionnaire
1	*	BYA19OB	Gymnastics offered to females	BY Administrator Questionnaire
1	*	BYA19PA	Wrestling offered to males	BY Administrator Questionnaire
1	*	BYA19PB	Wrestling offered to females	BY Administrator Questionnaire
1	*	BYA19QA	Cheerleading offered to males	BY Administrator Questionnaire
1	*	BYA19QB	Cheerleading offered to females	BY Administrator Questionnaire
1	*	BYA19RA	Drill team offered to males	BY Administrator Questionnaire
1	*	BYA19RB	Drill team offered to females	BY Administrator Questionnaire



*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
1	*	BYA19SA	Other sport offered to males	BY Administrator Questionnaire
1	*	BYA19SB	Other sport offered to females	BY Administrator Questionnaire
1	*	BYA19TA	No sports offered to males	BY Administrator Questionnaire
1	*	BYA19TB	No sports offered to females	BY Administrator Questionnaire
1	*	BYA20	% 10th graders are LEP or non-English proficient	BY Administrator Questionnaire
1		BYA21	% 10th graders receive free/reduced-price lunch (restricted)	BY Administrator Questionnaire
1		BYA22A	# of full-time teachers (restricted)	BY Administrator Questionnaire
1	*	BYA22B	# of part-time teachers	BY Administrator Questionnaire
1	*	BYA23A	# of full-time math teachers	BY Administrator Questionnaire
1	*	BYA23B	# of full-time science teachers	BY Administrator Questionnaire
1	*	BYA23C	# of full-time art teachers	BY Administrator Questionnaire
1	*	BYA23D	# of full-time music teachers	BY Administrator Questionnaire
1	*	BYA23E	# of full-time English teachers	BY Administrator Questionnaire
1	*	BYA23F	# of full-time foreign language teachers	BY Administrator Questionnaire
1	*	BYA23G	# of full-time social sciences teachers	BY Administrator Questionnaire
1	*	BYA23H	# of full-time history teachers	BY Administrator Questionnaire
1	*	BYA23I	# of full-time vocational education teachers	BY Administrator Questionnaire
1	*	BYA23J	# of full-time physical education teachers	BY Administrator Questionnaire
1	*	BYA23K	# full-time guidance counselors	BY Administrator Questionnaire
1	*	BYA23L	# full-time special education teachers	BY Administrator Questionnaire
1	*	BYA24A	% full-time teachers are certified	BY Administrator Questionnaire
1	*	BYA24B	% part-time teachers are certified	BY Administrator Questionnaire
1	*	BYA25A	% full-time teachers teach out of field	BY Administrator Questionnaire
1	*	BYA25B	% part-time teachers teach out of field	BY Administrator Questionnaire
1	*	BYA26A	Lowest salary paid to full-time teachers	BY Administrator Questionnaire
1	*	BYA26B	Highest salary paid to full-time teachers	BY Administrator Questionnaire
1	*	BYA27A	Principal/administrator evaluates teachers	BY Administrator Questionnaire
1	*	BYA27B	Teachers evaluate teachers	BY Administrator Questionnaire
1	*	BYA27C	Students evaluate teachers	BY Administrator Questionnaire
1	*	BYA28A	Good teachers given special awards	BY Administrator Questionnaire
1	*	BYA28B	Good teachers assigned to better students	BY Administrator Questionnaire
1	*	BYA28C	Good teachers given a lighter teaching load	BY Administrator Questionnaire
1	*	BYA28D	Good teachers relieved of administrative/disciplinary duties	BY Administrator Questionnaire
1	*	BYA28E	Good teachers given priority on requests for materials	BY Administrator Questionnaire
1	*	BYA28F	Good teachers receive higher pay	BY Administrator Questionnaire
1	*	BYA28G	Good teachers are not recognized in these ways	BY Administrator Questionnaire
1	*	BYA29	Content standards for academic subjects	BY Administrator Questionnaire
1	*	BYA30	Main source of content standards	BY Administrator Questionnaire
1	*	BYA31	Content standards linked with performance standards	BY Administrator Questionnaire
1	*	BYA32	Students must pass a test for high school diploma	BY Administrator Questionnaire
1	*	BYA33AA	Minimum competency test given in grade 7	BY Administrator Questionnaire
1	*	BYA33AB	Math is on grade 7 competency test	BY Administrator Questionnaire
1	*	BYA33AC	Science is on grade 7 competency test	BY Administrator Questionnaire
1	*	BYA33AD	English is on grade 7 competency test	BY Administrator Questionnaire
1	*	BYA33AE	History/social studies is on grade 7 competency test	BY Administrator Questionnaire
1	*	BYA33BA	Minimum competency test given in grade 8	BY Administrator Questionnaire
1	*	BYA33BB	Math is on grade 8 competency test	BY Administrator Questionnaire
1	*	BYA33BC	Science is on grade 8 competency test	BY Administrator Questionnaire

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1	*	BYA33BD	English is on grade 8 competency test	BY Administrator Questionnaire
1	*	BYA33BE	History/social studies is on grade 8 competency test	BY Administrator Questionnaire
1	*	BYA33CA	Minimum competency test given in grade 9	BY Administrator Questionnaire
1	*	BYA33CB	Math is on grade 9 competency test	BY Administrator Questionnaire
1	*	BYA33CC	Science is on grade 9 competency test	BY Administrator Questionnaire
1	*	BYA33CD	English is on grade 9 competency test	BY Administrator Questionnaire
1	*	BYA33CE	History/social studies is on grade 9 competency test	BY Administrator Questionnaire
1	*	BYA33DA	Minimum competency test given in grade 10	BY Administrator Questionnaire
1	*	BYA33DB	Math is on grade 10 competency test	BY Administrator Questionnaire
1	*	BYA33DC	Science is on grade 10 competency test	BY Administrator Questionnaire
1	*	BYA33DD	English is on grade 10 competency test	BY Administrator Questionnaire
1	*	BYA33DE	History/social studies is on grade 10 competency test	BY Administrator Questionnaire
1	*	BYA33EA	Minimum competency test given in grade 11	BY Administrator Questionnaire
1	*	BYA33EB	Math is on grade 11 competency test	BY Administrator Questionnaire
1	*	BYA33EC	Science is on grade 11 competency test	BY Administrator Questionnaire
1	*	BYA33ED	English is on grade 11 competency test	BY Administrator Questionnaire
1	*	BYA33EE	History/social studies is on grade 11 competency test	BY Administrator Questionnaire
1	*	BYA33FA	Minimum competency test given in grade 12	BY Administrator Questionnaire
1	*	BYA33FB	Math is on grade 12 competency test	BY Administrator Questionnaire
1	*	BYA33FC	Science is on grade 12 competency test	BY Administrator Questionnaire
1	*	BYA33FD	English is on grade 12 competency test	BY Administrator Questionnaire
1	*	BYA33FE	History/social studies is on grade 12 competency test	BY Administrator Questionnaire
1	*	BYA34A	Competency test is state requirement	BY Administrator Questionnaire
1	*	BYA34B	Competency test is district requirement	BY Administrator Questionnaire
1	*	BYA34C	Competency test is school requirement	BY Administrator Questionnaire
1	*	BYA35	Competency test tied to content standards	BY Administrator Questionnaire
1	*	BYA36	% fail competency test on first attempt	BY Administrator Questionnaire
1	*	BYA37A	Retake competency test if failed	BY Administrator Questionnaire
1	*	BYA37B	Take remedial class if fail competency test	BY Administrator Questionnaire
1	*	BYA37C	Complete competency test preparation class if fail	BY Administrator Questionnaire
1	*	BYA37D	Tutoring/individualized academic program if fail competency test	BY Administrator Questionnaire
1	*	BYA37E	Summer school if fail competency test	BY Administrator Questionnaire
1	*	BYA37F	Referred to alternative/continuing ed school if fail competency test	BY Administrator Questionnaire
1	*	BYA38A	Control access to buildings during school hours	BY Administrator Questionnaire
1	*	BYA38B	Control access to grounds during school hours	BY Administrator Questionnaire
1	*	BYA38C	Require students pass through metal detector	BY Administrator Questionnaire
1	*	BYA38D	Random metal detector checks on students	BY Administrator Questionnaire
1	*	BYA38E	Close campus for students during lunch	BY Administrator Questionnaire
1	*	BYA38F	Random dog sniffs to check for drugs	BY Administrator Questionnaire
1	*	BYA38G	Random sweeps for contraband	BY Administrator Questionnaire
1	*	BYA38H	Require drug testing for any students	BY Administrator Questionnaire
1	*	BYA38I	Require students to wear uniforms	BY Administrator Questionnaire
1	*	BYA38J	Enforce strict dress code	BY Administrator Questionnaire
1	*	BYA38K	Require clear book bags/ban book bags	BY Administrator Questionnaire
1	*	BYA38L	Require students to wear badges/picture ID	BY Administrator Questionnaire
1	*	BYA38M	Require faculty/staff to wear badges/picture ID	BY Administrator Questionnaire
1	*	BYA38N	Use security cameras to monitor school	BY Administrator Questionnaire
1	*	BYA38O	Telephones in most classrooms	BY Administrator Questionnaire

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
1	*	BYA38P	Emergency call button in classrooms	BY Administrator Questionnaire
1	*	BYA39A	Process to get parent input on discipline policies	BY Administrator Questionnaire
1	*	BYA39B	Training parents to deal with problem behavior	BY Administrator Questionnaire
1	*	BYA39C	Program involves parents in school discipline	BY Administrator Questionnaire
1	*	BYA40A	Use paid security at any time during school hours	BY Administrator Questionnaire
1	*	BYA40B	Use paid security as students arrive or leave	BY Administrator Questionnaire
1	*	BYA40C	Use paid security at school activities	BY Administrator Questionnaire
1	*	BYA40D	Use paid security outside of school hours/activities	BY Administrator Questionnaire
1	*	BYA40E	Use paid security at other time	BY Administrator Questionnaire
1	*	BYA41A	Teachers have access to cable TV	BY Administrator Questionnaire
1	*	BYA41B	Teachers have access to closed-circuit TV	BY Administrator Questionnaire
1	*	BYA41C	Teachers have access to videodisc player/VCR/DVD	BY Administrator Questionnaire
1	*	BYA41D	Teachers have access to video camera	BY Administrator Questionnaire
1	*	BYA41E	Teachers have access to video production studio	BY Administrator Questionnaire
1	*	BYA41F	Teachers have access to satellite TV hook-up	BY Administrator Questionnaire
1	*	BYA41G	Teachers have access to videoconferencing equipment	BY Administrator Questionnaire
1	*	BYA41H	Teachers have access to digital camera	BY Administrator Questionnaire
1	*	BYA41I	Teachers have access to scanner	BY Administrator Questionnaire
1	*	BYA41J	Teachers have access to LCD panel	BY Administrator Questionnaire
1	*	BYA41K	Teachers have access to laptop computer	BY Administrator Questionnaire
1	*	BYA41L	Teachers have access to Internet	BY Administrator Questionnaire
1	*	BYA41M	Teachers have access to computer printer	BY Administrator Questionnaire
1	*	BYA42A	Teachers use computers as instructional tools	BY Administrator Questionnaire
1	*	BYA42B	Teachers use computers to plan lessons	BY Administrator Questionnaire
1	*	BYA42C	Teachers use computers for professional development courses	BY Administrator Questionnaire
1	*	BYA42D	Teachers use computers to communicate with colleagues	BY Administrator Questionnaire
1	*	BYA42E	Teachers use computers to access best practices	BY Administrator Questionnaire
1	*	BYA42F	Teachers use computers to communicate with parents	BY Administrator Questionnaire
1	*	BYA42G	Teachers use computers to post homework	BY Administrator Questionnaire
1	*	BYA42H	Teachers/staff use computers to communicate with each other	BY Administrator Questionnaire
1	*	BYA42I	Teachers use computers to teach job skills	BY Administrator Questionnaire
1	*	BYA42J	Administrative staff use computers for administrative purposes	BY Administrator Questionnaire
1	*	BYA42K	Administrative staff use computers to communicate with colleagues	BY Administrator Questionnaire
1	*	BYA42L	Administrative staff use computers to communicate with parents	BY Administrator Questionnaire
1	*	BYA42M	School offers students distance learning courses	BY Administrator Questionnaire
1	*	BYA42N	Teachers have access to Internet professional development programs	BY Administrator Questionnaire
1	*	BYA43A	Teacher training on use of new software	BY Administrator Questionnaire
1	*	BYA43B	Teacher training on use of Internet	BY Administrator Questionnaire
1	*	BYA43C	Teacher training on using computers to teach skills	BY Administrator Questionnaire
1	*	BYA43D	Teacher training on integrating computer into class	BY Administrator Questionnaire
1	*	BYA43E	Teacher training on basic computer literacy	BY Administrator Questionnaire
1	*	BYA44A	Computers in administrative offices	BY Administrator Questionnaire
1	*	BYA44B	Computers in teacher work rooms	BY Administrator Questionnaire
1	*	BYA44C	Computers in classrooms	BY Administrator Questionnaire
1	*	BYA44D	Computers in the library media center	BY Administrator Questionnaire
1	*	BYA44E	Computers in separate computer lab	BY Administrator Questionnaire
1	*	BYA46A	Principal's influence on hiring/firing teachers	BY Administrator Questionnaire
1	*	BYA46B	Principal's influence on grouping students	BY Administrator Questionnaire

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
1	*	BYA46C	Principal's influence on course offerings	BY Administrator Questionnaire
1	*	BYA46D	Principal's influence on instructional materials	BY Administrator Questionnaire
1	*	BYA46E	Principal's influence on curricular guidelines	BY Administrator Questionnaire
1	*	BYA46F	Principal's influence on grading and evaluation	BY Administrator Questionnaire
1	*	BYA46G	Principal's influence on discipline policies	BY Administrator Questionnaire
1	*	BYA46H	Principal's influence on school funds	BY Administrator Questionnaire
1	*	BYA47A	School's relationship with school board	BY Administrator Questionnaire
1	*	BYA47B	School's relationship with central office	BY Administrator Questionnaire
1	*	BYA47C	School's relationship with teachers' association	BY Administrator Questionnaire
1	*	BYA48A	Principal evaluated on standardized test scores	BY Administrator Questionnaire
1	*	BYA48B	Principal evaluated on school environment	BY Administrator Questionnaire
1	*	BYA48C	Principal evaluated on efficient administration	BY Administrator Questionnaire
1	*	BYA48D	Principal evaluated on parent involvement	BY Administrator Questionnaire
1	*	BYA48E	Principal evaluated on relationship with community	BY Administrator Questionnaire
1	*	BYA48F	Principal evaluated on new programs/reform	BY Administrator Questionnaire
1	*	BYA49A	How often tardiness a problem at school	BY Administrator Questionnaire
1	*	BYA49B	How often absenteeism a problem at school	BY Administrator Questionnaire
1	*	BYA49C	How often class cutting a problem at school	BY Administrator Questionnaire
1	*	BYA49D	How often physical conflicts a problem at school	BY Administrator Questionnaire
1	*	BYA49E	How often robbery/theft a problem at school	BY Administrator Questionnaire
1	*	BYA49F	How often vandalism a problem at school	BY Administrator Questionnaire
1	*	BYA49G	How often use of alcohol a problem at school	BY Administrator Questionnaire
1	*	BYA49H	How often use of illegal drugs a problem at school	BY Administrator Questionnaire
1	*	BYA49I	How often students on drugs/alcohol at school a problem	BY Administrator Questionnaire
1	*	BYA49J	How often sale of drugs near school a problem	BY Administrator Questionnaire
1	*	BYA49K	How often possession of weapons a problem at school	BY Administrator Questionnaire
1	*	BYA49L	How often physical abuse of teachers a problem at school	BY Administrator Questionnaire
1	*	BYA49M	How often racial tension among students a problem at school	BY Administrator Questionnaire
1	*	BYA49N	How often student bullying a problem at school	BY Administrator Questionnaire
1	*	BYA49O	How often verbal abuse of teachers a problem at school	BY Administrator Questionnaire
1	*	BYA49P	How often disorder in classrooms a problem at school	BY Administrator Questionnaire
1	*	BYA49Q	How often student disrespect for teachers a problem at school	BY Administrator Questionnaire
1	*	BYA49R	How often gang activity a problem at school	BY Administrator Questionnaire
1	*	BYA49S	How often cult/extremist group activities a problem at school	BY Administrator Questionnaire
1	*	BYA50A	Learning hindered by poor condition of buildings	BY Administrator Questionnaire
1	*	BYA50B	Learning hindered by poor heating/air/light	BY Administrator Questionnaire
1	*	BYA50C	Learning hindered by poor science labs	BY Administrator Questionnaire
1	*	BYA50D	Learning hindered by poor fine arts facilities	BY Administrator Questionnaire
1	*	BYA50E	Learning hindered by lack of space	BY Administrator Questionnaire
1	*	BYA50F	Learning hindered by poor library	BY Administrator Questionnaire
1	*	BYA50G	Learning hindered by lack of texts/supplies	BY Administrator Questionnaire
1	*	BYA50H	Learning hindered by too few computers	BY Administrator Questionnaire
1	*	BYA50I	Learning hindered by lack of multi-media	BY Administrator Questionnaire
1	*	BYA50J	Learning hindered by lack of discipline/safety	BY Administrator Questionnaire
1	*	BYA50K	Learning hindered by poor voc/tech equipment/facilities	BY Administrator Questionnaire
1	*	BYA51A	Student morale is high	BY Administrator Questionnaire
1	*	BYA51B	Teachers press students to achieve	BY Administrator Questionnaire
1	*	BYA51C	Teacher morale is high	BY Administrator Questionnaire

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
1	*	BYA51D	Learning is high priority for students	BY Administrator Questionnaire
1	*	BYA51E	Students expected to do homework	BY Administrator Questionnaire
1		BYA53	Date completed interview	BY Administrator Questionnaire
1		F1A01	Total student enrollment as of October 2003 (restricted)	F1 Administrator Questionnaire
1		F1A02	# of days in school year for 12th graders	F1 Administrator Questionnaire
1		F1A03	Type of academic calendar	F1 Administrator Questionnaire
1		F1A04AA	Academic courses are block scheduled	F1 Administrator Questionnaire
1		F1A04AB	# of minutes in block for academic courses	F1 Administrator Questionnaire
1		F1A04BA	Vocational/technical courses are block scheduled	F1 Administrator Questionnaire
1		F1A04BB	# of minutes in block for vocational/technical courses	F1 Administrator Questionnaire
1		F1A04CA	Other courses are block scheduled	F1 Administrator Questionnaire
1		F1A04CB	# of minutes in block for other courses	F1 Administrator Questionnaire
1		F1A05A	Students in area or district attend the school	F1 Administrator Questionnaire
1		F1A05B	Students in area or district attend the school/transfers allowed	F1 Administrator Questionnaire
1		F1A05C	Students assigned to school to achieve racial/ethnic composition	F1 Administrator Questionnaire
1		F1A05D	Students admitted to school based on test/audition/other criterion	F1 Administrator Questionnaire
1		F1A05E	Students admitted to school based on lottery/random selection	F1 Administrator Questionnaire
1		F1A05F	Students admitted on first-come first-serve basis	F1 Administrator Questionnaire
1		F1A06A	Influence of teachers on selecting 12th grader's courses	F1 Administrator Questionnaire
1		F1A06B	Influence of department head on selecting 12th grader's courses	F1 Administrator Questionnaire
1		F1A06C	Influence of counselors on selecting 12th grader's courses	F1 Administrator Questionnaire
1		F1A06D	Influence of coaches on selecting 12th grader's courses	F1 Administrator Questionnaire
1		F1A06E	Influence of parents on selecting 12th grader's courses	F1 Administrator Questionnaire
1		F1A06F	Influence of student's preferences on selecting 12th grader's courses	F1 Administrator Questionnaire
1		F1A06G	Influence of student's grades on selecting 12th grader's courses	F1 Administrator Questionnaire
1		F1A06H	Influence of student's test scores on selecting 12th grader's courses	F1 Administrator Questionnaire
1		F1A06I	Influence of student attendance on selecting 12th grader's courses	F1 Administrator Questionnaire
1		F1A06J	Influence of special education on selecting 12th grader's courses	F1 Administrator Questionnaire
1		F1A06K	Influence of potential for dropout on selecting 12th grader's courses	F1 Administrator Questionnaire
1		F1A07A	Years of English coursework required to graduate	F1 Administrator Questionnaire
1		F1A07B	Years of mathematics coursework required to graduate	F1 Administrator Questionnaire
1		F1A07C	Years of science coursework required to graduate	F1 Administrator Questionnaire
1		F1A07D	Years of history/social studies coursework required to graduate	F1 Administrator Questionnaire
1		F1A07E	Years of computer coursework required to graduate	F1 Administrator Questionnaire
1		F1A07F	Years of foreign language coursework required to graduate	F1 Administrator Questionnaire
1		F1A07G	Years of fine arts coursework required to graduate	F1 Administrator Questionnaire
1		F1A07H	Years of physical education/health coursework required to graduate	F1 Administrator Questionnaire
1		F1A08A	School confers regular/honors diplomas	F1 Administrator Questionnaire
1		F1A08B	School confers International Baccalaureate diplomas	F1 Administrator Questionnaire
1		F1A08C	School confers diplomas with special education adjustments	F1 Administrator Questionnaire
1		F1A08D	School confers diplomas with vocational/technical skills certificate	F1 Administrator Questionnaire
1		F1A08E	School confers certificates of attendance	F1 Administrator Questionnaire
1		F1A08F	School confers GED/other equivalency	F1 Administrator Questionnaire
1		F1A09	Minimum GPA required to participate in school activities	F1 Administrator Questionnaire
1		F1A10	Availability of a vocational/technical program	F1 Administrator Questionnaire
1		F1A11A	Student request used to decide enrollment in vocational program	F1 Administrator Questionnaire
1		F1A11B	Parent request used to decide enrollment in vocational program	F1 Administrator Questionnaire

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1		F1A11C	Counselor referral used to decide enrollment in vocational program	F1 Administrator Questionnaire
1		F1A11D	Teacher referral used to decide enrollment in vocational program	F1 Administrator Questionnaire
1		F1A11E	Academic performance used to decide enrollment in vocational program	F1 Administrator Questionnaire
1		F1A11F	Attendance record used to decide enrollment in vocational program	F1 Administrator Questionnaire
1		F1A11G	Special education need used to decide enrollment in vocational program	F1 Administrator Questionnaire
1		F1A11H	Potential for dropout used to decide enrollment in vocational program	F1 Administrator Questionnaire
1		F1A11I	Lottery/random choice used to decide enrollment in vocational program	F1 Administrator Questionnaire
1		F1A12A	# of occupational courses defines vocational/technical completers	F1 Administrator Questionnaire
1		F1A12B	Specific academic coursework defines vocational/technical completers	F1 Administrator Questionnaire
1		F1A12C	District/state assessment defines vocational/technical completers	F1 Administrator Questionnaire
1		F1A12D	Industry-recognized credential defines vocational/technical completers	F1 Administrator Questionnaire
1		F1A13A	Vocational interest/ability assessments are available	F1 Administrator Questionnaire
1		F1A13B	Job placement services are available	F1 Administrator Questionnaire
1		F1A13C	Career days/job fairs are available	F1 Administrator Questionnaire
1		F1A13D	Career/employment readiness workshops are available	F1 Administrator Questionnaire
1		F1A13E	School-arranged interviews with employers are available	F1 Administrator Questionnaire
1		F1A13F	Selection of career major/pathways are available	F1 Administrator Questionnaire
1		F1A14	Class of 2004 must pass a test for high school diploma	F1 Administrator Questionnaire
1		F1A15A	Math is on grade 12 competency test	F1 Administrator Questionnaire
1		F1A15B	Science is on grade 12 competency test	F1 Administrator Questionnaire
1		F1A15C	Reading is on grade 12 competency test	F1 Administrator Questionnaire
1		F1A15D	Composition/writing is on grade 12 competency test	F1 Administrator Questionnaire
1		F1A15E	History/civics/social studies is on grade 12 competency test	F1 Administrator Questionnaire
1		F1A15F	Computer skills are on grade 12 competency test	F1 Administrator Questionnaire
1		F1A16	% fail competency test on first attempt	F1 Administrator Questionnaire
1		F1A17A	Retake competency test if failed	F1 Administrator Questionnaire
1		F1A17B	Take remedial class if fail competency test	F1 Administrator Questionnaire
1		F1A17C	Complete competency test preparation class if fail	F1 Administrator Questionnaire
1		F1A17D	Tutoring/individualized academic program if fail competency test	F1 Administrator Questionnaire
1		F1A17E	Summer school if fail competency test	F1 Administrator Questionnaire
1		F1A17F	Referred to alternative/continuing ed school if fail competency test	F1 Administrator Questionnaire
1		F1A18A	% 12th graders in general high school program	F1 Administrator Questionnaire
1		F1A18B	% 12th graders in college prep/specialized academic program	F1 Administrator Questionnaire
1		F1A18C	% 12th graders in voc/tech/business program	F1 Administrator Questionnaire
1		F1A19A	% of 2003 graduates went to 4-year colleges	F1 Administrator Questionnaire
1		F1A19B	% of 2003 graduates went to 2-year colleges/vocational school	F1 Administrator Questionnaire
1		F1A19C	% of 2003 graduates entered labor market or military	F1 Administrator Questionnaire
1		F1A19D	% of 2003 graduates did something else	F1 Administrator Questionnaire
1		F1A20A	% of 12th graders attend college application programs	F1 Administrator Questionnaire
1		F1A20B	% of 12th graders attend programs on financial aid	F1 Administrator Questionnaire
1		F1A20C	% of 12th graders attend school SAT/ACT courses	F1 Administrator Questionnaire
1		F1A20D	% of 12th graders attend college fairs	F1 Administrator Questionnaire
1		F1A20E	% of 12th graders attend meetings with college representative	F1 Administrator Questionnaire
1		F1A20F	% of 12th graders participate in Talent Search	F1 Administrator Questionnaire
1		F1A20G	% of 12th graders participate in Upward Bound	F1 Administrator Questionnaire
1		F1A20H	% of 12th graders in other program for minority/disadvantaged	F1 Administrator Questionnaire
1		F1A21A	Vocational counseling/services/programs offered	F1 Administrator Questionnaire

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
1		F1A21B	Home visits by teachers offered	F1 Administrator Questionnaire
1		F1A21C	Peer tutoring offered	F1 Administrator Questionnaire
1		F1A21D	School-sponsored community service offered	F1 Administrator Questionnaire
1		F1A21E	Individual/family psychological counseling offered	F1 Administrator Questionnaire
1		F1A21F	Programs for pregnant girls/teenage mothers offered	F1 Administrator Questionnaire
1		F1A22A	% of student body receives free/reduced-price lunch (restricted)	F1 Administrator Questionnaire
1		F1A22B	% of student body is LEP or non-English proficient	F1 Administrator Questionnaire
1		F1A22C	% of student body receives special education services	F1 Administrator Questionnaire
1		F1A22D	% of student body in alternative program	F1 Administrator Questionnaire
1		F1A22E	% of student body in dropout prevention program	F1 Administrator Questionnaire
1		F1A22F	% of student body in Advanced Placement courses	F1 Administrator Questionnaire
1		F1A22G	% of student body in International Baccalaureate program	F1 Administrator Questionnaire
1		F1A23	School has dropout prevention program	F1 Administrator Questionnaire
1		F1A24A	Dropout prevention is recommended on basis of absentee record	F1 Administrator Questionnaire
1		F1A24B	Dropout prevention is recommended on basis of academic performance	F1 Administrator Questionnaire
1		F1A24C	Dropout prevention is recommended on basis of teacher referral	F1 Administrator Questionnaire
1		F1A24D	Dropout prevention is recommended on basis of counselor referral	F1 Administrator Questionnaire
1		F1A24E	Dropout prevention is recommended on basis of parental request	F1 Administrator Questionnaire
1		F1A24F	Dropout prevention is recommended on basis of student request	F1 Administrator Questionnaire
1		F1A24G	Dropout prevention is recommended on basis of disciplinary problems	F1 Administrator Questionnaire
1		F1A25A	Dropout prevention offers special instructional programs	F1 Administrator Questionnaire
1		F1A25B	Dropout prevention offers focus on vocational/technical education	F1 Administrator Questionnaire
1		F1A25C	Dropout prevention offers individual/group counseling	F1 Administrator Questionnaire
1		F1A25D	Dropout prevention offers health care	F1 Administrator Questionnaire
1		F1A25E	Dropout prevention offers incentives for better attendance/performance	F1 Administrator Questionnaire
1		F1A25F	Dropout prevention offers close monitoring of attendance/performance	F1 Administrator Questionnaire
1		F1A25G	Dropout prevention offers childcare/nurseries for student's children	F1 Administrator Questionnaire
1		F1A25H	Dropout prevention offers cultural interaction	F1 Administrator Questionnaire
1		F1A25I	Dropout prevention offers anger management	F1 Administrator Questionnaire
1		F1A26	# of full-time teachers (restricted)	F1 Administrator Questionnaire
1		F1A27	# of part-time teachers	F1 Administrator Questionnaire
1		F1A28	# of full-time teachers left at end of 2002-2003 school year	F1 Administrator Questionnaire
1		F1A29AR	# of full-time teachers have less than Bachelor's (restricted)	F1 Administrator Questionnaire
1		F1A29AP	# of full-time teachers have less than Bachelor's degree (public)	F1 Administrator Questionnaire
1		F1A29BR	# of full-time teachers with highest degree of Bachelor's(restricted)	F1 Administrator Questionnaire
1		F1A29BP	# of full-time teachers whose highest degree is Bachelor's (Public)	F1 Administrator Questionnaire
1		F1A29CR	# of full-time teachers whose highest degree is Master's (restricted)	F1 Administrator Questionnaire
1		F1A29CP	# of full-time teachers whose highest degree is Master's	F1 Administrator Questionnaire
1		F1A29DR	# of full-time teachers whose highest degr is EdD or PhD (restricted)	F1 Administrator Questionnaire
1		F1A29DP	# of full-time teachers whose highest degree is EdD or PhD	F1 Administrator Questionnaire
1		F1A29ER	# of full-time teachers for whom highest degr is unknown (restricted)	F1 Administrator Questionnaire
1		F1A29EP	# of full-time teachers whose highest degree is unknown	F1 Administrator Questionnaire
1		F1A30	# of full-time library media resource center staff members	F1 Administrator Questionnaire
1		F1A31	# of part-time library media resource center staff members	F1 Administrator Questionnaire
1		F1A32A	% of full-time teachers are Hispanic	F1 Administrator Questionnaire
1		F1A32B	% of full-time teachers for whom Hispanic ethnicity is unknown	F1 Administrator Questionnaire
1		F1A33A	% of full-time teachers are White	F1 Administrator Questionnaire

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1		F1A33B	% of full-time teachers are Black/African American	F1 Administrator Questionnaire
1		F1A33C	% of full-time teachers are Asian	F1 Administrator Questionnaire
1		F1A33D	% of full-time teachers are Native Hawaiian/Pacific Islander	F1 Administrator Questionnaire
1		F1A33E	% of full-time teachers are American Indian/Alaskan Native	F1 Administrator Questionnaire
1		F1A33F	% of full-time teachers for whom race is unknown	F1 Administrator Questionnaire
1		F1A34A	% of full-time teachers have state/advanced professional certificate	F1 Administrator Questionnaire
1		F1A34B	% of full-time teachers have probationary certificate	F1 Administrator Questionnaire
1		F1A34C	% of full-time teachers have provisional certificate	F1 Administrator Questionnaire
1		F1A34D	% of full-time teachers have temporary/emergency certificate	F1 Administrator Questionnaire
1		F1A35	% of full-time library staff is state-certified	F1 Administrator Questionnaire
1		F1A37A	% of poor teachers	F1 Administrator Questionnaire
1		F1A37B	% of fair teachers	F1 Administrator Questionnaire
1		F1A37C	% of good teachers	F1 Administrator Questionnaire
1		F1A37D	% of excellent teachers	F1 Administrator Questionnaire
1		F1A38A	Student morale is high	F1 Administrator Questionnaire
1		F1A38B	Teachers press students to achieve	F1 Administrator Questionnaire
1		F1A38C	Teacher morale is high	F1 Administrator Questionnaire
1		F1A38D	Learning is high priority for students	F1 Administrator Questionnaire
1		F1A38E	Students expected to do homework	F1 Administrator Questionnaire
1		F1A38F	Discipline is emphasized	F1 Administrator Questionnaire
1		F1A38G	Classroom activities are highly structured	F1 Administrator Questionnaire
1		F1A38H	Many teachers are negative about students	F1 Administrator Questionnaire
1		F1A38I	Many teachers find it difficult to motivate students	F1 Administrator Questionnaire
1		F1A38J	School emphasizes sports	F1 Administrator Questionnaire
1		F1A38K	Students are encouraged to compete for grades	F1 Administrator Questionnaire
1		F1A38L	Counselors/teachers encourage students to enroll in academic classes	F1 Administrator Questionnaire
1		F1A38M	There is often conflict between teachers and administrators	F1 Administrator Questionnaire
1		F1A38N	Teachers usually respond to students' individual needs	F1 Administrator Questionnaire
1		F1A39A	% of students typically tardy	F1 Administrator Questionnaire
1		F1A39B	% of students typically absent without excuse	F1 Administrator Questionnaire
1		F1A39C	% of students typically cut or skip classes	F1 Administrator Questionnaire
1		F1A40A	How often physical conflicts a problem at school	F1 Administrator Questionnaire
1		F1A40B	How often robbery/theft a problem at school	F1 Administrator Questionnaire
1		F1A40C	How often vandalism a problem at school	F1 Administrator Questionnaire
1		F1A40D	How often use of alcohol a problem at school	F1 Administrator Questionnaire
1		F1A40E	How often use of illegal drugs a problem at school	F1 Administrator Questionnaire
1		F1A40F	How often students on drugs/alcohol at school a problem	F1 Administrator Questionnaire
1		F1A40G	How often sale of drugs near school a problem	F1 Administrator Questionnaire
1		F1A40H	How often possession of weapons a problem at school	F1 Administrator Questionnaire
1		F1A40I	How often physical abuse of teachers a problem at school	F1 Administrator Questionnaire
1		F1A40J	How often racial tension among students a problem at school	F1 Administrator Questionnaire
1		F1A40K	How often student bullying a problem at school	F1 Administrator Questionnaire
1		F1A40L	How often verbal abuse of teachers a problem at school	F1 Administrator Questionnaire
1		F1A40M	How often disorder in classrooms a problem at school	F1 Administrator Questionnaire
1		F1A40N	How often student disrespect for teachers a problem at school	F1 Administrator Questionnaire
1		F1A40O	How often gang activity a problem at school	F1 Administrator Questionnaire
1		F1A40P	How often cult/extremist group activities a problem at school	F1 Administrator Questionnaire
1		F1A42	Month and year completed interview	F1 Administrator Questionnaire



*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
1		BYL01	How library is organized	BY Library Questionnaire
1		BYL02	Library's total seating capacity	BY Library Questionnaire
1		BYL03A	Library has individual activity areas	BY Library Questionnaire
1		BYL03B	Library has small group activity areas	BY Library Questionnaire
1		BYL03C	Library has large group activity areas	BY Library Questionnaire
1		BYL03D	Library has staff work area	BY Library Questionnaire
1		BYL03E	Library has conference rooms	BY Library Questionnaire
1		BYL03F	Library has computer access area/lab	BY Library Questionnaire
1		BYL04	Library can accommodate full class	BY Library Questionnaire
1		BYL05	Library serves full class/other activity at once	BY Library Questionnaire
1		BYL06AA	Staff includes state-certified librarians	BY Library Questionnaire
1		BYL06AB	# full-time state-certified librarians	BY Library Questionnaire
1		BYL06AC	# part-time state-certified librarians	BY Library Questionnaire
1		BYL06BA	Library media center staff includes state-certified teachers	BY Library Questionnaire
1		BYL06BB	# full-time state-certified teachers in library media center	BY Library Questionnaire
1		BYL06BC	# part-time state-certified teachers in library media center	BY Library Questionnaire
1		BYL06CA	Library media center staff includes uncertified professionals	BY Library Questionnaire
1		BYL06CB	# full-time uncertified professionals in library media center	BY Library Questionnaire
1		BYL06CC	# part-time uncertified professionals in library media center	BY Library Questionnaire
1		BYL06DA	Staff includes paid library aides	BY Library Questionnaire
1		BYL06DB	# full-time paid library aides	BY Library Questionnaire
1		BYL06DC	# part-time paid library aides	BY Library Questionnaire
1		BYL07	Volunteers provide library services	BY Library Questionnaire
1		BYL08A	# of adult library volunteers	BY Library Questionnaire
1		BYL08B	# of student library volunteers	BY Library Questionnaire
1		BYL09	District has library media coordinator	BY Library Questionnaire
1		BYL10	District library media coordinator is full-time	BY Library Questionnaire
1		BYL11AA	Library has telephone	BY Library Questionnaire
1		BYL11AB	Years library has had telephone	BY Library Questionnaire
1		BYL11AC	Students may use telephone	BY Library Questionnaire
1		BYL11AD	Faculty/staff may use telephone	BY Library Questionnaire
1		BYL11AE	Library staff may use telephone	BY Library Questionnaire
1		BYL11BA	Library has fax machine	BY Library Questionnaire
1		BYL11BB	Years library has had fax machine	BY Library Questionnaire
1		BYL11BC	Students may use fax machine	BY Library Questionnaire
1		BYL11BD	Faculty/staff may use fax machine	BY Library Questionnaire
1		BYL11BE	Library staff may use fax machine	BY Library Questionnaire
1		BYL11CA	Library has photocopier	BY Library Questionnaire
1		BYL11CB	Years library has had photocopier	BY Library Questionnaire
1		BYL11CC	Students may use photocopier	BY Library Questionnaire
1		BYL11CD	Faculty/staff may use photocopier	BY Library Questionnaire
1		BYL11CE	Library staff may use photocopier	BY Library Questionnaire
1		BYL11DA	Library has VCR	BY Library Questionnaire
1		BYL11DB	Years library has had VCR	BY Library Questionnaire
1		BYL11DC	Students may use VCR	BY Library Questionnaire
1		BYL11DD	Faculty/staff may use VCR	BY Library Questionnaire
1		BYL11DE	Library staff may use VCR	BY Library Questionnaire
1		BYL11EA	Library has laser disc player	BY Library Questionnaire

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1		BYL11EB	Years library has had laser disc player	BY Library Questionnaire
1		BYL11EC	Students may use laser disc player	BY Library Questionnaire
1		BYL11ED	Faculty/staff may use laser disc player	BY Library Questionnaire
1		BYL11EE	Library staff may use laser disc player	BY Library Questionnaire
1		BYL11FA	Library has DVD player	BY Library Questionnaire
1		BYL11FB	Years library has had DVD player	BY Library Questionnaire
1		BYL11FC	Students may use DVD player	BY Library Questionnaire
1		BYL11FD	Faculty/staff may use DVD player	BY Library Questionnaire
1		BYL11FE	Library staff may use DVD player	BY Library Questionnaire
1		BYL11GA	Library has electronic book reader	BY Library Questionnaire
1		BYL11GB	Years library has had electronic book reader	BY Library Questionnaire
1		BYL11GC	Students may use electronic book reader	BY Library Questionnaire
1		BYL11GD	Faculty/staff may use electronic book reader	BY Library Questionnaire
1		BYL11GE	Library staff may use electronic book reader	BY Library Questionnaire
1		BYL11HA	Library has CD-ROM reader	BY Library Questionnaire
1		BYL11HB	Years library has had CD-ROM reader	BY Library Questionnaire
1		BYL11HC	Students may use CD-ROM reader	BY Library Questionnaire
1		BYL11HD	Faculty/staff may use CD-ROM reader	BY Library Questionnaire
1		BYL11HE	Library staff may use CD-ROM reader	BY Library Questionnaire
1		BYL11IA	Library has personal computer	BY Library Questionnaire
1		BYL11IB	Years library has had personal computer	BY Library Questionnaire
1		BYL11IC	Students may use personal computer	BY Library Questionnaire
1		BYL11ID	Faculty/staff may use personal computer	BY Library Questionnaire
1		BYL11IE	Library staff may use personal computer	BY Library Questionnaire
1		BYL11JA	Library has automated book circulation system	BY Library Questionnaire
1		BYL11JB	Years library has had automated book circulation system	BY Library Questionnaire
1		BYL11JC	Students may use automated book circulation system	BY Library Questionnaire
1		BYL11JD	Faculty/staff may use automated book circulation system	BY Library Questionnaire
1		BYL11JE	Library staff may use automated book circulation system	BY Library Questionnaire
1		BYL11KA	Library has Internet access	BY Library Questionnaire
1		BYL11KB	Years library has had Internet access	BY Library Questionnaire
1		BYL11KC	Students may use Internet access	BY Library Questionnaire
1		BYL11KD	Faculty/staff may use Internet access	BY Library Questionnaire
1		BYL11KE	Library staff may use Internet access	BY Library Questionnaire
1		BYL11LA	Library has cable TV	BY Library Questionnaire
1		BYL11LB	Years library has had cable TV	BY Library Questionnaire
1		BYL11LC	Students may use cable TV	BY Library Questionnaire
1		BYL11LD	Faculty/staff may use cable TV	BY Library Questionnaire
1		BYL11LE	Library staff may use cable TV	BY Library Questionnaire
1		BYL11MA	Library has closed-circuit TV	BY Library Questionnaire
1		BYL11MB	Years library has had closed-circuit TV	BY Library Questionnaire
1		BYL11MC	Students may use closed-circuit TV	BY Library Questionnaire
1		BYL11MD	Faculty/staff may use closed-circuit TV	BY Library Questionnaire
1		BYL11ME	Library staff may use closed-circuit TV	BY Library Questionnaire
1		BYL11NA	Library has video camera	BY Library Questionnaire
1		BYL11NB	Years library has had video camera	BY Library Questionnaire
1		BYL11NC	Students may use video camera	BY Library Questionnaire
1		BYL11ND	Faculty/staff may use video camera	BY Library Questionnaire

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
1		BYL11NE	Library staff may use video camera	BY Library Questionnaire
1		BYL11OA	Library has satellite TV hook-up	BY Library Questionnaire
1		BYL11OB	Years library has had satellite TV hookup	BY Library Questionnaire
1		BYL11OC	Students may use satellite TV hookup	BY Library Questionnaire
1		BYL11OD	Faculty/staff may use satellite TV hookup	BY Library Questionnaire
1		BYL11OE	Library staff may use satellite TV hookup	BY Library Questionnaire
1		BYL11PA	Library has audio equipment	BY Library Questionnaire
1		BYL11PB	Years library has had audio equipment	BY Library Questionnaire
1		BYL11PC	Students may use audio equipment	BY Library Questionnaire
1		BYL11PD	Faculty/staff may use audio equipment	BY Library Questionnaire
1		BYL11PE	Library staff may use audio equipment	BY Library Questionnaire
1		BYL11QA	Library has videoconference equipment	BY Library Questionnaire
1		BYL11QB	Years library had videoconference equipment	BY Library Questionnaire
1		BYL11QC	Students may use videoconference equipment	BY Library Questionnaire
1		BYL11QD	Faculty/staff may use videoconference equipment	BY Library Questionnaire
1		BYL11QE	Library staff may use videoconference equipment	BY Library Questionnaire
1		BYL11RA	Library has scanner	BY Library Questionnaire
1		BYL11RB	Years library had scanner	BY Library Questionnaire
1		BYL11RC	Students may use scanner	BY Library Questionnaire
1		BYL11RD	Faculty/staff may use scanner	BY Library Questionnaire
1		BYL11RE	Library staff may use scanner	BY Library Questionnaire
1		BYL11SA	Library has LCD panel/projection device	BY Library Questionnaire
1		BYL11SB	Years library had LCD panel/projection device	BY Library Questionnaire
1		BYL11SC	Students may use LCD panel/projection device	BY Library Questionnaire
1		BYL11SD	Faculty/staff may use LCD panel/projection device	BY Library Questionnaire
1		BYL11SE	Library staff may use LCD panel/projection device	BY Library Questionnaire
1		BYL11TA	Library has technology for disabled	BY Library Questionnaire
1		BYL11TB	Years library has had technology for disabled	BY Library Questionnaire
1		BYL11TC	Students may use technology for disabled	BY Library Questionnaire
1		BYL11TD	Faculty/staff may use technology for disabled	BY Library Questionnaire
1		BYL11TE	Library staff may use technology for disabled	BY Library Questionnaire
1		BYL12A	Online catalog available	BY Library Questionnaire
1		BYL12B	Other libraries' online catalogs available	BY Library Questionnaire
1		BYL12C	Internet access available	BY Library Questionnaire
1		BYL12D	E-mail/chat room access available	BY Library Questionnaire
1		BYL12E	Reference/bibliography databases available	BY Library Questionnaire
1		BYL12F	General articles/news databases available	BY Library Questionnaire
1		BYL12G	College/career databases available	BY Library Questionnaire
1		BYL12H	Academic subject databases available	BY Library Questionnaire
1		BYL12I	Electronic books/journals/references/magazines available	BY Library Questionnaire
1		BYL12J	Educational software available	BY Library Questionnaire
1		BYL13	Library has multimedia production facility	BY Library Questionnaire
1		BYL14A	Has interlibrary loan program with area high schools	BY Library Questionnaire
1		BYL14B	Has interlibrary loan program with high schools in state	BY Library Questionnaire
1		BYL14C	Has interlibrary loan program with public libraries	BY Library Questionnaire
1		BYL14D	Has interlibrary loan program with the state library	BY Library Questionnaire
1		BYL14E	Has interlibrary loan program with colleges/universities	BY Library Questionnaire
1		BYL14F	Has other interlibrary loan program	BY Library Questionnaire

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1		BYL15	School participates in distance learning	BY Library Questionnaire
1		BYL16A	2001 holdings-books	BY Library Questionnaire
1		BYL16B	2001 holdings-video	BY Library Questionnaire
1		BYL16C	2001 holdings-periodical subscriptions	BY Library Questionnaire
1		BYL16D	2001 holdings-electronic database subscription	BY Library Questionnaire
1		BYL17	Library has professional collection for teachers	BY Library Questionnaire
1		BYL18	# of professional collection volumes bought 2000-2001 school year	BY Library Questionnaire
1		BYL19	Total spent on computer hardware 2000-2001 school year	BY Library Questionnaire
1		BYL20	When students may use library on own	BY Library Questionnaire
1		BYL21A	Students may use library on own before/after school	BY Library Questionnaire
1		BYL21B	Students may use library on own during lunch break	BY Library Questionnaire
1		BYL21C	Students may use library on own during set times	BY Library Questionnaire
1		BYL21D	Students may use library on own between class/recess	BY Library Questionnaire
1		BYL21E	Students may use library on own at other time	BY Library Questionnaire
1		BYL22A	How often library used for classes at same time	BY Library Questionnaire
1		BYL22B	How often library used for one class only	BY Library Questionnaire
1		BYL22C	How often library used for small groups	BY Library Questionnaire
1		BYL23	How often library used for non-library activities	BY Library Questionnaire
1		BYL24	How many students use library per week	BY Library Questionnaire
1		BYL25	Total circulation per week	BY Library Questionnaire
1		BYL26	Maximum # of books students may take out	BY Library Questionnaire
1		BYL27A	Students may take out reference material	BY Library Questionnaire
1		BYL27B	Students may take out periodicals	BY Library Questionnaire
1		BYL27C	Students may take out AV materials	BY Library Questionnaire
1		BYL27D	Students may take out AV equipment	BY Library Questionnaire
1		BYL27E	Students may take out computer software	BY Library Questionnaire
1		BYL27F	Students may take out computer hardware	BY Library Questionnaire
1		BYL27G	Students may take out none of these	BY Library Questionnaire
1		BYL28	Parents allowed to check out material	BY Library Questionnaire
1		BYL29	Worked in this library during 2000-2001 school year	BY Library Questionnaire
1		BYL30A	How often worked with English teachers	BY Library Questionnaire
1		BYL30B	How often worked with math teachers	BY Library Questionnaire
1		BYL31A	School-board has policy on use of Internet	BY Library Questionnaire
1		BYL31B	School-board has copyright policy	BY Library Questionnaire
1		BYL31C	School-board has materials selection policy	BY Library Questionnaire
1		BYL31D	School-board has none of these policies	BY Library Questionnaire
1		BYL32	School has library policy/procedure manual	BY Library Questionnaire
1		BYL34	Library questionnaire respondent's title	BY Library Questionnaire
1		BYL35	Date library questionnaire completed	BY Library Questionnaire
1		BYF01A	Trash on front hallway floors	BY Facilities Checklist
1		BYF01B	Overflowing trashcans in hallway	BY Facilities Checklist
1		BYF01C	Broken lights in hallway	BY Facilities Checklist
1		BYF01D	Graffiti on hallway walls/doors/ceiling	BY Facilities Checklist
1		BYF01E	Graffiti on lockers in hallway	BY Facilities Checklist
1		BYF01F	Visible fire/emergency alarms in hallway	BY Facilities Checklist
1		BYF01G	Chipped paint in hallway	BY Facilities Checklist
1		BYF01H	Hallway ceilings in disrepair	BY Facilities Checklist
1		BYF01I	Visible safety exit signs in hallway	BY Facilities Checklist

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
1		BYF01J	Hallway floor and walls appear clean	BY Facilities Checklist
1		BYF02	Noise level of main entrance during class	BY Facilities Checklist
1		BYF03A	Visitor check-in sign observed	BY Facilities Checklist
1		BYF03B	Sign stating 'no drugs' observed	BY Facilities Checklist
1		BYF03C	Sign stating 'no trespassing' observed	BY Facilities Checklist
1		BYF03D	Sign stating 'no weapons' observed	BY Facilities Checklist
1		BYF04A	Graffiti on bathroom walls and ceilings	BY Facilities Checklist
1		BYF04B	Graffiti on bathroom stall doors/walls	BY Facilities Checklist
1		BYF04C	Trash on bathroom floor	BY Facilities Checklist
1		BYF04D	Overflowing trashcans in bathroom	BY Facilities Checklist
1		BYF04E	Doors on all bathroom stalls	BY Facilities Checklist
1		BYF04F	Students loitering in bathroom during class	BY Facilities Checklist
1		BYF04G	Students smoking in bathroom during class	BY Facilities Checklist
1		BYF05A	Locks on inside of classroom door	BY Facilities Checklist
1		BYF05B	Classroom ceiling in disrepair	BY Facilities Checklist
1		BYF05C	Broken lights in classroom	BY Facilities Checklist
1		BYF05D	Graffiti on classroom walls/ceiling/doors	BY Facilities Checklist
1		BYF05E	Graffiti on classroom desks	BY Facilities Checklist
1		BYF05F	Trash on classroom floor	BY Facilities Checklist
1		BYF05G	Overflowing trashcan in classroom	BY Facilities Checklist
1		BYF05H	Classroom floor and walls appear clean	BY Facilities Checklist
1		BYF05I	Posters or material on classroom windows	BY Facilities Checklist
1		BYF05J	Bars on classroom windows	BY Facilities Checklist
1		BYF05K	Classroom windows broken	BY Facilities Checklist
1		BYF06A	Students wear ID badges	BY Facilities Checklist
1		BYF06B	Teachers wear ID badges	BY Facilities Checklist
1		BYF06C	Other personnel wear ID badges	BY Facilities Checklist
1		BYF06D	Visitors wear ID badges	BY Facilities Checklist
1		BYF07	School has parking lots	BY Facilities Checklist
1		BYF08A	# entrances/exits to parking lots	BY Facilities Checklist
1		BYF08B	# entrances/exits monitored by video	BY Facilities Checklist
1		BYF08C	# entrances/exits monitored by guard	BY Facilities Checklist
1		BYF08D	# entrances/exits locked during day	BY Facilities Checklist
1		BYF09A	How much litter/trash in area around school	BY Facilities Checklist
1		BYF09B	How much graffiti in area around school	BY Facilities Checklist
1		BYF09C	How many boarded up buildings in area around school	BY Facilities Checklist
1		BYF09D	How many people congregated in area around school	BY Facilities Checklist
1		BYF09E	How many students loitering in area around school	BY Facilities Checklist
1		BYF10A	Observed security guard	BY Facilities Checklist
1		BYF10B	Observed metal detectors	BY Facilities Checklist
1		BYF10C	Observed security cameras	BY Facilities Checklist
1		BYF10D	Observed fencing around entire school	BY Facilities Checklist
1		BYF10E	Observed sign-in policies	BY Facilities Checklist
1		BYF10F	Observed adult direct guests to sign-in	BY Facilities Checklist
1		BYF10G	Observed fire alarms	BY Facilities Checklist
1		BYF10H	Observed fire extinguishers	BY Facilities Checklist
1		BYF10I	Observed fire sprinklers	BY Facilities Checklist
1		BYF10J	Observed exterior lights	BY Facilities Checklist

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
1		BYF10K	Observed student lockers	BY Facilities Checklist
1		BYF10L	Observed student uniforms	BY Facilities Checklist
1		BYF10M	Observed signs-alarm if door opened	BY Facilities Checklist
2		Sch_ID	School ID	IDs
2		STRAT_ID	Stratum	IDs
2		PSU	Primary sampling unit	IDs
2		BYSCHWT	School weight	BY School Composites
2		BYADMSTA	Base year administrator questionnaire status	BY School Composites
2		BYSCMDST	Base Year library media center questionnaire status (restricted)	BY School Composites
2		BYSCMDFG	Base year library media center questionnaire flag	BY School Composites
2		BYG10ER	Grade 10 enrollment-2001/02 school roster (restricted)	BY School Composites
2		BYG10EP	Grade 10 enrollment-2001/02 school roster-categorical	BY School Composites
2		BYSCENP	Oct 2001 total school enrollment-administrator quex-categorical	BY School Composites
2		BYCTRL	School control	BY School Composites
2		BYURBAN	School urbanicity	BY School Composites
2		BYREGION	Geographic region of school	BY School Composites
2		BYSPANP	Grade span-administrator questionnaire	BY School Composites
2		BY10FLP	Grade 10 percent free lunch-categorical	BY School Composites
2		BYFTTP	Number of full-time teachers categorical	BY School Composites
2		BYCENDIV	Census division of school locale (restricted)	BY School Composites
2		BYSTATE	State code for school locale (restricted)	BY School Composites
2		BYCOUNTY	County code for school locale (restricted)	BY School Composites
2		BYSCHZIP	School zip code (restricted)	BY School Composites
2		F1ADMSTA	F1 administrator questionnaire status	F1 School Composites
2		F1SCENP	Oct 2003 total school enrollment-administrator quex-categorical	F1 School Composites
2		F1SCFLP	F1 School percent free lunch-categorical	F1 School Composites
2		F1FTTP	F1 Number of full-time teachers categorical	F1 School Composites
2		F1SGRDSY	Grade system	High School Transcript (School)
2		F1SGRDAP	Lower bound of A plus	High School Transcript (School)
2		F1SGRDA	Lower bound of A	High School Transcript (School)
2		F1SGRDAM	Lower bound of A minus	High School Transcript (School)
2		F1SGRDBP	Lower bound of B plus	High School Transcript (School)
2		F1SGRDB	Lower bound of B	High School Transcript (School)
2		F1SGRDBM	Lower bound of B minus	High School Transcript (School)
2		F1SGRDCP	Lower bound of C plus	High School Transcript (School)
2		F1SGRDC	Lower bound of C	High School Transcript (School)
2		F1SGRDCM	Lower bound of C minus	High School Transcript (School)
2		F1SGRDDP	Lower bound of D plus	High School Transcript (School)
2		F1SGRDD	Lower bound of D	High School Transcript (School)
2		F1SGRDDM	Lower bound of D minus	High School Transcript (School)
2		F1SGRDP	Lower bound of pass	High School Transcript (School)
2		F1SCONV	Credit conversion for year-long daily course	High School Transcript (School)
2		F1STERM	Term system	High School Transcript (School)
2		F1SOFFS1	Off-site courses available to students	High School Transcript (School)
2		F1SOFFS2	Off-site courses identified in course catalog	High School Transcript (School)
2		F1SOFFS3	Off-site courses identified on course transcript	High School Transcript (School)
2		F1SPSHS1	PSE courses for high school credit available to students	High School Transcript (School)
2		F1SPSHS2	PSE courses for high school credit identified in course catalog	High School Transcript (School)

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
2		F1SPSHS3	PSE courses for high school credit identified on course transcript	High School Transcript (School)
2		F1SPSDU1	PSE courses for dual credit available to students	High School Transcript (School)
2		F1SPSDU2	PSE courses for dual credit identified in course catalog	High School Transcript (School)
2		F1SPSDU3	PSE courses for dual credit identified on course transcript	High School Transcript (School)
2		F1STECH1	Tech prep courses available to students	High School Transcript (School)
2		F1STECH2	Tech prep courses identified in course catalog	High School Transcript (School)
2		F1STECH3	Tech prep courses identified on course transcript	High School Transcript (School)
2		F1SACAD1	Career academy courses available to students	High School Transcript (School)
2		F1SACAD2	Career academy courses identified in course catalog	High School Transcript (School)
2		F1SACAD3	Career academy courses identified on course transcript	High School Transcript (School)
2		F1SONLN1	On-line courses available to students	High School Transcript (School)
2		F1SONLN2	On-line courses identified in course catalog	High School Transcript (School)
2		F1SONLN3	On-line courses identified on course transcript	High School Transcript (School)
2		F1SOFFD1	Standard diploma offered	High School Transcript (School)
2		F1SCRED1	School assigned credits for standard diploma	High School Transcript (School)
2		F1SCRES1	Standardized credits for standard diploma	High School Transcript (School)
2		F1SOFFD2	Regents diploma offered	High School Transcript (School)
2		F1SCRED2	School assigned credits for regent diploma	High School Transcript (School)
2		F1SCRES2	Standardized credits for regent diploma	High School Transcript (School)
2		F1SOFFD3	Honors diploma offered	High School Transcript (School)
2		F1SCRED3	School assigned credits for honors diploma	High School Transcript (School)
2		F1SCRES3	Standardized credits for honors diploma	High School Transcript (School)
2		F1SOFFD4	Certificate of merit offered	High School Transcript (School)
2		F1SCRED4	School assigned credits for certificate of merit	High School Transcript (School)
2		F1SCRES4	Standardized credits for certificate of merit	High School Transcript (School)
2		F1SOFFD5	Vocational diploma offered	High School Transcript (School)
2		F1SCRED5	School assigned credits for vocational diploma	High School Transcript (School)
2		F1SCRES5	Standardized credits for vocational diploma	High School Transcript (School)
2		F1SOFFD6	Special education diploma offered	High School Transcript (School)
2		F1SCRED6	School assigned credits for special education diploma	High School Transcript (School)
2		F1SCRES6	Standardized credits for special education diploma	High School Transcript (School)
2		F1SOFFD7	Certificate of attendance offered	High School Transcript (School)
2		F1SCRED7	School assigned credits for certificate of attendance	High School Transcript (School)
2		F1SCRES7	Standardized credits for certificate of attendance	High School Transcript (School)
2		F1SOFFD8	International Baccalaureate diploma offered	High School Transcript (School)
2		F1SCRED8	School assigned credits for International Baccalaureate diploma	High School Transcript (School)
2		F1SCRES8	Standardized credits for International Baccalaureate diploma	High School Transcript (School)
2		NCESDI	NCES school district ID number (restricted)	External Source School Data
2		NCESSI	School identification number from CCD or PSS (restricted)	External Source School Data
2		CP01FLUN	Percent free lunch-2000/01 CCD (restricted)	External Source School Data
2		CP01FTE	Number FTE teachers-2000/01 CCD (restricted)	External Source School Data
2		CP01G9EN	Grade 9 enrollment-2000/01 CCD (restricted)	External Source School Data
2		CP01GRHI	Highest Grade-2000/01 CCD (restricted)	External Source School Data
2		CP01GRLO	Lowest Grade-2000/01 CCD (restricted)	External Source School Data
2		CP01LOC	School locale-2000/01 CCD (restricted)	External Source School Data
2		CP01PMIN	Percent minority-2000/01 CCD (restricted)	External Source School Data
2		CP01STEN	Total school enrollment-2000/01 CCD (restricted)	External Source School Data
2		CP01STRO	Student/teacher ratio-2000/01 CCD (restricted)	External Source School Data

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
2		CP01STYP	School type-2000/01 CCD (restricted)	External Source School Data
2		CP02FLUN	Percent free lunch-2001/02 CCD/PSS (restricted)	External Source School Data
2		CP02FTE	Number FTE teachers-2001/02 CCD/PSS (restricted)	External Source School Data
2		CP02G10E	Grade 10 enrollment-2001/02 CCD/PSS (restricted)	External Source School Data
2		CP02GRHI	Highest Grade-2001/02 CCD/PSS (restricted)	External Source School Data
2		CP02GRLO	Lowest Grade-2001/02 CCD/PSS (restricted)	External Source School Data
2		CP02LOC	School locale-2001/02 CCD/PSS (restricted)	External Source School Data
2		CP02PMIN	Percent minority-2001/02 CCD/PSS (restricted)	External Source School Data
2		CP02STEN	Total school enrollment-2001/02 CCD/PSS (restricted)	External Source School Data
2		CP02STRO	Student/teacher ratio-2001/02 CCD/PSS (restricted)	External Source School Data
2		CP02STYP	School type-2001/02 CCD/PSS (restricted)	External Source School Data
2		CP03FLUN	Percent free lunch-2002/03 CCD (restricted)	External Source School Data
2		CP03FTE	Number FTE teachers-2002/03 CCD (restricted)	External Source School Data
2		CP03G11E	Grade 11 enrollment-2002/03 CCD (restricted)	External Source School Data
2		CP03GRHI	Highest Grade-2002/03 CCD (restricted)	External Source School Data
2		CP03GRLO	Lowest Grade-2002/03 CCD (restricted)	External Source School Data
2		CP03LOC	School locale-2002/03 CCD (restricted)	External Source School Data
2		CP03PMIN	Percent minority-2002/03 CCD (restricted)	External Source School Data
2		CP03STEN	Total school enrollment-2002/03 CCD (restricted)	External Source School Data
2		CP03STRO	Student/teacher ratio-2002/03 CCD (restricted)	External Source School Data
2		CP03STYP	School type-2002/03 CCD (restricted)	External Source School Data
2		CP04FLUN	Percent free lunch-2003/04 CCD/PSS (restricted)	External Source School Data
2		CP04FTE	Number FTE teachers-2003/04 CCD/PSS (restricted)	External Source School Data
2		CP04G12E	Grade 12 enrollment-2003/04 CCD/PSS (restricted)	External Source School Data
2		CP04GRHI	Highest Grade-2003/04 CCD/PSS (restricted)	External Source School Data
2		CP04GRLO	Lowest Grade-2003/04 CCD/PSS (restricted)	External Source School Data
2		CP04LOC	School locale-2003/04 CCD/PSS (restricted)	External Source School Data
2		CP04PMIN	Percent minority-2003/04 CCD/PSS (restricted)	External Source School Data
2		CP04STEN	Total school enrollment-2003/04 CCD/PSS (restricted)	External Source School Data
2		CP04STRO	Student/teacher ratio-2003/04 CCD/PSS (restricted)	External Source School Data
2		CP04STYP	School type-2003/04 CCD/PSS (restricted)	External Source School Data
2		BYA01	Total student enrollment as of October 2001 (restricted)	BY Administrator Questionnaire
2		BYA02A	School has pre-kindergarten (restricted)	BY Administrator Questionnaire
2		BYA02B	School has kindergarten (restricted)	BY Administrator Questionnaire
2		BYA02C	School has 1st grade (restricted)	BY Administrator Questionnaire
2		BYA02D	School has 2nd grade (restricted)	BY Administrator Questionnaire
2		BYA02E	School has 3rd grade (restricted)	BY Administrator Questionnaire
2		BYA02F	School has 4th grade (restricted)	BY Administrator Questionnaire
2		BYA02G	School has 5th grade (restricted)	BY Administrator Questionnaire
2		BYA02H	School has 6th grade (restricted)	BY Administrator Questionnaire
2		BYA02I	School has 7th grade (restricted)	BY Administrator Questionnaire
2		BYA02J	School has 8th grade (restricted)	BY Administrator Questionnaire
2		BYA02K	School has 9th grade (restricted)	BY Administrator Questionnaire
2		BYA02L	School has 10th grade (restricted)	BY Administrator Questionnaire
2		BYA02M	School has 11th grade (restricted)	BY Administrator Questionnaire
2		BYA02N	School has 12th grade (restricted)	BY Administrator Questionnaire
2		BYA02O	School has 13th grade or higher (restricted)	BY Administrator Questionnaire
2		BYA03A	Comprehensive public school (restricted)	BY Administrator Questionnaire



*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
2		BYA03B	Public magnet school (restricted)	BY Administrator Questionnaire
2		BYA03C	Public magnet school with theme (restricted)	BY Administrator Questionnaire
2		BYA03D	Public school of choice (restricted)	BY Administrator Questionnaire
2		BYA03E	Year round school (restricted)	BY Administrator Questionnaire
2		BYA03F	Area vocational school/center (restricted)	BY Administrator Questionnaire
2		BYA03G	Full-time technical/vocational school (restricted)	BY Administrator Questionnaire
2		BYA03H	Other technical or vocational school (restricted)	BY Administrator Questionnaire
2		BYA03I	Catholic diocesan school (restricted)	BY Administrator Questionnaire
2		BYA03J	Catholic parish (restricted)	BY Administrator Questionnaire
2		BYA03K	Catholic religious order (restricted)	BY Administrator Questionnaire
2		BYA03L	Catholic independent school (restricted)	BY Administrator Questionnaire
2		BYA03M	Other private school with religious affiliation (restricted)	BY Administrator Questionnaire
2		BYA03N	Private school without religious affiliation (restricted)	BY Administrator Questionnaire
2		BYA03O	Boarding school (restricted)	BY Administrator Questionnaire
2		BYA03P	Indian reservation school (restricted)	BY Administrator Questionnaire
2		BYA03Q	Military academy (restricted)	BY Administrator Questionnaire
2		BYA03R	Alternative/dropout prevention/continuation school (restricted)	BY Administrator Questionnaire
2		BYA03S	Charter school (restricted)	BY Administrator Questionnaire
2		BYA04	Way of teaching students with different abilities	BY Administrator Questionnaire
2		BYA05	Crime in students' neighborhood	BY Administrator Questionnaire
2		BYA06	Type of academic calendar	BY Administrator Questionnaire
2		BYA07	# of days in school year for 10th graders	BY Administrator Questionnaire
2		BYA08	# class periods in day for 10th graders	BY Administrator Questionnaire
2		BYA09	# of minutes of average 10th grade class period	BY Administrator Questionnaire
2		BYA10	Typical semester class load for 10th graders	BY Administrator Questionnaire
2		BYA11	School is coeducational	BY Administrator Questionnaire
2		BYA12A	% in school-sponsored community service	BY Administrator Questionnaire
2		BYA12B	% in work study program	BY Administrator Questionnaire
2		BYA12C	% in academic counseling program	BY Administrator Questionnaire
2		BYA12D	% in vocational counseling program	BY Administrator Questionnaire
2		BYA12E	% in dropout prevention program	BY Administrator Questionnaire
2		BYA12F	% in gang prevention program	BY Administrator Questionnaire
2		BYA12G	% in alcohol/drug prevention program	BY Administrator Questionnaire
2		BYA12H	% in AIDS education program	BY Administrator Questionnaire
2		BYA12I	% in crisis prevention program	BY Administrator Questionnaire
2		BYA13	When parents notified of absences	BY Administrator Questionnaire
2		BYA14A	% 10th graders in general high school program	BY Administrator Questionnaire
2		BYA14B	% 10th graders in college prep program	BY Administrator Questionnaire
2		BYA14C	% 10th graders in other specialized programs	BY Administrator Questionnaire
2		BYA14D	% 10th graders in voc/tech/business program	BY Administrator Questionnaire
2		BYA14E	% 10th graders in special ed program	BY Administrator Questionnaire
2		BYA14F	% 10th graders in alternative program	BY Administrator Questionnaire
2		BYA14G	% 10th graders receive bilingual education	BY Administrator Questionnaire
2		BYA14H	% 10th graders receive ESL	BY Administrator Questionnaire
2		BYA14I	% 10th graders receive remedial reading	BY Administrator Questionnaire
2		BYA14J	% 10th graders receive remedial math	BY Administrator Questionnaire
2		BYA14K	% 10th graders in after school/summer outreach	BY Administrator Questionnaire
2		BYA15A	Students develop career plan	BY Administrator Questionnaire

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
2		BYA15B	Students select career major/pathway	BY Administrator Questionnaire
2		BYA15C	Students in program to prepare for college	BY Administrator Questionnaire
2		BYA16	Vocational-technical programs offered	BY Administrator Questionnaire
2		BYA17A	Agriculture/renewable resource courses offered	BY Administrator Questionnaire
2		BYA17B	Business courses offered	BY Administrator Questionnaire
2		BYA17C	Marketing/distribution courses offered	BY Administrator Questionnaire
2		BYA17D	Health care courses offered	BY Administrator Questionnaire
2		BYA17E	Public/protective service courses offered	BY Administrator Questionnaire
2		BYA17F	Construction courses offered	BY Administrator Questionnaire
2		BYA17G	Mechanics and repair courses offered	BY Administrator Questionnaire
2		BYA17H	Precisions production courses offered	BY Administrator Questionnaire
2		BYA17I	Trade/industry/transportation courses offered	BY Administrator Questionnaire
2		BYA17J	Computer technology courses offered	BY Administrator Questionnaire
2		BYA17K	Communication technology courses offered	BY Administrator Questionnaire
2		BYA17L	Other technology courses offered	BY Administrator Questionnaire
2		BYA17M	Food service and hospitality courses offered	BY Administrator Questionnaire
2		BYA17N	Child care/education courses offered	BY Administrator Questionnaire
2		BYA17O	Personal and other services courses offered	BY Administrator Questionnaire
2		BYA17P	Other occupational courses offered	BY Administrator Questionnaire
2		BYA17Q	Family/consumer sciences courses offered	BY Administrator Questionnaire
2		BYA17R	Industrial arts/technology courses offered	BY Administrator Questionnaire
2		BYA18A	Cooperative education offered to 10th graders	BY Administrator Questionnaire
2		BYA18B	Internships offered to 10th graders	BY Administrator Questionnaire
2		BYA18C	Job shadowing offered to 10th graders	BY Administrator Questionnaire
2		BYA18D	Mentoring offered to 10th graders	BY Administrator Questionnaire
2		BYA18E	Community service offered to 10th graders	BY Administrator Questionnaire
2		BYA18F	School-based enterprise offered to 10th graders	BY Administrator Questionnaire
2		BYA19AA	Baseball offered to males	BY Administrator Questionnaire
2		BYA19AB	Baseball offered to females	BY Administrator Questionnaire
2		BYA19BA	Softball offered to males	BY Administrator Questionnaire
2		BYA19BB	Softball offered to females	BY Administrator Questionnaire
2		BYA19CA	Basketball offered to males	BY Administrator Questionnaire
2		BYA19CB	Basketball offered to females	BY Administrator Questionnaire
2		BYA19DA	Football offered to males	BY Administrator Questionnaire
2		BYA19DB	Football offered to females	BY Administrator Questionnaire
2		BYA19EA	Soccer offered to males	BY Administrator Questionnaire
2		BYA19EB	Soccer offered to females	BY Administrator Questionnaire
2		BYA19FA	Swim team offered to males	BY Administrator Questionnaire
2		BYA19FB	Swim team offered to females	BY Administrator Questionnaire
2		BYA19GA	Ice hockey offered to males	BY Administrator Questionnaire
2		BYA19GB	Ice hockey offered to females	BY Administrator Questionnaire
2		BYA19HA	Field hockey offered to males	BY Administrator Questionnaire
2		BYA19HB	Field hockey offered to females	BY Administrator Questionnaire
2		BYA19IA	Volleyball offered to males	BY Administrator Questionnaire
2		BYA19IB	Volleyball offered to females	BY Administrator Questionnaire
2		BYA19JA	Lacrosse offered to males	BY Administrator Questionnaire
2		BYA19JB	Lacrosse offered to females	BY Administrator Questionnaire
2		BYA19KA	Tennis offered to males	BY Administrator Questionnaire

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
2		BYA19KB	Tennis offered to females	BY Administrator Questionnaire
2		BYA19LA	Cross-country offered to males	BY Administrator Questionnaire
2		BYA19LB	Cross-country offered to females	BY Administrator Questionnaire
2		BYA19MA	Track offered to males	BY Administrator Questionnaire
2		BYA19MB	Track offered to females	BY Administrator Questionnaire
2		BYA19NA	Golf offered to males	BY Administrator Questionnaire
2		BYA19NB	Golf offered to females	BY Administrator Questionnaire
2		BYA19OA	Gymnastics offered to males	BY Administrator Questionnaire
2		BYA19OB	Gymnastics offered to females	BY Administrator Questionnaire
2		BYA19PA	Wrestling offered to males	BY Administrator Questionnaire
2		BYA19PB	Wrestling offered to females	BY Administrator Questionnaire
2		BYA19QA	Cheerleading offered to males	BY Administrator Questionnaire
2		BYA19QB	Cheerleading offered to females	BY Administrator Questionnaire
2		BYA19RA	Drill team offered to males	BY Administrator Questionnaire
2		BYA19RB	Drill team offered to females	BY Administrator Questionnaire
2		BYA19SA	Other sport offered to males	BY Administrator Questionnaire
2		BYA19SB	Other sport offered to females	BY Administrator Questionnaire
2		BYA19TA	No sports offered to males	BY Administrator Questionnaire
2		BYA19TB	No sports offered to females	BY Administrator Questionnaire
2		BYA20	% 10th graders are LEP or non-English proficient	BY Administrator Questionnaire
2		BYA21	% 10th graders receive free/reduced-price lunch (restricted)	BY Administrator Questionnaire
2		BYA22A	# of full-time teachers (restricted)	BY Administrator Questionnaire
2		BYA22B	# of part-time teachers	BY Administrator Questionnaire
2		BYA23A	# of full-time math teachers	BY Administrator Questionnaire
2		BYA23B	# of full-time science teachers	BY Administrator Questionnaire
2		BYA23C	# of full-time art teachers	BY Administrator Questionnaire
2		BYA23D	# of full-time music teachers	BY Administrator Questionnaire
2		BYA23E	# of full-time English teachers	BY Administrator Questionnaire
2		BYA23F	# of full-time foreign language teachers	BY Administrator Questionnaire
2		BYA23G	# of full-time social sciences teachers	BY Administrator Questionnaire
2		BYA23H	# of full-time history teachers	BY Administrator Questionnaire
2		BYA23I	# of full-time vocational education teachers	BY Administrator Questionnaire
2		BYA23J	# of full-time physical education teachers	BY Administrator Questionnaire
2		BYA23K	# full-time guidance counselors	BY Administrator Questionnaire
2		BYA23L	# full-time special education teachers	BY Administrator Questionnaire
2		BYA24A	% full-time teachers are certified	BY Administrator Questionnaire
2		BYA24B	% part-time teachers are certified	BY Administrator Questionnaire
2		BYA25A	% full-time teachers teach out of field	BY Administrator Questionnaire
2		BYA25B	% part-time teachers teach out of field	BY Administrator Questionnaire
2		BYA26A	Lowest salary paid to full-time teachers	BY Administrator Questionnaire
2		BYA26B	Highest salary paid to full-time teachers	BY Administrator Questionnaire
2		BYA27A	Principal/administrator evaluates teachers	BY Administrator Questionnaire
2		BYA27B	Teachers evaluate teachers	BY Administrator Questionnaire
2		BYA27C	Students evaluate teachers	BY Administrator Questionnaire
2		BYA28A	Good teachers given special awards	BY Administrator Questionnaire
2		BYA28B	Good teachers assigned to better students	BY Administrator Questionnaire
2		BYA28C	Good teachers given a lighter teaching load	BY Administrator Questionnaire
2		BYA28D	Good teachers relieved of administrative/disciplinary duties	BY Administrator Questionnaire

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
2		BYA28E	Good teachers given priority on requests for materials	BY Administrator Questionnaire
2		BYA28F	Good teachers receive higher pay	BY Administrator Questionnaire
2		BYA28G	Good teachers are not recognized in these ways	BY Administrator Questionnaire
2		BYA29	Content standards for academic subjects	BY Administrator Questionnaire
2		BYA30	Main source of content standards	BY Administrator Questionnaire
2		BYA31	Content standards linked with performance standards	BY Administrator Questionnaire
2		BYA32	Students must pass a test for high school diploma	BY Administrator Questionnaire
2		BYA33AA	Minimum competency test given in grade 7	BY Administrator Questionnaire
2		BYA33AB	Math is on grade 7 competency test	BY Administrator Questionnaire
2		BYA33AC	Science is on grade 7 competency test	BY Administrator Questionnaire
2		BYA33AD	English is on grade 7 competency test	BY Administrator Questionnaire
2		BYA33AE	History/social studies is on grade 7 competency test	BY Administrator Questionnaire
2		BYA33BA	Minimum competency test given in grade 8	BY Administrator Questionnaire
2		BYA33BB	Math is on grade 8 competency test	BY Administrator Questionnaire
2		BYA33BC	Science is on grade 8 competency test	BY Administrator Questionnaire
2		BYA33BD	English is on grade 8 competency test	BY Administrator Questionnaire
2		BYA33BE	History/social studies is on grade 8 competency test	BY Administrator Questionnaire
2		BYA33CA	Minimum competency test given in grade 9	BY Administrator Questionnaire
2		BYA33CB	Math is on grade 9 competency test	BY Administrator Questionnaire
2		BYA33CC	Science is on grade 9 competency test	BY Administrator Questionnaire
2		BYA33CD	English is on grade 9 competency test	BY Administrator Questionnaire
2		BYA33CE	History/social studies is on grade 9 competency test	BY Administrator Questionnaire
2		BYA33DA	Minimum competency test given in grade 10	BY Administrator Questionnaire
2		BYA33DB	Math is on grade 10 competency test	BY Administrator Questionnaire
2		BYA33DC	Science is on grade 10 competency test	BY Administrator Questionnaire
2		BYA33DD	English is on grade 10 competency test	BY Administrator Questionnaire
2		BYA33DE	History/social studies is on grade 10 competency test	BY Administrator Questionnaire
2		BYA33EA	Minimum competency test given in grade 11	BY Administrator Questionnaire
2		BYA33EB	Math is on grade 11 competency test	BY Administrator Questionnaire
2		BYA33EC	Science is on grade 11 competency test	BY Administrator Questionnaire
2		BYA33ED	English is on grade 11 competency test	BY Administrator Questionnaire
2		BYA33EE	History/social studies is on grade 11 competency test	BY Administrator Questionnaire
2		BYA33FA	Minimum competency test given in grade 12	BY Administrator Questionnaire
2		BYA33FB	Math is on grade 12 competency test	BY Administrator Questionnaire
2		BYA33FC	Science is on grade 12 competency test	BY Administrator Questionnaire
2		BYA33FD	English is on grade 12 competency test	BY Administrator Questionnaire
2		BYA33FE	History/social studies is on grade 12 competency test	BY Administrator Questionnaire
2		BYA34A	Competency test is state requirement	BY Administrator Questionnaire
2		BYA34B	Competency test is district requirement	BY Administrator Questionnaire
2		BYA34C	Competency test is school requirement	BY Administrator Questionnaire
2		BYA35	Competency test tied to content standards	BY Administrator Questionnaire
2		BYA36	% fail competency test on first attempt	BY Administrator Questionnaire
2		BYA37A	Retake competency test if failed	BY Administrator Questionnaire
2		BYA37B	Take remedial class if fail competency test	BY Administrator Questionnaire
2		BYA37C	Complete competency test preparation class if fail	BY Administrator Questionnaire
2		BYA37D	Tutoring/individualized academic program if fail competency test	BY Administrator Questionnaire
2		BYA37E	Summer school if fail competency test	BY Administrator Questionnaire
2		BYA37F	Referred to alternative/continuing ed school if fail competency test	BY Administrator Questionnaire

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
2		BYA38A	Control access to buildings during school hours	BY Administrator Questionnaire
2		BYA38B	Control access to grounds during school hours	BY Administrator Questionnaire
2		BYA38C	Require students pass through metal detector	BY Administrator Questionnaire
2		BYA38D	Random metal detector checks on students	BY Administrator Questionnaire
2		BYA38E	Close campus for students during lunch	BY Administrator Questionnaire
2		BYA38F	Random dog sniffs to check for drugs	BY Administrator Questionnaire
2		BYA38G	Random sweeps for contraband	BY Administrator Questionnaire
2		BYA38H	Require drug testing for any students	BY Administrator Questionnaire
2		BYA38I	Require students to wear uniforms	BY Administrator Questionnaire
2		BYA38J	Enforce strict dress code	BY Administrator Questionnaire
2		BYA38K	Require clear book bags/ban book bags	BY Administrator Questionnaire
2		BYA38L	Require students to wear badges/picture ID	BY Administrator Questionnaire
2		BYA38M	Require faculty/staff to wear badges/picture ID	BY Administrator Questionnaire
2		BYA38N	Use security cameras to monitor school	BY Administrator Questionnaire
2		BYA38O	Telephones in most classrooms	BY Administrator Questionnaire
2		BYA38P	Emergency call button in classrooms	BY Administrator Questionnaire
2		BYA39A	Process to get parent input on discipline policies	BY Administrator Questionnaire
2		BYA39B	Training parents to deal with problem behavior	BY Administrator Questionnaire
2		BYA39C	Program involves parents in school discipline	BY Administrator Questionnaire
2		BYA40A	Use paid security at any time during school hours	BY Administrator Questionnaire
2		BYA40B	Use paid security as students arrive or leave	BY Administrator Questionnaire
2		BYA40C	Use paid security at school activities	BY Administrator Questionnaire
2		BYA40D	Use paid security outside of school hours/activities	BY Administrator Questionnaire
2		BYA40E	Use paid security at other time	BY Administrator Questionnaire
2		BYA41A	Teachers have access to cable TV	BY Administrator Questionnaire
2		BYA41B	Teachers have access to closed-circuit TV	BY Administrator Questionnaire
2		BYA41C	Teachers have access to videodisc player/VCR/DVD	BY Administrator Questionnaire
2		BYA41D	Teachers have access to video camera	BY Administrator Questionnaire
2		BYA41E	Teachers have access to video production studio	BY Administrator Questionnaire
2		BYA41F	Teachers have access to satellite TV hook-up	BY Administrator Questionnaire
2		BYA41G	Teachers have access to videoconferencing equipment	BY Administrator Questionnaire
2		BYA41H	Teachers have access to digital camera	BY Administrator Questionnaire
2		BYA41I	Teachers have access to scanner	BY Administrator Questionnaire
2		BYA41J	Teachers have access to LCD panel	BY Administrator Questionnaire
2		BYA41K	Teachers have access to laptop computer	BY Administrator Questionnaire
2		BYA41L	Teachers have access to Internet	BY Administrator Questionnaire
2		BYA41M	Teachers have access to computer printer	BY Administrator Questionnaire
2		BYA42A	Teachers use computers as instructional tools	BY Administrator Questionnaire
2		BYA42B	Teachers use computers to plan lessons	BY Administrator Questionnaire
2		BYA42C	Teachers use computers for professional development courses	BY Administrator Questionnaire
2		BYA42D	Teachers use computers to communicate with colleagues	BY Administrator Questionnaire
2		BYA42E	Teachers use computers to access best practices	BY Administrator Questionnaire
2		BYA42F	Teachers use computers to communicate with parents	BY Administrator Questionnaire
2		BYA42G	Teachers use computers to post homework	BY Administrator Questionnaire
2		BYA42H	Teachers/staff use computers to communicate with each other	BY Administrator Questionnaire
2		BYA42I	Teachers use computers to teach job skills	BY Administrator Questionnaire
2		BYA42J	Administrative staff use computers for administrative purposes	BY Administrator Questionnaire
2		BYA42K	Administrative staff use computers to communicate with colleagues	BY Administrator Questionnaire

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
2		BYA42L	Administrative staff use computers to communicate with parents	BY Administrator Questionnaire
2		BYA42M	School offers students distance learning courses	BY Administrator Questionnaire
2		BYA42N	Teachers have access to Internet professional development programs	BY Administrator Questionnaire
2		BYA43A	Teacher training on use of new software	BY Administrator Questionnaire
2		BYA43B	Teacher training on use of Internet	BY Administrator Questionnaire
2		BYA43C	Teacher training on using computers to teach skills	BY Administrator Questionnaire
2		BYA43D	Teacher training on integrating computer into class	BY Administrator Questionnaire
2		BYA43E	Teacher training on basic computer literacy	BY Administrator Questionnaire
2		BYA44A	Computers in administrative offices	BY Administrator Questionnaire
2		BYA44B	Computers in teacher work rooms	BY Administrator Questionnaire
2		BYA44C	Computers in classrooms	BY Administrator Questionnaire
2		BYA44D	Computers in the library media center	BY Administrator Questionnaire
2		BYA44E	Computers in separate computer lab	BY Administrator Questionnaire
2		BYA46A	Principal's influence on hiring/firing teachers	BY Administrator Questionnaire
2		BYA46B	Principal's influence on grouping students	BY Administrator Questionnaire
2		BYA46C	Principal's influence on course offerings	BY Administrator Questionnaire
2		BYA46D	Principal's influence on instructional materials	BY Administrator Questionnaire
2		BYA46E	Principal's influence on curricular guidelines	BY Administrator Questionnaire
2		BYA46F	Principal's influence on grading and evaluation	BY Administrator Questionnaire
2		BYA46G	Principal's influence on discipline policies	BY Administrator Questionnaire
2		BYA46H	Principal's influence on school funds	BY Administrator Questionnaire
2		BYA47A	School's relationship with school board	BY Administrator Questionnaire
2		BYA47B	School's relationship with central office	BY Administrator Questionnaire
2		BYA47C	School's relationship with teachers' association	BY Administrator Questionnaire
2		BYA48A	Principal evaluated on standardized test scores	BY Administrator Questionnaire
2		BYA48B	Principal evaluated on school environment	BY Administrator Questionnaire
2		BYA48C	Principal evaluated on efficient administration	BY Administrator Questionnaire
2		BYA48D	Principal evaluated on parent involvement	BY Administrator Questionnaire
2		BYA48E	Principal evaluated on relationship with community	BY Administrator Questionnaire
2		BYA48F	Principal evaluated on new programs/reform	BY Administrator Questionnaire
2		BYA49A	How often tardiness a problem at school	BY Administrator Questionnaire
2		BYA49B	How often absenteeism a problem at school	BY Administrator Questionnaire
2		BYA49C	How often class cutting a problem at school	BY Administrator Questionnaire
2		BYA49D	How often physical conflicts a problem at school	BY Administrator Questionnaire
2		BYA49E	How often robbery/theft a problem at school	BY Administrator Questionnaire
2		BYA49F	How often vandalism a problem at school	BY Administrator Questionnaire
2		BYA49G	How often use of alcohol a problem at school	BY Administrator Questionnaire
2		BYA49H	How often use of illegal drugs a problem at school	BY Administrator Questionnaire
2		BYA49I	How often students on drugs/alcohol at school a problem	BY Administrator Questionnaire
2		BYA49J	How often sale of drugs near school a problem	BY Administrator Questionnaire
2		BYA49K	How often possession of weapons a problem at school	BY Administrator Questionnaire
2		BYA49L	How often physical abuse of teachers a problem at school	BY Administrator Questionnaire
2		BYA49M	How often racial tension among students a problem at school	BY Administrator Questionnaire
2		BYA49N	How often student bullying a problem at school	BY Administrator Questionnaire
2		BYA49O	How often verbal abuse of teachers a problem at school	BY Administrator Questionnaire
2		BYA49P	How often disorder in classrooms a problem at school	BY Administrator Questionnaire
2		BYA49Q	How often student disrespect for teachers a problem at school	BY Administrator Questionnaire
2		BYA49R	How often gang activity a problem at school	BY Administrator Questionnaire

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
2		BYA49S	How often cult/extremist group activities a problem at school	BY Administrator Questionnaire
2		BYA50A	Learning hindered by poor condition of buildings	BY Administrator Questionnaire
2		BYA50B	Learning hindered by poor heating/air/light	BY Administrator Questionnaire
2		BYA50C	Learning hindered by poor science labs	BY Administrator Questionnaire
2		BYA50D	Learning hindered by poor fine arts facilities	BY Administrator Questionnaire
2		BYA50E	Learning hindered by lack of space	BY Administrator Questionnaire
2		BYA50F	Learning hindered by poor library	BY Administrator Questionnaire
2		BYA50G	Learning hindered by lack of texts/supplies	BY Administrator Questionnaire
2		BYA50H	Learning hindered by too few computers	BY Administrator Questionnaire
2		BYA50I	Learning hindered by lack of multi-media	BY Administrator Questionnaire
2		BYA50J	Learning hindered by lack of discipline/safety	BY Administrator Questionnaire
2		BYA50K	Learning hindered by poor voc/tech equipment/facilities	BY Administrator Questionnaire
2		BYA51A	Student morale is high	BY Administrator Questionnaire
2		BYA51B	Teachers press students to achieve	BY Administrator Questionnaire
2		BYA51C	Teacher morale is high	BY Administrator Questionnaire
2		BYA51D	Learning is high priority for students	BY Administrator Questionnaire
2		BYA51E	Students expected to do homework	BY Administrator Questionnaire
2		BYA53	Date completed interview	BY Administrator Questionnaire
2		F1A01	Total student enrollment as of October 2003 (restricted)	F1 Administrator Questionnaire
2		F1A02	# of days in school year for 12th graders	F1 Administrator Questionnaire
2		F1A03	Type of academic calendar	F1 Administrator Questionnaire
2		F1A04AA	Academic courses are block scheduled	F1 Administrator Questionnaire
2		F1A04AB	# of minutes in block for academic courses	F1 Administrator Questionnaire
2		F1A04BA	Vocational/technical courses are block scheduled	F1 Administrator Questionnaire
2		F1A04BB	# of minutes in block for vocational/technical courses	F1 Administrator Questionnaire
2		F1A04CA	Other courses are block scheduled	F1 Administrator Questionnaire
2		F1A04CB	# of minutes in block for other courses	F1 Administrator Questionnaire
2		F1A05A	Students in area or district attend the school	F1 Administrator Questionnaire
2		F1A05B	Students in area or district attend the school/transfers allowed	F1 Administrator Questionnaire
2		F1A05C	Students assigned to school to achieve racial/ethnic composition	F1 Administrator Questionnaire
2		F1A05D	Students admitted to school based on test/audition/other criterion	F1 Administrator Questionnaire
2		F1A05E	Students admitted to school based on lottery/random selection	F1 Administrator Questionnaire
2		F1A05F	Students admitted on first-come first-serve basis	F1 Administrator Questionnaire
2		F1A06A	Influence of teachers on selecting 12th grader's courses	F1 Administrator Questionnaire
2		F1A06B	Influence of department head on selecting 12th grader's courses	F1 Administrator Questionnaire
2		F1A06C	Influence of counselors on selecting 12th grader's courses	F1 Administrator Questionnaire
2		F1A06D	Influence of coaches on selecting 12th grader's courses	F1 Administrator Questionnaire
2		F1A06E	Influence of parents on selecting 12th grader's courses	F1 Administrator Questionnaire
2		F1A06F	Influence of student's preferences on selecting 12th grader's courses	F1 Administrator Questionnaire
2		F1A06G	Influence of student's grades on selecting 12th grader's courses	F1 Administrator Questionnaire
2		F1A06H	Influence of student's test scores on selecting 12th grader's courses	F1 Administrator Questionnaire
2		F1A06I	Influence of student attendance on selecting 12th grader's courses	F1 Administrator Questionnaire
2		F1A06J	Influence of special education on selecting 12th grader's courses	F1 Administrator Questionnaire
2		F1A06K	Influence of potential for dropout on selecting 12th grader's courses	F1 Administrator Questionnaire
2		F1A07A	Years of English coursework required to graduate	F1 Administrator Questionnaire
2		F1A07B	Years of mathematics coursework required to graduate	F1 Administrator Questionnaire
2		F1A07C	Years of science coursework required to graduate	F1 Administrator Questionnaire
2		F1A07D	Years of history/social studies coursework required to graduate	F1 Administrator Questionnaire

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
2		F1A07E	Years of computer coursework required to graduate	F1 Administrator Questionnaire
2		F1A07F	Years of foreign language coursework required to graduate	F1 Administrator Questionnaire
2		F1A07G	Years of fine arts coursework required to graduate	F1 Administrator Questionnaire
2		F1A07H	Years of physical education/health coursework required to graduate	F1 Administrator Questionnaire
2		F1A08A	School confers regular/honors diplomas	F1 Administrator Questionnaire
2		F1A08B	School confers International Baccalaureate diplomas	F1 Administrator Questionnaire
2		F1A08C	School confers diplomas with special education adjustments	F1 Administrator Questionnaire
2		F1A08D	School confers diplomas with vocational/technical skills certificate	F1 Administrator Questionnaire
2		F1A08E	School confers certificates of attendance	F1 Administrator Questionnaire
2		F1A08F	School confers GED/other equivalency	F1 Administrator Questionnaire
2		F1A09	Minimum GPA required to participate in school activities	F1 Administrator Questionnaire
2		F1A10	Availability of a vocational/technical program	F1 Administrator Questionnaire
2		F1A11A	Student request used to decide enrollment in vocational program	F1 Administrator Questionnaire
2		F1A11B	Parent request used to decide enrollment in vocational program	F1 Administrator Questionnaire
2		F1A11C	Counselor referral used to decide enrollment in vocational program	F1 Administrator Questionnaire
2		F1A11D	Teacher referral used to decide enrollment in vocational program	F1 Administrator Questionnaire
2		F1A11E	Academic performance used to decide enrollment in vocational program	F1 Administrator Questionnaire
2		F1A11F	Attendance record used to decide enrollment in vocational program	F1 Administrator Questionnaire
2		F1A11G	Special education need used to decide enrollment in vocational program	F1 Administrator Questionnaire
2		F1A11H	Potential for dropout used to decide enrollment in vocational program	F1 Administrator Questionnaire
2		F1A11I	Lottery/random choice used to decide enrollment in vocational program	F1 Administrator Questionnaire
2		F1A12A	# of occupational courses defines vocational/technical completers	F1 Administrator Questionnaire
2		F1A12B	Specific academic coursework defines vocational/technical completers	F1 Administrator Questionnaire
2		F1A12C	District/state assessment defines vocational/technical completers	F1 Administrator Questionnaire
2		F1A12D	Industry-recognized credential defines vocational/technical completers	F1 Administrator Questionnaire
2		F1A13A	Vocational interest/ability assessments are available	F1 Administrator Questionnaire
2		F1A13B	Job placement services are available	F1 Administrator Questionnaire
2		F1A13C	Career days/job fairs are available	F1 Administrator Questionnaire
2		F1A13D	Career/employment readiness workshops are available	F1 Administrator Questionnaire
2		F1A13E	School-arranged interviews with employers are available	F1 Administrator Questionnaire
2		F1A13F	Selection of career major/pathways are available	F1 Administrator Questionnaire
2		F1A14	Class of 2004 must pass a test for high school diploma	F1 Administrator Questionnaire
2		F1A15A	Math is on grade 12 competency test	F1 Administrator Questionnaire
2		F1A15B	Science is on grade 12 competency test	F1 Administrator Questionnaire
2		F1A15C	Reading is on grade 12 competency test	F1 Administrator Questionnaire
2		F1A15D	Composition/writing is on grade 12 competency test	F1 Administrator Questionnaire
2		F1A15E	History/civics/social studies is on grade 12 competency test	F1 Administrator Questionnaire
2		F1A15F	Computer skills are on grade 12 competency test	F1 Administrator Questionnaire
2		F1A16	% fail competency test on first attempt	F1 Administrator Questionnaire
2		F1A17A	Retake competency test if failed	F1 Administrator Questionnaire
2		F1A17B	Take remedial class if fail competency test	F1 Administrator Questionnaire
2		F1A17C	Complete competency test preparation class if fail	F1 Administrator Questionnaire
2		F1A17D	Tutoring/individualized academic program if fail competency test	F1 Administrator Questionnaire
2		F1A17E	Summer school if fail competency test	F1 Administrator Questionnaire
2		F1A17F	Referred to alternative/continuing ed school if fail competency test	F1 Administrator Questionnaire
2		F1A18A	% 12th graders in general high school program	F1 Administrator Questionnaire
2		F1A18B	% 12th graders in college prep/specialized academic program	F1 Administrator Questionnaire



*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
2		F1A18C	% 12th graders in voc/tech/business program	F1 Administrator Questionnaire
2		F1A19A	% of 2003 graduates went to 4-year colleges	F1 Administrator Questionnaire
2		F1A19B	% of 2003 graduates went to 2-year colleges/vocational school	F1 Administrator Questionnaire
2		F1A19C	% of 2003 graduates entered labor market or military	F1 Administrator Questionnaire
2		F1A19D	% of 2003 graduates did something else	F1 Administrator Questionnaire
2		F1A20A	% of 12th graders attend college application programs	F1 Administrator Questionnaire
2		F1A20B	% of 12th graders attend programs on financial aid	F1 Administrator Questionnaire
2		F1A20C	% of 12th graders attend school SAT/ACT courses	F1 Administrator Questionnaire
2		F1A20D	% of 12th graders attend college fairs	F1 Administrator Questionnaire
2		F1A20E	% of 12th graders attend meetings with college representative	F1 Administrator Questionnaire
2		F1A20F	% of 12th graders participate in Talent Search	F1 Administrator Questionnaire
2		F1A20G	% of 12th graders participate in Upward Bound	F1 Administrator Questionnaire
2		F1A20H	% of 12th graders in other program for minority/disadvantaged	F1 Administrator Questionnaire
2		F1A21A	Vocational counseling/services/programs offered	F1 Administrator Questionnaire
2		F1A21B	Home visits by teachers offered	F1 Administrator Questionnaire
2		F1A21C	Peer tutoring offered	F1 Administrator Questionnaire
2		F1A21D	School-sponsored community service offered	F1 Administrator Questionnaire
2		F1A21E	Individual/family psychological counseling offered	F1 Administrator Questionnaire
2		F1A21F	Programs for pregnant girls/teenage mothers offered	F1 Administrator Questionnaire
2		F1A22A	% of student body receives free/reduced-price lunch (restricted)	F1 Administrator Questionnaire
2		F1A22B	% of student body is LEP or non-English proficient	F1 Administrator Questionnaire
2		F1A22C	% of student body receives special education services	F1 Administrator Questionnaire
2		F1A22D	% of student body in alternative program	F1 Administrator Questionnaire
2		F1A22E	% of student body in dropout prevention program	F1 Administrator Questionnaire
2		F1A22F	% of student body in Advanced Placement courses	F1 Administrator Questionnaire
2		F1A22G	% of student body in International Baccalaureate program	F1 Administrator Questionnaire
2		F1A23	School has dropout prevention program	F1 Administrator Questionnaire
2		F1A24A	Dropout prevention is recommended on basis of absentee record	F1 Administrator Questionnaire
2		F1A24B	Dropout prevention is recommended on basis of academic performance	F1 Administrator Questionnaire
2		F1A24C	Dropout prevention is recommended on basis of teacher referral	F1 Administrator Questionnaire
2		F1A24D	Dropout prevention is recommended on basis of counselor referral	F1 Administrator Questionnaire
2		F1A24E	Dropout prevention is recommended on basis of parental request	F1 Administrator Questionnaire
2		F1A24F	Dropout prevention is recommended on basis of student request	F1 Administrator Questionnaire
2		F1A24G	Dropout prevention is recommended on basis of disciplinary problems	F1 Administrator Questionnaire
2		F1A25A	Dropout prevention offers special instructional programs	F1 Administrator Questionnaire
2		F1A25B	Dropout prevention offers focus on vocational/technical education	F1 Administrator Questionnaire
2		F1A25C	Dropout prevention offers individual/group counseling	F1 Administrator Questionnaire
2		F1A25D	Dropout prevention offers health care	F1 Administrator Questionnaire
2		F1A25E	Dropout prevention offers incentives for better attendance/performance	F1 Administrator Questionnaire
2		F1A25F	Dropout prevention offers close monitoring of attendance/performance	F1 Administrator Questionnaire
2		F1A25G	Dropout prevention offers childcare/nurseries for student's children	F1 Administrator Questionnaire
2		F1A25H	Dropout prevention offers cultural interaction	F1 Administrator Questionnaire
2		F1A25I	Dropout prevention offers anger management	F1 Administrator Questionnaire
2		F1A26	# of full-time teachers (restricted)	F1 Administrator Questionnaire
2		F1A27	# of part-time teachers	F1 Administrator Questionnaire
2		F1A28	# of full-time teachers left at end of 2002-2003 school year	F1 Administrator Questionnaire
2		F1A29AR	# of full-time teachers have less than Bachelor's (restricted)	F1 Administrator Questionnaire

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
2		F1A29AP	# of full-time teachers have less than Bachelor's degree (public)	F1 Administrator Questionnaire
2		F1A29BR	# of full-time teachers with highest degree of Bachelor's(restricted)	F1 Administrator Questionnaire
2		F1A29BP	# of full-time teachers with highest degree of Bachelor's (Public)	F1 Administrator Questionnaire
2		F1A29CR	# of full-time teachers whose highest degree is Master's (restricted)	F1 Administrator Questionnaire
2		F1A29CP	# of full-time teachers whose highest degree is Master's	F1 Administrator Questionnaire
2		F1A29DR	# of full-time teachers with highest degree of EdD or PhD (restricted)	F1 Administrator Questionnaire
2		F1A29DP	# of full-time teachers with highest degree of EdD or PhD	F1 Administrator Questionnaire
2		F1A29ER	# of full-time teachers whose highest degree is unknown (restricted)	F1 Administrator Questionnaire
2		F1A29EP	# of full-time teachers whose highest degree is unknown	F1 Administrator Questionnaire
2		F1A30	# of full-time library media resource center staff members	F1 Administrator Questionnaire
2		F1A31	# of part-time library media resource center staff members	F1 Administrator Questionnaire
2		F1A32A	% of full-time teachers are Hispanic	F1 Administrator Questionnaire
2		F1A32B	% of full-time teachers for whom Hispanic ethnicity is unknown	F1 Administrator Questionnaire
2		F1A33A	% of full-time teachers are White	F1 Administrator Questionnaire
2		F1A33B	% of full-time teachers are Black/African American	F1 Administrator Questionnaire
2		F1A33C	% of full-time teachers are Asian	F1 Administrator Questionnaire
2		F1A33D	% of full-time teachers are Native Hawaiian/Pacific Islander	F1 Administrator Questionnaire
2		F1A33E	% of full-time teachers are American Indian/Alaskan Native	F1 Administrator Questionnaire
2		F1A33F	% of full-time teachers for whom race is unknown	F1 Administrator Questionnaire
2		F1A34A	% of full-time teachers have state/advanced professional certificate	F1 Administrator Questionnaire
2		F1A34B	% of full-time teachers have probationary certificate	F1 Administrator Questionnaire
2		F1A34C	% of full-time teachers have provisional certificate	F1 Administrator Questionnaire
2		F1A34D	% of full-time teachers have temporary/emergency certificate	F1 Administrator Questionnaire
2		F1A35	% of full-time library staff is state-certified	F1 Administrator Questionnaire
2		F1A37A	% of poor teachers	F1 Administrator Questionnaire
2		F1A37B	% of fair teachers	F1 Administrator Questionnaire
2		F1A37C	% of good teachers	F1 Administrator Questionnaire
2		F1A37D	% of excellent teachers	F1 Administrator Questionnaire
2		F1A38A	Student morale is high	F1 Administrator Questionnaire
2		F1A38B	Teachers press students to achieve	F1 Administrator Questionnaire
2		F1A38C	Teacher morale is high	F1 Administrator Questionnaire
2		F1A38D	Learning is high priority for students	F1 Administrator Questionnaire
2		F1A38E	Students expected to do homework	F1 Administrator Questionnaire
2		F1A38F	Discipline is emphasized	F1 Administrator Questionnaire
2		F1A38G	Classroom activities are highly structured	F1 Administrator Questionnaire
2		F1A38H	Many teachers are negative about students	F1 Administrator Questionnaire
2		F1A38I	Many teachers find it difficult to motivate students	F1 Administrator Questionnaire
2		F1A38J	School emphasizes sports	F1 Administrator Questionnaire
2		F1A38K	Students are encouraged to compete for grades	F1 Administrator Questionnaire
2		F1A38L	Counselors/teachers encourage students to enroll in academic classes	F1 Administrator Questionnaire
2		F1A38M	There is often conflict between teachers and administrators	F1 Administrator Questionnaire
2		F1A38N	Teachers usually respond to students' individual needs	F1 Administrator Questionnaire
2		F1A39A	% of students typically tardy	F1 Administrator Questionnaire
2		F1A39B	% of students typically absent without excuse	F1 Administrator Questionnaire
2		F1A39C	% of students typically cut or skip classes	F1 Administrator Questionnaire
2		F1A40A	How often physical conflicts a problem at school	F1 Administrator Questionnaire
2		F1A40B	How often robbery/theft a problem at school	F1 Administrator Questionnaire
2		F1A40C	How often vandalism a problem at school	F1 Administrator Questionnaire

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
2		F1A40D	How often use of alcohol a problem at school	F1 Administrator Questionnaire
2		F1A40E	How often use of illegal drugs a problem at school	F1 Administrator Questionnaire
2		F1A40F	How often students on drugs/alcohol at school a problem	F1 Administrator Questionnaire
2		F1A40G	How often sale of drugs near school a problem	F1 Administrator Questionnaire
2		F1A40H	How often possession of weapons a problem at school	F1 Administrator Questionnaire
2		F1A40I	How often physical abuse of teachers a problem at school	F1 Administrator Questionnaire
2		F1A40J	How often racial tension among students a problem at school	F1 Administrator Questionnaire
2		F1A40K	How often student bullying a problem at school	F1 Administrator Questionnaire
2		F1A40L	How often verbal abuse of teachers a problem at school	F1 Administrator Questionnaire
2		F1A40M	How often disorder in classrooms a problem at school	F1 Administrator Questionnaire
2		F1A40N	How often student disrespect for teachers a problem at school	F1 Administrator Questionnaire
2		F1A40O	How often gang activity a problem at school	F1 Administrator Questionnaire
2		F1A40P	How often cult/extremist group activities a problem at school	F1 Administrator Questionnaire
2		F1A42	Month and year completed interview	F1 Administrator Questionnaire
2		BYL01	How library is organized	BY Library Questionnaire
2		BYL02	Library's total seating capacity	BY Library Questionnaire
2		BYL03A	Library has individual activity areas	BY Library Questionnaire
2		BYL03B	Library has small group activity areas	BY Library Questionnaire
2		BYL03C	Library has large group activity areas	BY Library Questionnaire
2		BYL03D	Library has staff work area	BY Library Questionnaire
2		BYL03E	Library has conference rooms	BY Library Questionnaire
2		BYL03F	Library has computer access area/lab	BY Library Questionnaire
2		BYL04	Library can accommodate full class	BY Library Questionnaire
2		BYL05	Library serves full class/other activity at once	BY Library Questionnaire
2		BYL06AA	Staff includes state-certified librarians	BY Library Questionnaire
2		BYL06AB	# full-time state-certified librarians	BY Library Questionnaire
2		BYL06AC	# part-time state-certified librarians	BY Library Questionnaire
2		BYL06BA	Library media center staff includes state-certified teachers	BY Library Questionnaire
2		BYL06BB	# full-time state-certified teachers in library media center	BY Library Questionnaire
2		BYL06BC	# part-time state-certified teachers in library media center	BY Library Questionnaire
2		BYL06CA	Library media center staff includes uncertified professionals	BY Library Questionnaire
2		BYL06CB	# full-time uncertified professionals in library media center	BY Library Questionnaire
2		BYL06CC	# part-time uncertified professionals in library media center	BY Library Questionnaire
2		BYL06DA	Staff includes paid library aides	BY Library Questionnaire
2		BYL06DB	# full-time paid library aides	BY Library Questionnaire
2		BYL06DC	# part-time paid library aides	BY Library Questionnaire
2		BYL07	Volunteers provide library services	BY Library Questionnaire
2		BYL08A	# of adult library volunteers	BY Library Questionnaire
2		BYL08B	# of student library volunteers	BY Library Questionnaire
2		BYL09	District has library media coordinator	BY Library Questionnaire
2		BYL10	District library media coordinator is full-time	BY Library Questionnaire
2		BYL11AA	Library has telephone	BY Library Questionnaire
2		BYL11AB	Years library has had telephone	BY Library Questionnaire
2		BYL11AC	Students may use telephone	BY Library Questionnaire
2		BYL11AD	Faculty/staff may use telephone	BY Library Questionnaire
2		BYL11AE	Library staff may use telephone	BY Library Questionnaire
2		BYL11BA	Library has fax machine	BY Library Questionnaire
2		BYL11BB	Years library has had fax machine	BY Library Questionnaire

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
2		BYL11BC	Students may use fax machine	BY Library Questionnaire
2		BYL11BD	Faculty/staff may use fax machine	BY Library Questionnaire
2		BYL11BE	Library staff may use fax machine	BY Library Questionnaire
2		BYL11CA	Library has photocopier	BY Library Questionnaire
2		BYL11CB	Years library has had photocopier	BY Library Questionnaire
2		BYL11CC	Students may use photocopier	BY Library Questionnaire
2		BYL11CD	Faculty/staff may use photocopier	BY Library Questionnaire
2		BYL11CE	Library staff may use photocopier	BY Library Questionnaire
2		BYL11DA	Library has VCR	BY Library Questionnaire
2		BYL11DB	Years library has had VCR	BY Library Questionnaire
2		BYL11DC	Students may use VCR	BY Library Questionnaire
2		BYL11DD	Faculty/staff may use VCR	BY Library Questionnaire
2		BYL11DE	Library staff may use VCR	BY Library Questionnaire
2		BYL11EA	Library has laser disc player	BY Library Questionnaire
2		BYL11EB	Years library has had laser disc player	BY Library Questionnaire
2		BYL11EC	Students may use laser disc player	BY Library Questionnaire
2		BYL11ED	Faculty/staff may use laser disc player	BY Library Questionnaire
2		BYL11EE	Library staff may use laser disc player	BY Library Questionnaire
2		BYL11FA	Library has DVD player	BY Library Questionnaire
2		BYL11FB	Years library has had DVD player	BY Library Questionnaire
2		BYL11FC	Students may use DVD player	BY Library Questionnaire
2		BYL11FD	Faculty/staff may use DVD player	BY Library Questionnaire
2		BYL11FE	Library staff may use DVD player	BY Library Questionnaire
2		BYL11GA	Library has electronic book reader	BY Library Questionnaire
2		BYL11GB	Years library has had electronic book reader	BY Library Questionnaire
2		BYL11GC	Students may use electronic book reader	BY Library Questionnaire
2		BYL11GD	Faculty/staff may use electronic book reader	BY Library Questionnaire
2		BYL11GE	Library staff may use electronic book reader	BY Library Questionnaire
2		BYL11HA	Library has CD-ROM reader	BY Library Questionnaire
2		BYL11HB	Years library has had CD-ROM reader	BY Library Questionnaire
2		BYL11HC	Students may use CD-ROM reader	BY Library Questionnaire
2		BYL11HD	Faculty/staff may use CD-ROM reader	BY Library Questionnaire
2		BYL11HE	Library staff may use CD-ROM reader	BY Library Questionnaire
2		BYL11IA	Library has personal computer	BY Library Questionnaire
2		BYL11IB	Years library has had personal computer	BY Library Questionnaire
2		BYL11IC	Students may use personal computer	BY Library Questionnaire
2		BYL11ID	Faculty/staff may use personal computer	BY Library Questionnaire
2		BYL11IE	Library staff may use personal computer	BY Library Questionnaire
2		BYL11JA	Library has automated book circulation system	BY Library Questionnaire
2		BYL11JB	Years library has had automated book circulation system	BY Library Questionnaire
2		BYL11JC	Students may use automated book circulation system	BY Library Questionnaire
2		BYL11JD	Faculty/staff may use automated book circulation system	BY Library Questionnaire
2		BYL11JE	Library staff may use automated book circulation system	BY Library Questionnaire
2		BYL11KA	Library has Internet access	BY Library Questionnaire
2		BYL11KB	Years library has had Internet access	BY Library Questionnaire
2		BYL11KC	Students may use Internet access	BY Library Questionnaire
2		BYL11KD	Faculty/staff may use Internet access	BY Library Questionnaire
2		BYL11KE	Library staff may use Internet access	BY Library Questionnaire

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
2		BYL11LA	Library has cable TV	BY Library Questionnaire
2		BYL11LB	Years library has had cable TV	BY Library Questionnaire
2		BYL11LC	Students may use cable TV	BY Library Questionnaire
2		BYL11LD	Faculty/staff may use cable TV	BY Library Questionnaire
2		BYL11LE	Library staff may use cable TV	BY Library Questionnaire
2		BYL11MA	Library has closed-circuit TV	BY Library Questionnaire
2		BYL11MB	Years library has had closed-circuit TV	BY Library Questionnaire
2		BYL11MC	Students may use closed-circuit TV	BY Library Questionnaire
2		BYL11MD	Faculty/staff may use closed-circuit TV	BY Library Questionnaire
2		BYL11ME	Library staff may use closed-circuit TV	BY Library Questionnaire
2		BYL11NA	Library has video camera	BY Library Questionnaire
2		BYL11NB	Years library has had video camera	BY Library Questionnaire
2		BYL11NC	Students may use video camera	BY Library Questionnaire
2		BYL11ND	Faculty/staff may use video camera	BY Library Questionnaire
2		BYL11NE	Library staff may use video camera	BY Library Questionnaire
2		BYL11OA	Library has satellite TV hook-up	BY Library Questionnaire
2		BYL11OB	Years library has had satellite TV hookup	BY Library Questionnaire
2		BYL11OC	Students may use satellite TV hookup	BY Library Questionnaire
2		BYL11OD	Faculty/staff may use satellite TV hookup	BY Library Questionnaire
2		BYL11OE	Library staff may use satellite TV hookup	BY Library Questionnaire
2		BYL11PA	Library has audio equipment	BY Library Questionnaire
2		BYL11PB	Years library has had audio equipment	BY Library Questionnaire
2		BYL11PC	Students may use audio equipment	BY Library Questionnaire
2		BYL11PD	Faculty/staff may use audio equipment	BY Library Questionnaire
2		BYL11PE	Library staff may use audio equipment	BY Library Questionnaire
2		BYL11QA	Library has videoconference equipment	BY Library Questionnaire
2		BYL11QB	Years library had videoconference equipment	BY Library Questionnaire
2		BYL11QC	Students may use videoconference equipment	BY Library Questionnaire
2		BYL11QD	Faculty/staff may use videoconference equipment	BY Library Questionnaire
2		BYL11QE	Library staff may use videoconference equipment	BY Library Questionnaire
2		BYL11RA	Library has scanner	BY Library Questionnaire
2		BYL11RB	Years library had scanner	BY Library Questionnaire
2		BYL11RC	Students may use scanner	BY Library Questionnaire
2		BYL11RD	Faculty/staff may use scanner	BY Library Questionnaire
2		BYL11RE	Library staff may use scanner	BY Library Questionnaire
2		BYL11SA	Library has LCD panel/projection device	BY Library Questionnaire
2		BYL11SB	Years library had LCD panel/projection device	BY Library Questionnaire
2		BYL11SC	Students may use LCD panel/projection device	BY Library Questionnaire
2		BYL11SD	Faculty/staff may use LCD panel/projection device	BY Library Questionnaire
2		BYL11SE	Library staff may use LCD panel/projection device	BY Library Questionnaire
2		BYL11TA	Library has technology for disabled	BY Library Questionnaire
2		BYL11TB	Years library has had technology for disabled	BY Library Questionnaire
2		BYL11TC	Students may use technology for disabled	BY Library Questionnaire
2		BYL11TD	Faculty/staff may use technology for disabled	BY Library Questionnaire
2		BYL11TE	Library staff may use technology for disabled	BY Library Questionnaire
2		BYL12A	Online catalog available	BY Library Questionnaire
2		BYL12B	Other libraries' online catalogs available	BY Library Questionnaire
2		BYL12C	Internet access available	BY Library Questionnaire

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
2		BYL12D	E-mail/chat room access available	BY Library Questionnaire
2		BYL12E	Reference/bibliography databases available	BY Library Questionnaire
2		BYL12F	General articles/news databases available	BY Library Questionnaire
2		BYL12G	College/career databases available	BY Library Questionnaire
2		BYL12H	Academic subject databases available	BY Library Questionnaire
2		BYL12I	Electronic books/journals/references/magazines available	BY Library Questionnaire
2		BYL12J	Educational software available	BY Library Questionnaire
2		BYL13	Library has multimedia production facility	BY Library Questionnaire
2		BYL14A	Has interlibrary loan program with area high schools	BY Library Questionnaire
2		BYL14B	Has interlibrary loan program with high schools in state	BY Library Questionnaire
2		BYL14C	Has interlibrary loan program with public libraries	BY Library Questionnaire
2		BYL14D	Has interlibrary loan program with the state library	BY Library Questionnaire
2		BYL14E	Has interlibrary loan program with colleges/universities	BY Library Questionnaire
2		BYL14F	Has other interlibrary loan program	BY Library Questionnaire
2		BYL15	School participates in distance learning	BY Library Questionnaire
2		BYL16A	2001 holdings-books	BY Library Questionnaire
2		BYL16B	2001 holdings-video	BY Library Questionnaire
2		BYL16C	2001 holdings-periodical subscriptions	BY Library Questionnaire
2		BYL16D	2001 holdings-electronic database subscription	BY Library Questionnaire
2		BYL17	Library has professional collection for teachers	BY Library Questionnaire
2		BYL18	# of professional collection volumes bought 2000-2001 school year	BY Library Questionnaire
2		BYL19	Total spent on computer hardware 2000-2001 school year	BY Library Questionnaire
2		BYL20	When students may use library on own	BY Library Questionnaire
2		BYL21A	Students may use library on own before/after school	BY Library Questionnaire
2		BYL21B	Students may use library on own during lunch break	BY Library Questionnaire
2		BYL21C	Students may use library on own during set times	BY Library Questionnaire
2		BYL21D	Students may use library on own between class/recess	BY Library Questionnaire
2		BYL21E	Students may use library on own at other time	BY Library Questionnaire
2		BYL22A	How often library used for classes at same time	BY Library Questionnaire
2		BYL22B	How often library used for one class only	BY Library Questionnaire
2		BYL22C	How often library used for small groups	BY Library Questionnaire
2		BYL23	How often library used for non-library activities	BY Library Questionnaire
2		BYL24	How many students use library per week	BY Library Questionnaire
2		BYL25	Total circulation per week	BY Library Questionnaire
2		BYL26	Maximum # of books students may take out	BY Library Questionnaire
2		BYL27A	Students may take out reference material	BY Library Questionnaire
2		BYL27B	Students may take out periodicals	BY Library Questionnaire
2		BYL27C	Students may take out AV materials	BY Library Questionnaire
2		BYL27D	Students may take out AV equipment	BY Library Questionnaire
2		BYL27E	Students may take out computer software	BY Library Questionnaire
2		BYL27F	Students may take out computer hardware	BY Library Questionnaire
2		BYL27G	Students may take out none of these	BY Library Questionnaire
2		BYL28	Parents allowed to check out material	BY Library Questionnaire
2		BYL29	Worked in this library during 2000-2001 school year	BY Library Questionnaire
2		BYL30A	How often worked with English teachers	BY Library Questionnaire
2		BYL30B	How often worked with math teachers	BY Library Questionnaire
2		BYL31A	School-board has policy on use of Internet	BY Library Questionnaire
2		BYL31B	School-board has copyright policy	BY Library Questionnaire

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
2		BYL31C	School-board has materials selection policy	BY Library Questionnaire
2		BYL31D	School-board has none of these policies	BY Library Questionnaire
2		BYL32	School has library policy/procedure manual	BY Library Questionnaire
2		BYL34	Library questionnaire respondent's title	BY Library Questionnaire
2		BYL35	Date library questionnaire completed	BY Library Questionnaire
2		BYF01A	Trash on front hallway floors	BY Facilities Checklist
2		BYF01B	Overflowing trashcans in hallway	BY Facilities Checklist
2		BYF01C	Broken lights in hallway	BY Facilities Checklist
2		BYF01D	Graffiti on hallway walls/doors/ceiling	BY Facilities Checklist
2		BYF01E	Graffiti on lockers in hallway	BY Facilities Checklist
2		BYF01F	Visible fire/emergency alarms in hallway	BY Facilities Checklist
2		BYF01G	Chipped paint in hallway	BY Facilities Checklist
2		BYF01H	Hallway ceilings in disrepair	BY Facilities Checklist
2		BYF01I	Visible safety exit signs in hallway	BY Facilities Checklist
2		BYF01J	Hallway floor and walls appear clean	BY Facilities Checklist
2		BYF02	Noise level of main entrance during class	BY Facilities Checklist
2		BYF03A	Visitor check-in sign observed	BY Facilities Checklist
2		BYF03B	Sign stating 'no drugs' observed	BY Facilities Checklist
2		BYF03C	Sign stating 'no trespassing' observed	BY Facilities Checklist
2		BYF03D	Sign stating 'no weapons' observed	BY Facilities Checklist
2		BYF04A	Graffiti on bathroom walls and ceilings	BY Facilities Checklist
2		BYF04B	Graffiti on bathroom stall doors/walls	BY Facilities Checklist
2		BYF04C	Trash on bathroom floor	BY Facilities Checklist
2		BYF04D	Overflowing trashcans in bathroom	BY Facilities Checklist
2		BYF04E	Doors on all bathroom stalls	BY Facilities Checklist
2		BYF04F	Students loitering in bathroom during class	BY Facilities Checklist
2		BYF04G	Students smoking in bathroom during class	BY Facilities Checklist
2		BYF05A	Locks on inside of classroom door	BY Facilities Checklist
2		BYF05B	Classroom ceiling in disrepair	BY Facilities Checklist
2		BYF05C	Broken lights in classroom	BY Facilities Checklist
2		BYF05D	Graffiti on classroom walls/ceiling/doors	BY Facilities Checklist
2		BYF05E	Graffiti on classroom desks	BY Facilities Checklist
2		BYF05F	Trash on classroom floor	BY Facilities Checklist
2		BYF05G	Overflowing trashcan in classroom	BY Facilities Checklist
2		BYF05H	Classroom floor and walls appear clean	BY Facilities Checklist
2		BYF05I	Posters or material on classroom windows	BY Facilities Checklist
2		BYF05J	Bars on classroom windows	BY Facilities Checklist
2		BYF05K	Classroom windows broken	BY Facilities Checklist
2		BYF06A	Students wear ID badges	BY Facilities Checklist
2		BYF06B	Teachers wear ID badges	BY Facilities Checklist
2		BYF06C	Other personnel wear ID badges	BY Facilities Checklist
2		BYF06D	Visitors wear ID badges	BY Facilities Checklist
2		BYF07	School has parking lots	BY Facilities Checklist
2		BYF08A	# entrances/exits to parking lots	BY Facilities Checklist
2		BYF08B	# entrances/exits monitored by video	BY Facilities Checklist
2		BYF08C	# entrances/exits monitored by guard	BY Facilities Checklist
2		BYF08D	# entrances/exits locked during day	BY Facilities Checklist
2		BYF09A	How much litter/trash in area around school	BY Facilities Checklist

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
2		BYF09B	How much graffiti in area around school	BY Facilities Checklist
2		BYF09C	How many boarded up buildings in area around school	BY Facilities Checklist
2		BYF09D	How many people congregated in area around school	BY Facilities Checklist
2		BYF09E	How many students loitering in area around school	BY Facilities Checklist
2		BYF10A	Observed security guard	BY Facilities Checklist
2		BYF10B	Observed metal detectors	BY Facilities Checklist
2		BYF10C	Observed security cameras	BY Facilities Checklist
2		BYF10D	Observed fencing around entire school	BY Facilities Checklist
2		BYF10E	Observed sign-in policies	BY Facilities Checklist
2		BYF10F	Observed adult direct guests to sign-in	BY Facilities Checklist
2		BYF10G	Observed fire alarms	BY Facilities Checklist
2		BYF10H	Observed fire extinguishers	BY Facilities Checklist
2		BYF10I	Observed fire sprinklers	BY Facilities Checklist
2		BYF10J	Observed exterior lights	BY Facilities Checklist
2		BYF10K	Observed student lockers	BY Facilities Checklist
2		BYF10L	Observed student uniforms	BY Facilities Checklist
2		BYF10M	Observed signs-alarm if door opened	BY Facilities Checklist
3		STU_ID	Student ID	HS Transcript (Student Course)
3		TSCH_ID	School ID of school providing transcript	HS Transcript (Student Course)
3		SCH_ID	School ID of course school	HS Transcript (Student Course)
3		F1CYEAR	School year in which course was taken	HS Transcript (Student Course)
3		F1CGRLEV	Grade level in which course was taken	HS Transcript (Student Course)
3		F1CCRSE	Course title	HS Transcript (Student Course)
3		F1CT_TYP	Term in which course was taken	HS Transcript (Student Course)
3		F1CCRED	School assigned course credit	HS Transcript (Student Course)
3		F1CSCRED	Standardized credits, in Carnegie units	HS Transcript (Student Course)
3		F1CGRADE	Standardized course grade	HS Transcript (Student Course)
3		F1CCSSC	CSSC code assigned to course	HS Transcript (Student Course)
4		SCH_ID	School ID	HS Transcript (Course Offering)
4		F1OCSSC	CSSC code assigned to course	HS Transcript (Course Offering)
4		F1OCRSE	Course title	HS Transcript (Course Offering)
4		F1OCLI	School course source	HS Transcript (Course Offering)
4		F1OCLIY	Year of school course source	HS Transcript (Course Offering)
4		F1OCRSDP	Course department	HS Transcript (Course Offering)
5		Stu_ID	Student ID	F2 Institution File
5		F2IORDER	F2 Institution file order number	F2 Institution File
5		F2IIPED	IPEDS code of postsecondary institution	F2 Institution File
5		F2ISTATE	State of postsecondary institution	F2 Institution File
5		F2ILEVEL	Level of institution	F2 Institution File
5		F2ICNTRL	Control of institution	F2 Institution File
5		F2ISECTR	Sector of institution	F2 Institution File
5		F2ISELC	Institutional selectivity	F2 Institution File
5		F2IOPNAP	Open admission policy	F2 Institution File
5		F2SATV25	SAT Verbal 25th percentile score (from SATVR25 in IPEDS)	F2 Institution File
5		F2SATV75	SAT Verbal 75th percentile score (from SATVR75 in IPEDS)	F2 Institution File
5		F2SATM25	SAT Math 25th percentile score (from SATMT25 in IPEDS)	F2 Institution File
5		F2SATM75	SAT Math 75th percentile score (from SATMT75 in IPEDS)	F2 Institution File
5		F2ACTE25	ACT English 25th percentile score (from ACTEN25 in IPEDS)	F2 Institution File



*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
5		F2ACTE75	ACT English 75th percentile score (from ACTEN75 in IPEDS)	F2 Institution File
5		F2ACTM25	ACT Math 25th percentile score (from ACTMT25 in IPEDS)	F2 Institution File
5		F2ACTM75	ACT Math 75th percentile score (from ACTMT75 in IPEDS)	F2 Institution File
5		F2ACTC25	ACT Composite 25th percentile score (from ACTCM25 in IPEDS)	F2 Institution File
5		F2ACTC75	ACT Composite 75th percentile score (from ACTCM75 in IPEDS)	F2 Institution File
5		F2IAPPLY	Whether applied in first round of applications	F2 Institution File
5		F2IACCPY	Whether was accepted by this postsecondary institution	F2 Institution File
5		F2IGRANT	Offered scholarship or grant	F2 Institution File
5		F2ILOAN	Offered loan	F2 Institution File
5		F2IWKSTY	Offered work study	F2 Institution File
5		F2IWAIVR	Offered tuition waiver/discount	F2 Institution File
5		F2IATTND	Whether attended this postsecondary institution	F2 Institution File
5		F2IFTPT	Intensity of enrollment at postsecondary school	F2 Institution File
5		F2ISTART	First period of attendance at this postsecondary institution	F2 Institution File
5		F2IEND	Last period of attendance at this postsecondary institution	F2 Institution File
5		F2IPSQ	Questionable postsecondary enrollment flag	F2 Institution File
5		F2IMO45	Number of months enrolled in institution in 2004-2005 school year	F2 Institution File
5		F2IPRE4	Number of months enrolled at postsecondary institution in 2002-2003	F2 Institution File
5		F2I0401	Enrolled in postsecondary institution in 2004/01 (January 2004)	F2 Institution File
5		F2I0402	Enrolled in postsecondary institution in 2004/02 (February 2004)	F2 Institution File
5		F2I0403	Enrolled in postsecondary institution in 2004/03 (March 2004)	F2 Institution File
5		F2I0404	Enrolled in postsecondary institution in 2004/04 (April 2004)	F2 Institution File
5		F2I0405	Enrolled in postsecondary institution in 2004/05 (May 2004)	F2 Institution File
5		F2I0406	Enrolled in postsecondary institution in 2004/06 (June 2004)	F2 Institution File
5		F2I0407	Enrolled in postsecondary institution in 2004/07 (July 2004)	F2 Institution File
5		F2I0408	Enrolled in postsecondary institution in 2004/08 (August 2004)	F2 Institution File
5		F2I0409	Enrolled in postsecondary institution in 2004/09 (September 2004)	F2 Institution File
5		F2I0410	Enrolled in postsecondary institution in 2004/10 (October 2004)	F2 Institution File
5		F2I0411	Enrolled in postsecondary institution in 2004/11 (November 2004)	F2 Institution File
5		F2I0412	Enrolled in postsecondary institution in 2004/12 (December 2004)	F2 Institution File
5		F2I0501	Enrolled in postsecondary institution in 2005/01 (January 2005)	F2 Institution File
5		F2I0502	Enrolled in postsecondary institution in 2005/02 (February 2005)	F2 Institution File
5		F2I0503	Enrolled in postsecondary institution in 2005/03 (March 2005)	F2 Institution File
5		F2I0504	Enrolled in postsecondary institution in 2005/04 (April 2005)	F2 Institution File
5		F2I0505	Enrolled in postsecondary institution in 2005/05 (May 2005)	F2 Institution File
5		F2I0506	Enrolled in postsecondary institution in 2005/06 (June 2005)	F2 Institution File
5		F2I0507	Enrolled in postsecondary institution in 2005/07 (July 2005)	F2 Institution File
5		F2I0508	Enrolled in postsecondary institution in 2005/08 (August 2005)	F2 Institution File
5		F2I0509	Enrolled in postsecondary institution in 2005/09 (September 2005)	F2 Institution File
5		F2I0510	Enrolled in postsecondary institution in 2005/10 (October 2005)	F2 Institution File
5		F2I0511	Enrolled in postsecondary institution in 2005/11 (November 2005)	F2 Institution File
5		F2I0512	Enrolled in postsecondary institution in 2005/12 (December 2005)	F2 Institution File
5		F2I0601	Enrolled in postsecondary institution in 2006/01 (January 2006)	F2 Institution File
5		F2I0602	Enrolled in postsecondary institution in 2006/02 (February 2006)	F2 Institution File
5		F2I0603	Enrolled in postsecondary institution in 2006/03 (March 2006)	F2 Institution File
5		F2I0604	Enrolled in postsecondary institution in 2006/04 (April 2006)	F2 Institution File
5		F2I0605	Enrolled in postsecondary institution in 2006/05 (May 2006)	F2 Institution File
5		F2I0606	Enrolled in postsecondary institution in 2006/06 (June 2006)	F2 Institution File

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
5		F2I0607	Enrolled in postsecondary institution in 2006/07 (July 2006)	F2 Institution File
5		F2I0608	Enrolled in postsecondary institution in 2006/08 (August 2006)	F2 Institution File
6		STU_ID	Analysis case ID	CPS (FAFSA) 2004-2005
6		C05021	Student's state of legal residence (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05022	Student legal resident before 1-1-1999? (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05023	Student's legal residence date (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05026	Degree/certificate (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05027	Grade level in college (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05030	Interested in student loans? (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05031	Interested in Work-Study? (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05038	Student's adj gross inc on IRS form (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05039	Student's US income tax paid (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05040	Student's exemptions claimed (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05041	Student's income earned from work (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05046	Student's cash, savings, checking (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05047	Student's investment net worth (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05058	Parents marital status (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05068	Parents number of family members (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05069	Parents number in college (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05070	Parents state of legal residence (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05071	Parents legal residents before 1-1-1999? (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05072	Parents legal residence date (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05076	Parents adjusted gross income (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05077	Parents US income tax paid (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05078	Parents exemptions claimed (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05079	Father's income earned from work (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05080	Mother's income earned from work (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05081	Parents total amount from worksheet A (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05082	Parents total amount from worksheet B (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05083	Parents total amount from worksheet C (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05084	Parents cash, savings, checking (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05085	Parents investment net worth (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05086	Parents business and/or farm net worth (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05089	Federal school code #1 (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05090	Federal school code #1 housing plans (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05091	Federal school code #2 (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05092	Federal school code #2 housing plans (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05093	Federal school code #3 (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05094	Federal school code #3 housing plans (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05095	Federal school code #4 (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05096	Federal school code #4 housing plans (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05097	Federal school code #5 (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05098	Federal school code #5 housing plans (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05099	Federal school code #6 (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05100	Federal school code #6 housing plans (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05101	Enrollment status (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05110	Dependency status (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05134	Application receipt date (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
6		C05144	Pell grant eligibility flag (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05150	Automatic zero EFC (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05151	Simplified needs test (SNT) (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05179	Primary EFC (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05181	Primary EFC type (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05205	TI: Total Income (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05206	ATI: Allowances Against Total Income (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05207	STX: State Tax Allowance (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05208	EA: Employment Allowance (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05209	IPA: Income Protection Allowance (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05210	AI: Available Income (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05211	CAI: Contribution from available income (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05212	DNW: Discretionary Net Worth (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05213	NW: Net Worth (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05214	APA: Asset Protection Allowance (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05215	PCA: Parents Contribution from Assets (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05216	AAI: Adjusted Available Income (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05217	TSC: Total Student Contribution (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05218	TPC: Total Parent Contribution (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05219	PC: Parents Contribution (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05220	STI: Student's Total Income (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05221	SATI: Student's Allow Agnst Total Income (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05222	SIC: Dependent Students Inc Contribution (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05223	SDNW: Student's Discretionary Net Worth (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05224	SCA: Student's Contribution from Assets (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
6		C05225	FTI: FISAP total income (from FAFSA 2004-05)	CPS (FAFSA) 2004-2005
7		STU_ID	Analysis case ID	CPS (FAFSA) 2005-2006
7		C06021	Student's state of legal residence (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06022	Student legal resident before 1-1-2000? (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06023	Student's legal residence date (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06026	Degree/certificate (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06027	Grade level in college (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06030	Interested in student loans? (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06031	Interested in Work-Study? (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06038	Student's adj gross inc on IRS form (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06039	Student's US income tax paid (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06040	Student's exemptions claimed (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06041	Student's income earned from work (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06046	Student's cash, savings, checking (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06047	Student's investment net worth (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06058	Parents marital status (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06068	Parents number of family members (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06069	Parents number in college (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06070	Parents state of legal residence (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06071	Parents legal residents before 1-1-2000? (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06072	Parents legal residence date (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06076	Parents adjusted gross income (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06077	Parents US income tax paid (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
7		C06078	Parents exemptions claimed (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06079	Father's income earned from work (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06080	Mother's income earned from work (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06081	Parents total amount from worksheet A (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06082	Parents total amount from worksheet B (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06083	Parents total amount from worksheet C (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06084	Parents cash, savings, checking (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06085	Parents investment net worth (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06086	Parents business and/or farm net worth (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06089	Federal school code #1 (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06090	Federal school code #1 housing plans (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06091	Federal school code #2 (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06092	Federal school code #2 housing plans (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06093	Federal school code #3 (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06094	Federal school code #3 housing plans (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06095	Federal school code #4 (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06096	Federal school code #4 housing plans (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06097	Federal school code #5 (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06098	Federal school code #5 housing plans (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06099	Federal school code #6 (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06100	Federal school code #6 housing plans (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06101	Enrollment status (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06110	Dependency status (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06140	Application receipt date (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06152	Pell grant eligibility flag (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06158	Automatic zero EFC (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06159	Simplified needs test (SNT) (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06186	Primary EFC (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06188	Primary EFC type (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06212	TI: Total Income (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06213	ATI: Allowances Against Total Income (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06214	STX: State Tax Allowance (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06215	EA: Employment Allowance (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06216	IPA: Income Protection Allowance (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06217	AI: Available Income (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06218	CAI: Contribution from available income (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06219	DNW: Discretionary Net Worth (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06220	NW: Net Worth (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06221	APA: Asset Protection Allowance (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06222	PCA: Parents Contribution from Assets (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06223	AAI: Adjusted Available Income (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06224	TSC: Total Student Contribution (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06225	TPC: Total Parent Contribution (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06226	PC: Parents Contribution (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06227	STI: Student's Total Income (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06228	SATI: Student's Allow Agnst Total Income (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06229	SIC: Dependent Students Inc Contribution (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06230	SDNW: Student's Discretionary Net Worth (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
7		C06231	SCA: Student's Contribution from Assets (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
7		C06232	FTI: FISAP total income (from FAFSA 2005-06)	CPS (FAFSA) 2005-2006
8		STU_ID	Analysis case ID	CPS (FAFSA) 2006-2007
8		C07021	Student's state of legal residence (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07022	Student legal resident before 1-1-2001? (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07023	Student's legal residence date (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07026	Degree/certificate (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07027	Grade level in college (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07030	Interested in student loans? (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07031	Interested in Work-Study? (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07038	Student's adj gross inc on IRS form (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07039	Student's US income tax paid (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07040	Student's exemptions claimed (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07046	Student's cash, savings, checking (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07047	Student's investment net worth (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07058	Parents marital status (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07068	Parents number of family members (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07069	Parents number in college (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07070	Parents state of legal residence (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07071	Parents legal residents before 1-1-2001? (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07072	Parents legal residence date (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07076	Parents adjusted gross income (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07077	Parents US income tax paid (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07078	Parents exemptions claimed (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07079	Father's income earned from work (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07080	Mother's income earned from work (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07081	Parents total amount from worksheet A (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07082	Parents total amount from worksheet B (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07083	Parents total amount from worksheet C (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07084	Parents cash, savings, checking (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07085	Parents investment net worth (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07086	Parents business and/or farm net worth (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07089	Federal school code #1 (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07090	Federal school code #1 housing plans (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07091	Federal school code #2 (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07092	Federal school code #2 housing plans (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07093	Federal school code #3 (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07094	Federal school code #3 housing plans (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07095	Federal school code #4 (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07096	Federal school code #4 housing plans (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07097	Federal school code #5 (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07098	Federal school code #5 housing plans (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07099	Federal school code #6 (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07100	Federal school code #6 housing plans (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07101	Enrollment status (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07110	Dependency status (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07140	Application receipt date (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07152	Pell grant eligibility flag (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
8		C07158	Automatic zero EFC (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07159	Simplified needs test (SNT) (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07186	Primary EFC (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07188	Primary EFC type (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07212	TI: Total Income (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07213	ATI: Allowances Against Total Income (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07214	STX: State Tax Allowance (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07215	EA: Employment Allowance (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07216	IPA: Income Protection Allowance (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07217	AI: Available Income (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07218	CAI: Contribution from available income (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07219	DNW: Discretionary Net Worth (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07220	NW: Net Worth (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07221	APA: Asset Protection Allowance (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07222	PCA: Parents Contribution from Assets (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07223	AAI: Adjusted Available Income (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07224	TSC: Total Student Contribution (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07225	TPC: Total Parent Contribution (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07226	PC: Parents Contribution (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07227	STI: Student's Total Income (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07228	SATI: Student's Allow Agnst Total Income (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07229	SIC: Dependent Students Inc Contribution (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07230	SDNW: Student's Discretionary Net Worth (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07231	SCA: Student's Contribution from Assets (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
8		C07232	FTI: FISAP total income (from FAFSA 2006-07)	CPS (FAFSA) 2006-2007
9		STU_ID	Analysis case ID	Pell
9		PDATE1	Pell grant enrollment begin	Pell
9		PLAMTP1	Pell grant paid amount	Pell
9		PLAMTP2	Pell grant remaining	Pell
9		PLAMTSCH	Pell grant scheduled amount	Pell
9		PLBR1	Pell institution branch	Pell
9		PLCOST1	Pell cost of attendance	Pell
9		PLEFC	Pell grant EFC	Pell
9		PLSCHL1	Pell institution code (OPEID)	Pell
9		PLYEAR	Pell paid year (FY)	Pell
10		STU_ID	Analysis case ID	Loan
10		ACADLVL	Academic level	Loan
10		BEGDATE	Loan period begin date	Loan
10		BRNCHCOD	School branch code	Loan
10		ENDDATE	Loan period end date	Loan
10		GACODE	Current guaranty agency code	Loan
10		LNSTDAT2	Prior loan status date	Loan
10		LNSTDATE	Current loan status date	Loan
10		LOANAMT	Loan amount guaranteed	Loan
10		LOANDATE	Loan guaranteed date	Loan
10		LOANSTA2	Prior loan status code	Loan
10		LOANSTAT	Current loan status	Loan
10		LOANTYPE	Loan type	Loan

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
10		OUTSTAND	Outstanding principal balance	Loan
10		OUTSDAT	Outstanding principal balance date	Loan
10		SCHCODE	Title IV school code (OPEID)	Loan
10		SEQNO	Record sequence number	Loan
10		TOTCAN	Total canceled	Loan
10		TOTDIS	Total amount disbursed	Loan
11		Stu_ID	Student ID	GED Testing Program
11		GEDSTATE	State where candidate last took GED test	GED Testing Program
11		GEDPRACT	Whether candidate took official practice test	GED Testing Program
11		GEDPASSD	Whether candidate passed GED test	GED Testing Program
11		GEDPASDT	Date passed GED test	GED Testing Program
11		GEDRSN01	Took GED test to enroll in tech/trade program	GED Testing Program
11		GEDRSN02	Took GED test to enter 2-year college	GED Testing Program
11		GEDRSN03	Took GED test to enter 4-year college	GED Testing Program
11		GEDRSN04	Took GED test for job training	GED Testing Program
11		GEDRSN05	Took GED test to get first job or better job	GED Testing Program
11		GEDRSN06	Took GED test to keep current job or satisfy employer requirement	GED Testing Program
11		GEDRSN07	Took GED test to gain military entrance or for military career	GED Testing Program
11		GEDRSN08	Took GED test to be a role model for family	GED Testing Program
11		GEDRSN09	Took GED test for personal satisfaction	GED Testing Program
11		GEDRSN10	Took GED test for some other reason	GED Testing Program
11		GEDLRN01	First learned about GED from friend/family	GED Testing Program
11		GEDLRN02	First learned about GED from classmate	GED Testing Program
11		GEDLRN03	First learned about GED from counselor/teacher	GED Testing Program
11		GEDLRN04	First learned about GED through the media	GED Testing Program
11		GEDLRN05	First learned about GED from some other source	GED Testing Program
11		GEDPRP01	Prepared for GED test through public school adult education class	GED Testing Program
11		GEDPRP02	Prepared for GED test through community college adult education class	GED Testing Program
11		GEDPRP03	Prepared for GED test through internet/computer	GED Testing Program
11		GEDPRP04	Prepared for GED test through home study/schooling or family literacy	GED Testing Program
11		GEDPRP05	Prepared for GED test through official practice test	GED Testing Program
11		GEDPRP06	Prepared for GED test through library	GED Testing Program
11		GEDPRP07	Prepared for GED test through GED Option program	GED Testing Program
11		GEDPRP08	Prepared for GED test through job corps or employment/training program	GED Testing Program
11		GEDPRP09	Prepared for GED test by self-teaching	GED Testing Program
11		GEDPRP10	Prepared for GED test in some other way	GED Testing Program
11		GEDPRP11	Did not prepare for GED test	GED Testing Program
12		Stu_ID	Student ID	BY Student Weight Replicates
12		BYSTUWT	Student weight	BY Student Weight Replicates
12		BYSTU1	BRR BY student weight for replicate 1	BY Student Weight Replicates
12		BYSTU2	BRR BY student weight for replicate 2	BY Student Weight Replicates
12		BYSTU3	BRR BY student weight for replicate 3	BY Student Weight Replicates
12		BYSTU4	BRR BY student weight for replicate 4	BY Student Weight Replicates
12		BYSTU5	BRR BY student weight for replicate 5	BY Student Weight Replicates
12		BYSTU6	BRR BY student weight for replicate 6	BY Student Weight Replicates
12		BYSTU7	BRR BY student weight for replicate 7	BY Student Weight Replicates
12		BYSTU8	BRR BY student weight for replicate 8	BY Student Weight Replicates
12		BYSTU9	BRR BY student weight for replicate 9	BY Student Weight Replicates





*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
12		BYSTU58	BRR BY student weight for replicate 58	BY Student Weight Replicates
12		BYSTU59	BRR BY student weight for replicate 59	BY Student Weight Replicates
12		BYSTU60	BRR BY student weight for replicate 60	BY Student Weight Replicates
12		BYSTU61	BRR BY student weight for replicate 61	BY Student Weight Replicates
12		BYSTU62	BRR BY student weight for replicate 62	BY Student Weight Replicates
12		BYSTU63	BRR BY student weight for replicate 63	BY Student Weight Replicates
12		BYSTU64	BRR BY student weight for replicate 64	BY Student Weight Replicates
12		BYSTU65	BRR BY student weight for replicate 65	BY Student Weight Replicates
12		BYSTU66	BRR BY student weight for replicate 66	BY Student Weight Replicates
12		BYSTU67	BRR BY student weight for replicate 67	BY Student Weight Replicates
12		BYSTU68	BRR BY student weight for replicate 68	BY Student Weight Replicates
12		BYSTU69	BRR BY student weight for replicate 69	BY Student Weight Replicates
12		BYSTU70	BRR BY student weight for replicate 70	BY Student Weight Replicates
12		BYSTU71	BRR BY student weight for replicate 71	BY Student Weight Replicates
12		BYSTU72	BRR BY student weight for replicate 72	BY Student Weight Replicates
12		BYSTU73	BRR BY student weight for replicate 73	BY Student Weight Replicates
12		BYSTU74	BRR BY student weight for replicate 74	BY Student Weight Replicates
12		BYSTU75	BRR BY student weight for replicate 75	BY Student Weight Replicates
12		BYSTU76	BRR BY student weight for replicate 76	BY Student Weight Replicates
12		BYSTU77	BRR BY student weight for replicate 77	BY Student Weight Replicates
12		BYSTU78	BRR BY student weight for replicate 78	BY Student Weight Replicates
12		BYSTU79	BRR BY student weight for replicate 79	BY Student Weight Replicates
12		BYSTU80	BRR BY student weight for replicate 80	BY Student Weight Replicates
12		BYSTU81	BRR BY student weight for replicate 81	BY Student Weight Replicates
12		BYSTU82	BRR BY student weight for replicate 82	BY Student Weight Replicates
12		BYSTU83	BRR BY student weight for replicate 83	BY Student Weight Replicates
12		BYSTU84	BRR BY student weight for replicate 84	BY Student Weight Replicates
12		BYSTU85	BRR BY student weight for replicate 85	BY Student Weight Replicates
12		BYSTU86	BRR BY student weight for replicate 86	BY Student Weight Replicates
12		BYSTU87	BRR BY student weight for replicate 87	BY Student Weight Replicates
12		BYSTU88	BRR BY student weight for replicate 88	BY Student Weight Replicates
12		BYSTU89	BRR BY student weight for replicate 89	BY Student Weight Replicates
12		BYSTU90	BRR BY student weight for replicate 90	BY Student Weight Replicates
12		BYSTU91	BRR BY student weight for replicate 91	BY Student Weight Replicates
12		BYSTU92	BRR BY student weight for replicate 92	BY Student Weight Replicates
12		BYSTU93	BRR BY student weight for replicate 93	BY Student Weight Replicates
12		BYSTU94	BRR BY student weight for replicate 94	BY Student Weight Replicates
12		BYSTU95	BRR BY student weight for replicate 95	BY Student Weight Replicates
12		BYSTU96	BRR BY student weight for replicate 96	BY Student Weight Replicates
12		BYSTU97	BRR BY student weight for replicate 97	BY Student Weight Replicates
12		BYSTU98	BRR BY student weight for replicate 98	BY Student Weight Replicates
12		BYSTU99	BRR BY student weight for replicate 99	BY Student Weight Replicates
12		BYSTU100	BRR BY student weight for replicate 100	BY Student Weight Replicates
12		BYSTU101	BRR BY student weight for replicate 101	BY Student Weight Replicates
12		BYSTU102	BRR BY student weight for replicate 102	BY Student Weight Replicates
12		BYSTU103	BRR BY student weight for replicate 103	BY Student Weight Replicates
12		BYSTU104	BRR BY student weight for replicate 104	BY Student Weight Replicates
12		BYSTU105	BRR BY student weight for replicate 105	BY Student Weight Replicates



*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
12		BYSTU154	BRR BY student weight for replicate 154	BY Student Weight Replicates
12		BYSTU155	BRR BY student weight for replicate 155	BY Student Weight Replicates
12		BYSTU156	BRR BY student weight for replicate 156	BY Student Weight Replicates
12		BYSTU157	BRR BY student weight for replicate 157	BY Student Weight Replicates
12		BYSTU158	BRR BY student weight for replicate 158	BY Student Weight Replicates
12		BYSTU159	BRR BY student weight for replicate 159	BY Student Weight Replicates
12		BYSTU160	BRR BY student weight for replicate 160	BY Student Weight Replicates
12		BYSTU161	BRR BY student weight for replicate 161	BY Student Weight Replicates
12		BYSTU162	BRR BY student weight for replicate 162	BY Student Weight Replicates
12		BYSTU163	BRR BY student weight for replicate 163	BY Student Weight Replicates
12		BYSTU164	BRR BY student weight for replicate 164	BY Student Weight Replicates
12		BYSTU165	BRR BY student weight for replicate 165	BY Student Weight Replicates
12		BYSTU166	BRR BY student weight for replicate 166	BY Student Weight Replicates
12		BYSTU167	BRR BY student weight for replicate 167	BY Student Weight Replicates
12		BYSTU168	BRR BY student weight for replicate 168	BY Student Weight Replicates
12		BYSTU169	BRR BY student weight for replicate 169	BY Student Weight Replicates
12		BYSTU170	BRR BY student weight for replicate 170	BY Student Weight Replicates
12		BYSTU171	BRR BY student weight for replicate 171	BY Student Weight Replicates
12		BYSTU172	BRR BY student weight for replicate 172	BY Student Weight Replicates
12		BYSTU173	BRR BY student weight for replicate 173	BY Student Weight Replicates
12		BYSTU174	BRR BY student weight for replicate 174	BY Student Weight Replicates
12		BYSTU175	BRR BY student weight for replicate 175	BY Student Weight Replicates
12		BYSTU176	BRR BY student weight for replicate 176	BY Student Weight Replicates
12		BYSTU177	BRR BY student weight for replicate 177	BY Student Weight Replicates
12		BYSTU178	BRR BY student weight for replicate 178	BY Student Weight Replicates
12		BYSTU179	BRR BY student weight for replicate 179	BY Student Weight Replicates
12		BYSTU180	BRR BY student weight for replicate 180	BY Student Weight Replicates
12		BYSTU181	BRR BY student weight for replicate 181	BY Student Weight Replicates
12		BYSTU182	BRR BY student weight for replicate 182	BY Student Weight Replicates
12		BYSTU183	BRR BY student weight for replicate 183	BY Student Weight Replicates
12		BYSTU184	BRR BY student weight for replicate 184	BY Student Weight Replicates
12		BYSTU185	BRR BY student weight for replicate 185	BY Student Weight Replicates
12		BYSTU186	BRR BY student weight for replicate 186	BY Student Weight Replicates
12		BYSTU187	BRR BY student weight for replicate 187	BY Student Weight Replicates
12		BYSTU188	BRR BY student weight for replicate 188	BY Student Weight Replicates
12		BYSTU189	BRR BY student weight for replicate 189	BY Student Weight Replicates
12		BYSTU190	BRR BY student weight for replicate 190	BY Student Weight Replicates
12		BYSTU191	BRR BY student weight for replicate 191	BY Student Weight Replicates
12		BYSTU192	BRR BY student weight for replicate 192	BY Student Weight Replicates
12		BYSTU193	BRR BY student weight for replicate 193	BY Student Weight Replicates
12		BYSTU194	BRR BY student weight for replicate 194	BY Student Weight Replicates
12		BYSTU195	BRR BY student weight for replicate 195	BY Student Weight Replicates
12		BYSTU196	BRR BY student weight for replicate 196	BY Student Weight Replicates
12		BYSTU197	BRR BY student weight for replicate 197	BY Student Weight Replicates
12		BYSTU198	BRR BY student weight for replicate 198	BY Student Weight Replicates
12		BYSTU199	BRR BY student weight for replicate 199	BY Student Weight Replicates
12		BYSTU200	BRR BY student weight for replicate 200	BY Student Weight Replicates
12		F1QWT	Questionnaire weight for F1	F1 Quex Weight Replicates

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
12		F1Q1	BRR F1 questionnaire weight for replicate 1	F1 Quex Weight Replicates
12		F1Q2	BRR F1 questionnaire weight for replicate 2	F1 Quex Weight Replicates
12		F1Q3	BRR F1 questionnaire weight for replicate 3	F1 Quex Weight Replicates
12		F1Q4	BRR F1 questionnaire weight for replicate 4	F1 Quex Weight Replicates
12		F1Q5	BRR F1 questionnaire weight for replicate 5	F1 Quex Weight Replicates
12		F1Q6	BRR F1 questionnaire weight for replicate 6	F1 Quex Weight Replicates
12		F1Q7	BRR F1 questionnaire weight for replicate 7	F1 Quex Weight Replicates
12		F1Q8	BRR F1 questionnaire weight for replicate 8	F1 Quex Weight Replicates
12		F1Q9	BRR F1 questionnaire weight for replicate 9	F1 Quex Weight Replicates
12		F1Q10	BRR F1 questionnaire weight for replicate 10	F1 Quex Weight Replicates
12		F1Q11	BRR F1 questionnaire weight for replicate 11	F1 Quex Weight Replicates
12		F1Q12	BRR F1 questionnaire weight for replicate 12	F1 Quex Weight Replicates
12		F1Q13	BRR F1 questionnaire weight for replicate 13	F1 Quex Weight Replicates
12		F1Q14	BRR F1 questionnaire weight for replicate 14	F1 Quex Weight Replicates
12		F1Q15	BRR F1 questionnaire weight for replicate 15	F1 Quex Weight Replicates
12		F1Q16	BRR F1 questionnaire weight for replicate 16	F1 Quex Weight Replicates
12		F1Q17	BRR F1 questionnaire weight for replicate 17	F1 Quex Weight Replicates
12		F1Q18	BRR F1 questionnaire weight for replicate 18	F1 Quex Weight Replicates
12		F1Q19	BRR F1 questionnaire weight for replicate 19	F1 Quex Weight Replicates
12		F1Q20	BRR F1 questionnaire weight for replicate 20	F1 Quex Weight Replicates
12		F1Q21	BRR F1 questionnaire weight for replicate 21	F1 Quex Weight Replicates
12		F1Q22	BRR F1 questionnaire weight for replicate 22	F1 Quex Weight Replicates
12		F1Q23	BRR F1 questionnaire weight for replicate 23	F1 Quex Weight Replicates
12		F1Q24	BRR F1 questionnaire weight for replicate 24	F1 Quex Weight Replicates
12		F1Q25	BRR F1 questionnaire weight for replicate 25	F1 Quex Weight Replicates
12		F1Q26	BRR F1 questionnaire weight for replicate 26	F1 Quex Weight Replicates
12		F1Q27	BRR F1 questionnaire weight for replicate 27	F1 Quex Weight Replicates
12		F1Q28	BRR F1 questionnaire weight for replicate 28	F1 Quex Weight Replicates
12		F1Q29	BRR F1 questionnaire weight for replicate 29	F1 Quex Weight Replicates
12		F1Q30	BRR F1 questionnaire weight for replicate 30	F1 Quex Weight Replicates
12		F1Q31	BRR F1 questionnaire weight for replicate 31	F1 Quex Weight Replicates
12		F1Q32	BRR F1 questionnaire weight for replicate 32	F1 Quex Weight Replicates
12		F1Q33	BRR F1 questionnaire weight for replicate 33	F1 Quex Weight Replicates
12		F1Q34	BRR F1 questionnaire weight for replicate 34	F1 Quex Weight Replicates
12		F1Q35	BRR F1 questionnaire weight for replicate 35	F1 Quex Weight Replicates
12		F1Q36	BRR F1 questionnaire weight for replicate 36	F1 Quex Weight Replicates
12		F1Q37	BRR F1 questionnaire weight for replicate 37	F1 Quex Weight Replicates
12		F1Q38	BRR F1 questionnaire weight for replicate 38	F1 Quex Weight Replicates
12		F1Q39	BRR F1 questionnaire weight for replicate 39	F1 Quex Weight Replicates
12		F1Q40	BRR F1 questionnaire weight for replicate 40	F1 Quex Weight Replicates
12		F1Q41	BRR F1 questionnaire weight for replicate 41	F1 Quex Weight Replicates
12		F1Q42	BRR F1 questionnaire weight for replicate 42	F1 Quex Weight Replicates
12		F1Q43	BRR F1 questionnaire weight for replicate 43	F1 Quex Weight Replicates
12		F1Q44	BRR F1 questionnaire weight for replicate 44	F1 Quex Weight Replicates
12		F1Q45	BRR F1 questionnaire weight for replicate 45	F1 Quex Weight Replicates
12		F1Q46	BRR F1 questionnaire weight for replicate 46	F1 Quex Weight Replicates
12		F1Q47	BRR F1 questionnaire weight for replicate 47	F1 Quex Weight Replicates
12		F1Q48	BRR F1 questionnaire weight for replicate 48	F1 Quex Weight Replicates



*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
12		F1Q97	BRR F1 questionnaire weight for replicate 97	F1 Quex Weight Replicates
12		F1Q98	BRR F1 questionnaire weight for replicate 98	F1 Quex Weight Replicates
12		F1Q99	BRR F1 questionnaire weight for replicate 99	F1 Quex Weight Replicates
12		F1Q100	BRR F1 questionnaire weight for replicate 100	F1 Quex Weight Replicates
12		F1Q101	BRR F1 questionnaire weight for replicate 101	F1 Quex Weight Replicates
12		F1Q102	BRR F1 questionnaire weight for replicate 102	F1 Quex Weight Replicates
12		F1Q103	BRR F1 questionnaire weight for replicate 103	F1 Quex Weight Replicates
12		F1Q104	BRR F1 questionnaire weight for replicate 104	F1 Quex Weight Replicates
12		F1Q105	BRR F1 questionnaire weight for replicate 105	F1 Quex Weight Replicates
12		F1Q106	BRR F1 questionnaire weight for replicate 106	F1 Quex Weight Replicates
12		F1Q107	BRR F1 questionnaire weight for replicate 107	F1 Quex Weight Replicates
12		F1Q108	BRR F1 questionnaire weight for replicate 108	F1 Quex Weight Replicates
12		F1Q109	BRR F1 questionnaire weight for replicate 109	F1 Quex Weight Replicates
12		F1Q110	BRR F1 questionnaire weight for replicate 110	F1 Quex Weight Replicates
12		F1Q111	BRR F1 questionnaire weight for replicate 111	F1 Quex Weight Replicates
12		F1Q112	BRR F1 questionnaire weight for replicate 112	F1 Quex Weight Replicates
12		F1Q113	BRR F1 questionnaire weight for replicate 113	F1 Quex Weight Replicates
12		F1Q114	BRR F1 questionnaire weight for replicate 114	F1 Quex Weight Replicates
12		F1Q115	BRR F1 questionnaire weight for replicate 115	F1 Quex Weight Replicates
12		F1Q116	BRR F1 questionnaire weight for replicate 116	F1 Quex Weight Replicates
12		F1Q117	BRR F1 questionnaire weight for replicate 117	F1 Quex Weight Replicates
12		F1Q118	BRR F1 questionnaire weight for replicate 118	F1 Quex Weight Replicates
12		F1Q119	BRR F1 questionnaire weight for replicate 119	F1 Quex Weight Replicates
12		F1Q120	BRR F1 questionnaire weight for replicate 120	F1 Quex Weight Replicates
12		F1Q121	BRR F1 questionnaire weight for replicate 121	F1 Quex Weight Replicates
12		F1Q122	BRR F1 questionnaire weight for replicate 122	F1 Quex Weight Replicates
12		F1Q123	BRR F1 questionnaire weight for replicate 123	F1 Quex Weight Replicates
12		F1Q124	BRR F1 questionnaire weight for replicate 124	F1 Quex Weight Replicates
12		F1Q125	BRR F1 questionnaire weight for replicate 125	F1 Quex Weight Replicates
12		F1Q126	BRR F1 questionnaire weight for replicate 126	F1 Quex Weight Replicates
12		F1Q127	BRR F1 questionnaire weight for replicate 127	F1 Quex Weight Replicates
12		F1Q128	BRR F1 questionnaire weight for replicate 128	F1 Quex Weight Replicates
12		F1Q129	BRR F1 questionnaire weight for replicate 129	F1 Quex Weight Replicates
12		F1Q130	BRR F1 questionnaire weight for replicate 130	F1 Quex Weight Replicates
12		F1Q131	BRR F1 questionnaire weight for replicate 131	F1 Quex Weight Replicates
12		F1Q132	BRR F1 questionnaire weight for replicate 132	F1 Quex Weight Replicates
12		F1Q133	BRR F1 questionnaire weight for replicate 133	F1 Quex Weight Replicates
12		F1Q134	BRR F1 questionnaire weight for replicate 134	F1 Quex Weight Replicates
12		F1Q135	BRR F1 questionnaire weight for replicate 135	F1 Quex Weight Replicates
12		F1Q136	BRR F1 questionnaire weight for replicate 136	F1 Quex Weight Replicates
12		F1Q137	BRR F1 questionnaire weight for replicate 137	F1 Quex Weight Replicates
12		F1Q138	BRR F1 questionnaire weight for replicate 138	F1 Quex Weight Replicates
12		F1Q139	BRR F1 questionnaire weight for replicate 139	F1 Quex Weight Replicates
12		F1Q140	BRR F1 questionnaire weight for replicate 140	F1 Quex Weight Replicates
12		F1Q141	BRR F1 questionnaire weight for replicate 141	F1 Quex Weight Replicates
12		F1Q142	BRR F1 questionnaire weight for replicate 142	F1 Quex Weight Replicates
12		F1Q143	BRR F1 questionnaire weight for replicate 143	F1 Quex Weight Replicates
12		F1Q144	BRR F1 questionnaire weight for replicate 144	F1 Quex Weight Replicates



Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
12		F1Q193	BRR F1 questionnaire weight for replicate 193	F1 Quex Weight Replicates
12		F1Q194	BRR F1 questionnaire weight for replicate 194	F1 Quex Weight Replicates
12		F1Q195	BRR F1 questionnaire weight for replicate 195	F1 Quex Weight Replicates
12		F1Q196	BRR F1 questionnaire weight for replicate 196	F1 Quex Weight Replicates
12		F1Q197	BRR F1 questionnaire weight for replicate 197	F1 Quex Weight Replicates
12		F1Q198	BRR F1 questionnaire weight for replicate 198	F1 Quex Weight Replicates
12		F1Q199	BRR F1 questionnaire weight for replicate 199	F1 Quex Weight Replicates
12		F1Q200	BRR F1 questionnaire weight for replicate 200	F1 Quex Weight Replicates
12		F1PNLWT	Panel Weight, BY and F1 (2002 and 2004)	BY and F1 Panel Weight Replicates
12		F1PNL1	BRR BY and F1 (2002 and 2004) panel weight for replicate 1	BY and F1 Panel Weight Replicates
12		F1PNL2	BRR BY and F1 (2002 and 2004) panel weight for replicate 2	BY and F1 Panel Weight Replicates
12		F1PNL3	BRR BY and F1 (2002 and 2004) panel weight for replicate 3	BY and F1 Panel Weight Replicates
12		F1PNL4	BRR BY and F1 (2002 and 2004) panel weight for replicate 4	BY and F1 Panel Weight Replicates
12		F1PNL5	BRR BY and F1 (2002 and 2004) panel weight for replicate 5	BY and F1 Panel Weight Replicates
12		F1PNL6	BRR BY and F1 (2002 and 2004) panel weight for replicate 6	BY and F1 Panel Weight Replicates
12		F1PNL7	BRR BY and F1 (2002 and 2004) panel weight for replicate 7	BY and F1 Panel Weight Replicates
12		F1PNL8	BRR BY and F1 (2002 and 2004) panel weight for replicate 8	BY and F1 Panel Weight Replicates
12		F1PNL9	BRR BY and F1 (2002 and 2004) panel weight for replicate 9	BY and F1 Panel Weight Replicates
12		F1PNL10	BRR BY and F1 (2002 and 2004) panel weight for replicate 10	BY and F1 Panel Weight Replicates
12		F1PNL11	BRR BY and F1 (2002 and 2004) panel weight for replicate 11	BY and F1 Panel Weight Replicates
12		F1PNL12	BRR BY and F1 (2002 and 2004) panel weight for replicate 12	BY and F1 Panel Weight Replicates
12		F1PNL13	BRR BY and F1 (2002 and 2004) panel weight for replicate 13	BY and F1 Panel Weight Replicates
12		F1PNL14	BRR BY and F1 (2002 and 2004) panel weight for replicate 14	BY and F1 Panel Weight Replicates
12		F1PNL15	BRR BY and F1 (2002 and 2004) panel weight for replicate 15	BY and F1 Panel Weight Replicates
12		F1PNL16	BRR BY and F1 (2002 and 2004) panel weight for replicate 16	BY and F1 Panel Weight Replicates
12		F1PNL17	BRR BY and F1 (2002 and 2004) panel weight for replicate 17	BY and F1 Panel Weight Replicates
12		F1PNL18	BRR BY and F1 (2002 and 2004) panel weight for replicate 18	BY and F1 Panel Weight Replicates
12		F1PNL19	BRR BY and F1 (2002 and 2004) panel weight for replicate 19	BY and F1 Panel Weight Replicates
12		F1PNL20	BRR BY and F1 (2002 and 2004) panel weight for replicate 20	BY and F1 Panel Weight Replicates
12		F1PNL21	BRR BY and F1 (2002 and 2004) panel weight for replicate 21	BY and F1 Panel Weight Replicates
12		F1PNL22	BRR BY and F1 (2002 and 2004) panel weight for replicate 22	BY and F1 Panel Weight Replicates
12		F1PNL23	BRR BY and F1 (2002 and 2004) panel weight for replicate 23	BY and F1 Panel Weight Replicates
12		F1PNL24	BRR BY and F1 (2002 and 2004) panel weight for replicate 24	BY and F1 Panel Weight Replicates
12		F1PNL25	BRR BY and F1 (2002 and 2004) panel weight for replicate 25	BY and F1 Panel Weight Replicates
12		F1PNL26	BRR BY and F1 (2002 and 2004) panel weight for replicate 26	BY and F1 Panel Weight Replicates
12		F1PNL27	BRR BY and F1 (2002 and 2004) panel weight for replicate 27	BY and F1 Panel Weight Replicates
12		F1PNL28	BRR BY and F1 (2002 and 2004) panel weight for replicate 28	BY and F1 Panel Weight Replicates
12		F1PNL29	BRR BY and F1 (2002 and 2004) panel weight for replicate 29	BY and F1 Panel Weight Replicates
12		F1PNL30	BRR BY and F1 (2002 and 2004) panel weight for replicate 30	BY and F1 Panel Weight Replicates
12		F1PNL31	BRR BY and F1 (2002 and 2004) panel weight for replicate 31	BY and F1 Panel Weight Replicates











*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
12		F1PNL186	BRR BY and F1 (2002 and 2004) panel weight for replicate 186	BY and F1 Panel Weight Replicates
12		F1PNL187	BRR BY and F1 (2002 and 2004) panel weight for replicate 187	BY and F1 Panel Weight Replicates
12		F1PNL188	BRR BY and F1 (2002 and 2004) panel weight for replicate 188	BY and F1 Panel Weight Replicates
12		F1PNL189	BRR BY and F1 (2002 and 2004) panel weight for replicate 189	BY and F1 Panel Weight Replicates
12		F1PNL190	BRR BY and F1 (2002 and 2004) panel weight for replicate 190	BY and F1 Panel Weight Replicates
12		F1PNL191	BRR BY and F1 (2002 and 2004) panel weight for replicate 191	BY and F1 Panel Weight Replicates
12		F1PNL192	BRR BY and F1 (2002 and 2004) panel weight for replicate 192	BY and F1 Panel Weight Replicates
12		F1PNL193	BRR BY and F1 (2002 and 2004) panel weight for replicate 193	BY and F1 Panel Weight Replicates
12		F1PNL194	BRR BY and F1 (2002 and 2004) panel weight for replicate 194	BY and F1 Panel Weight Replicates
12		F1PNL195	BRR BY and F1 (2002 and 2004) panel weight for replicate 195	BY and F1 Panel Weight Replicates
12		F1PNL196	BRR BY and F1 (2002 and 2004) panel weight for replicate 196	BY and F1 Panel Weight Replicates
12		F1PNL197	BRR BY and F1 (2002 and 2004) panel weight for replicate 197	BY and F1 Panel Weight Replicates
12		F1PNL198	BRR BY and F1 (2002 and 2004) panel weight for replicate 198	BY and F1 Panel Weight Replicates
12		F1PNL199	BRR BY and F1 (2002 and 2004) panel weight for replicate 199	BY and F1 Panel Weight Replicates
12		F1PNL200	BRR BY and F1 (2002 and 2004) panel weight for replicate 200	BY and F1 Panel Weight Replicates
12		F1TRSCWT	Cross-sectional high school transcript weight	F1 Transcript Weight Replicates
12		F1TRS1	BRR F1 transcript weight for replicate 1	F1 Transcript Weight Replicates
12		F1TRS2	BRR F1 transcript weight for replicate 2	F1 Transcript Weight Replicates
12		F1TRS3	BRR F1 transcript weight for replicate 3	F1 Transcript Weight Replicates
12		F1TRS4	BRR F1 transcript weight for replicate 4	F1 Transcript Weight Replicates
12		F1TRS5	BRR F1 transcript weight for replicate 5	F1 Transcript Weight Replicates
12		F1TRS6	BRR F1 transcript weight for replicate 6	F1 Transcript Weight Replicates
12		F1TRS7	BRR F1 transcript weight for replicate 7	F1 Transcript Weight Replicates
12		F1TRS8	BRR F1 transcript weight for replicate 8	F1 Transcript Weight Replicates
12		F1TRS9	BRR F1 transcript weight for replicate 9	F1 Transcript Weight Replicates
12		F1TRS10	BRR F1 transcript weight for replicate 10	F1 Transcript Weight Replicates
12		F1TRS11	BRR F1 transcript weight for replicate 11	F1 Transcript Weight Replicates
12		F1TRS12	BRR F1 transcript weight for replicate 12	F1 Transcript Weight Replicates
12		F1TRS13	BRR F1 transcript weight for replicate 13	F1 Transcript Weight Replicates
12		F1TRS14	BRR F1 transcript weight for replicate 14	F1 Transcript Weight Replicates
12		F1TRS15	BRR F1 transcript weight for replicate 15	F1 Transcript Weight Replicates
12		F1TRS16	BRR F1 transcript weight for replicate 16	F1 Transcript Weight Replicates
12		F1TRS17	BRR F1 transcript weight for replicate 17	F1 Transcript Weight Replicates
12		F1TRS18	BRR F1 transcript weight for replicate 18	F1 Transcript Weight Replicates
12		F1TRS19	BRR F1 transcript weight for replicate 19	F1 Transcript Weight Replicates
12		F1TRS20	BRR F1 transcript weight for replicate 20	F1 Transcript Weight Replicates
12		F1TRS21	BRR F1 transcript weight for replicate 21	F1 Transcript Weight Replicates
12		F1TRS22	BRR F1 transcript weight for replicate 22	F1 Transcript Weight Replicates
12		F1TRS23	BRR F1 transcript weight for replicate 23	F1 Transcript Weight Replicates
12		F1TRS24	BRR F1 transcript weight for replicate 24	F1 Transcript Weight Replicates
12		F1TRS25	BRR F1 transcript weight for replicate 25	F1 Transcript Weight Replicates
12		F1TRS26	BRR F1 transcript weight for replicate 26	F1 Transcript Weight Replicates
12		F1TRS27	BRR F1 transcript weight for replicate 27	F1 Transcript Weight Replicates
12		F1TRS28	BRR F1 transcript weight for replicate 28	F1 Transcript Weight Replicates









*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
12		F1TRS173	BRR F1 transcript weight for replicate 173	F1 Transcript Weight Replicates
12		F1TRS174	BRR F1 transcript weight for replicate 174	F1 Transcript Weight Replicates
12		F1TRS175	BRR F1 transcript weight for replicate 175	F1 Transcript Weight Replicates
12		F1TRS176	BRR F1 transcript weight for replicate 176	F1 Transcript Weight Replicates
12		F1TRS177	BRR F1 transcript weight for replicate 177	F1 Transcript Weight Replicates
12		F1TRS178	BRR F1 transcript weight for replicate 178	F1 Transcript Weight Replicates
12		F1TRS179	BRR F1 transcript weight for replicate 179	F1 Transcript Weight Replicates
12		F1TRS180	BRR F1 transcript weight for replicate 180	F1 Transcript Weight Replicates
12		F1TRS181	BRR F1 transcript weight for replicate 181	F1 Transcript Weight Replicates
12		F1TRS182	BRR F1 transcript weight for replicate 182	F1 Transcript Weight Replicates
12		F1TRS183	BRR F1 transcript weight for replicate 183	F1 Transcript Weight Replicates
12		F1TRS184	BRR F1 transcript weight for replicate 184	F1 Transcript Weight Replicates
12		F1TRS185	BRR F1 transcript weight for replicate 185	F1 Transcript Weight Replicates
12		F1TRS186	BRR F1 transcript weight for replicate 186	F1 Transcript Weight Replicates
12		F1TRS187	BRR F1 transcript weight for replicate 187	F1 Transcript Weight Replicates
12		F1TRS188	BRR F1 transcript weight for replicate 188	F1 Transcript Weight Replicates
12		F1TRS189	BRR F1 transcript weight for replicate 189	F1 Transcript Weight Replicates
12		F1TRS190	BRR F1 transcript weight for replicate 190	F1 Transcript Weight Replicates
12		F1TRS191	BRR F1 transcript weight for replicate 191	F1 Transcript Weight Replicates
12		F1TRS192	BRR F1 transcript weight for replicate 192	F1 Transcript Weight Replicates
12		F1TRS193	BRR F1 transcript weight for replicate 193	F1 Transcript Weight Replicates
12		F1TRS194	BRR F1 transcript weight for replicate 194	F1 Transcript Weight Replicates
12		F1TRS195	BRR F1 transcript weight for replicate 195	F1 Transcript Weight Replicates
12		F1TRS196	BRR F1 transcript weight for replicate 196	F1 Transcript Weight Replicates
12		F1TRS197	BRR F1 transcript weight for replicate 197	F1 Transcript Weight Replicates
12		F1TRS198	BRR F1 transcript weight for replicate 198	F1 Transcript Weight Replicates
12		F1TRS199	BRR F1 transcript weight for replicate 199	F1 Transcript Weight Replicates
12		F1TRS200	BRR F1 transcript weight for replicate 200	F1 Transcript Weight Replicates
12		F2QWT	Second follow-up cross-sectional weight	F2 Questionnaire Weight Replicates
12		F2Q1	BRR F2 questionnaire weight for replicate 1	F2 Questionnaire Weight Replicates
12		F2Q2	BRR F2 questionnaire weight for replicate 2	F2 Questionnaire Weight Replicates
12		F2Q3	BRR F2 questionnaire weight for replicate 3	F2 Questionnaire Weight Replicates
12		F2Q4	BRR F2 questionnaire weight for replicate 4	F2 Questionnaire Weight Replicates
12		F2Q5	BRR F2 questionnaire weight for replicate 5	F2 Questionnaire Weight Replicates
12		F2Q6	BRR F2 questionnaire weight for replicate 6	F2 Questionnaire Weight Replicates
12		F2Q7	BRR F2 questionnaire weight for replicate 7	F2 Questionnaire Weight Replicates
12		F2Q8	BRR F2 questionnaire weight for replicate 8	F2 Questionnaire Weight Replicates
12		F2Q9	BRR F2 questionnaire weight for replicate 9	F2 Questionnaire Weight Replicates
12		F2Q10	BRR F2 questionnaire weight for replicate 10	F2 Questionnaire Weight Replicates
12		F2Q11	BRR F2 questionnaire weight for replicate 11	F2 Questionnaire Weight Replicates
12		F2Q12	BRR F2 questionnaire weight for replicate 12	F2 Questionnaire Weight Replicates
12		F2Q13	BRR F2 questionnaire weight for replicate 13	F2 Questionnaire Weight Replicates
12		F2Q14	BRR F2 questionnaire weight for replicate 14	F2 Questionnaire Weight Replicates
12		F2Q15	BRR F2 questionnaire weight for replicate 15	F2 Questionnaire Weight Replicates

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
12		F2Q16	BRR F2 questionnaire weight for replicate 16	F2 Questionnaire Weight Replicates
12		F2Q17	BRR F2 questionnaire weight for replicate 17	F2 Questionnaire Weight Replicates
12		F2Q18	BRR F2 questionnaire weight for replicate 18	F2 Questionnaire Weight Replicates
12		F2Q19	BRR F2 questionnaire weight for replicate 19	F2 Questionnaire Weight Replicates
12		F2Q20	BRR F2 questionnaire weight for replicate 20	F2 Questionnaire Weight Replicates
12		F2Q21	BRR F2 questionnaire weight for replicate 21	F2 Questionnaire Weight Replicates
12		F2Q22	BRR F2 questionnaire weight for replicate 22	F2 Questionnaire Weight Replicates
12		F2Q23	BRR F2 questionnaire weight for replicate 23	F2 Questionnaire Weight Replicates
12		F2Q24	BRR F2 questionnaire weight for replicate 24	F2 Questionnaire Weight Replicates
12		F2Q25	BRR F2 questionnaire weight for replicate 25	F2 Questionnaire Weight Replicates
12		F2Q26	BRR F2 questionnaire weight for replicate 26	F2 Questionnaire Weight Replicates
12		F2Q27	BRR F2 questionnaire weight for replicate 27	F2 Questionnaire Weight Replicates
12		F2Q28	BRR F2 questionnaire weight for replicate 28	F2 Questionnaire Weight Replicates
12		F2Q29	BRR F2 questionnaire weight for replicate 29	F2 Questionnaire Weight Replicates
12		F2Q30	BRR F2 questionnaire weight for replicate 30	F2 Questionnaire Weight Replicates
12		F2Q31	BRR F2 questionnaire weight for replicate 31	F2 Questionnaire Weight Replicates
12		F2Q32	BRR F2 questionnaire weight for replicate 32	F2 Questionnaire Weight Replicates
12		F2Q33	BRR F2 questionnaire weight for replicate 33	F2 Questionnaire Weight Replicates
12		F2Q34	BRR F2 questionnaire weight for replicate 34	F2 Questionnaire Weight Replicates
12		F2Q35	BRR F2 questionnaire weight for replicate 35	F2 Questionnaire Weight Replicates
12		F2Q36	BRR F2 questionnaire weight for replicate 36	F2 Questionnaire Weight Replicates
12		F2Q37	BRR F2 questionnaire weight for replicate 37	F2 Questionnaire Weight Replicates
12		F2Q38	BRR F2 questionnaire weight for replicate 38	F2 Questionnaire Weight Replicates
12		F2Q39	BRR F2 questionnaire weight for replicate 39	F2 Questionnaire Weight Replicates
12		F2Q40	BRR F2 questionnaire weight for replicate 40	F2 Questionnaire Weight Replicates
12		F2Q41	BRR F2 questionnaire weight for replicate 41	F2 Questionnaire Weight Replicates
12		F2Q42	BRR F2 questionnaire weight for replicate 42	F2 Questionnaire Weight Replicates
12		F2Q43	BRR F2 questionnaire weight for replicate 43	F2 Questionnaire Weight Replicates
12		F2Q44	BRR F2 questionnaire weight for replicate 44	F2 Questionnaire Weight Replicates
12		F2Q45	BRR F2 questionnaire weight for replicate 45	F2 Questionnaire Weight Replicates
12		F2Q46	BRR F2 questionnaire weight for replicate 46	F2 Questionnaire Weight Replicates
12		F2Q47	BRR F2 questionnaire weight for replicate 47	F2 Questionnaire Weight Replicates
12		F2Q48	BRR F2 questionnaire weight for replicate 48	F2 Questionnaire Weight Replicates
12		F2Q49	BRR F2 questionnaire weight for replicate 49	F2 Questionnaire Weight Replicates
12		F2Q50	BRR F2 questionnaire weight for replicate 50	F2 Questionnaire Weight Replicates
12		F2Q51	BRR F2 questionnaire weight for replicate 51	F2 Questionnaire Weight Replicates
12		F2Q52	BRR F2 questionnaire weight for replicate 52	F2 Questionnaire Weight Replicates
12		F2Q53	BRR F2 questionnaire weight for replicate 53	F2 Questionnaire Weight Replicates
12		F2Q54	BRR F2 questionnaire weight for replicate 54	F2 Questionnaire Weight

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
				Replicates
12		F2Q55	BRR F2 questionnaire weight for replicate 55	F2 Questionnaire Weight Replicates
12		F2Q56	BRR F2 questionnaire weight for replicate 56	F2 Questionnaire Weight Replicates
12		F2Q57	BRR F2 questionnaire weight for replicate 57	F2 Questionnaire Weight Replicates
12		F2Q58	BRR F2 questionnaire weight for replicate 58	F2 Questionnaire Weight Replicates
12		F2Q59	BRR F2 questionnaire weight for replicate 59	F2 Questionnaire Weight Replicates
12		F2Q60	BRR F2 questionnaire weight for replicate 60	F2 Questionnaire Weight Replicates
12		F2Q61	BRR F2 questionnaire weight for replicate 61	F2 Questionnaire Weight Replicates
12		F2Q62	BRR F2 questionnaire weight for replicate 62	F2 Questionnaire Weight Replicates
12		F2Q63	BRR F2 questionnaire weight for replicate 63	F2 Questionnaire Weight Replicates
12		F2Q64	BRR F2 questionnaire weight for replicate 64	F2 Questionnaire Weight Replicates
12		F2Q65	BRR F2 questionnaire weight for replicate 65	F2 Questionnaire Weight Replicates
12		F2Q66	BRR F2 questionnaire weight for replicate 66	F2 Questionnaire Weight Replicates
12		F2Q67	BRR F2 questionnaire weight for replicate 67	F2 Questionnaire Weight Replicates
12		F2Q68	BRR F2 questionnaire weight for replicate 68	F2 Questionnaire Weight Replicates
12		F2Q69	BRR F2 questionnaire weight for replicate 69	F2 Questionnaire Weight Replicates
12		F2Q70	BRR F2 questionnaire weight for replicate 70	F2 Questionnaire Weight Replicates
12		F2Q71	BRR F2 questionnaire weight for replicate 71	F2 Questionnaire Weight Replicates
12		F2Q72	BRR F2 questionnaire weight for replicate 72	F2 Questionnaire Weight Replicates
12		F2Q73	BRR F2 questionnaire weight for replicate 73	F2 Questionnaire Weight Replicates
12		F2Q74	BRR F2 questionnaire weight for replicate 74	F2 Questionnaire Weight Replicates
12		F2Q75	BRR F2 questionnaire weight for replicate 75	F2 Questionnaire Weight Replicates
12		F2Q76	BRR F2 questionnaire weight for replicate 76	F2 Questionnaire Weight Replicates
12		F2Q77	BRR F2 questionnaire weight for replicate 77	F2 Questionnaire Weight Replicates
12		F2Q78	BRR F2 questionnaire weight for replicate 78	F2 Questionnaire Weight Replicates
12		F2Q79	BRR F2 questionnaire weight for replicate 79	F2 Questionnaire Weight Replicates
12		F2Q80	BRR F2 questionnaire weight for replicate 80	F2 Questionnaire Weight Replicates
12		F2Q81	BRR F2 questionnaire weight for replicate 81	F2 Questionnaire Weight Replicates
12		F2Q82	BRR F2 questionnaire weight for replicate 82	F2 Questionnaire Weight Replicates
12		F2Q83	BRR F2 questionnaire weight for replicate 83	F2 Questionnaire Weight Replicates
12		F2Q84	BRR F2 questionnaire weight for replicate 84	F2 Questionnaire Weight Replicates
12		F2Q85	BRR F2 questionnaire weight for replicate 85	F2 Questionnaire Weight Replicates
12		F2Q86	BRR F2 questionnaire weight for replicate 86	F2 Questionnaire Weight Replicates
12		F2Q87	BRR F2 questionnaire weight for replicate 87	F2 Questionnaire Weight Replicates
12		F2Q88	BRR F2 questionnaire weight for replicate 88	F2 Questionnaire Weight Replicates
12		F2Q89	BRR F2 questionnaire weight for replicate 89	F2 Questionnaire Weight Replicates
12		F2Q90	BRR F2 questionnaire weight for replicate 90	F2 Questionnaire Weight Replicates
12		F2Q91	BRR F2 questionnaire weight for replicate 91	F2 Questionnaire Weight Replicates
12		F2Q92	BRR F2 questionnaire weight for replicate 92	F2 Questionnaire Weight Replicates

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
12		F2Q93	BRR F2 questionnaire weight for replicate 93	F2 Questionnaire Weight Replicates
12		F2Q94	BRR F2 questionnaire weight for replicate 94	F2 Questionnaire Weight Replicates
12		F2Q95	BRR F2 questionnaire weight for replicate 95	F2 Questionnaire Weight Replicates
12		F2Q96	BRR F2 questionnaire weight for replicate 96	F2 Questionnaire Weight Replicates
12		F2Q97	BRR F2 questionnaire weight for replicate 97	F2 Questionnaire Weight Replicates
12		F2Q98	BRR F2 questionnaire weight for replicate 98	F2 Questionnaire Weight Replicates
12		F2Q99	BRR F2 questionnaire weight for replicate 99	F2 Questionnaire Weight Replicates
12		F2Q100	BRR F2 questionnaire weight for replicate 100	F2 Questionnaire Weight Replicates
12		F2Q101	BRR F2 questionnaire weight for replicate 101	F2 Questionnaire Weight Replicates
12		F2Q102	BRR F2 questionnaire weight for replicate 102	F2 Questionnaire Weight Replicates
12		F2Q103	BRR F2 questionnaire weight for replicate 103	F2 Questionnaire Weight Replicates
12		F2Q104	BRR F2 questionnaire weight for replicate 104	F2 Questionnaire Weight Replicates
12		F2Q105	BRR F2 questionnaire weight for replicate 105	F2 Questionnaire Weight Replicates
12		F2Q106	BRR F2 questionnaire weight for replicate 106	F2 Questionnaire Weight Replicates
12		F2Q107	BRR F2 questionnaire weight for replicate 107	F2 Questionnaire Weight Replicates
12		F2Q108	BRR F2 questionnaire weight for replicate 108	F2 Questionnaire Weight Replicates
12		F2Q109	BRR F2 questionnaire weight for replicate 109	F2 Questionnaire Weight Replicates
12		F2Q110	BRR F2 questionnaire weight for replicate 110	F2 Questionnaire Weight Replicates
12		F2Q111	BRR F2 questionnaire weight for replicate 111	F2 Questionnaire Weight Replicates
12		F2Q112	BRR F2 questionnaire weight for replicate 112	F2 Questionnaire Weight Replicates
12		F2Q113	BRR F2 questionnaire weight for replicate 113	F2 Questionnaire Weight Replicates
12		F2Q114	BRR F2 questionnaire weight for replicate 114	F2 Questionnaire Weight Replicates
12		F2Q115	BRR F2 questionnaire weight for replicate 115	F2 Questionnaire Weight Replicates
12		F2Q116	BRR F2 questionnaire weight for replicate 116	F2 Questionnaire Weight Replicates
12		F2Q117	BRR F2 questionnaire weight for replicate 117	F2 Questionnaire Weight Replicates
12		F2Q118	BRR F2 questionnaire weight for replicate 118	F2 Questionnaire Weight Replicates
12		F2Q119	BRR F2 questionnaire weight for replicate 119	F2 Questionnaire Weight Replicates
12		F2Q120	BRR F2 questionnaire weight for replicate 120	F2 Questionnaire Weight Replicates
12		F2Q121	BRR F2 questionnaire weight for replicate 121	F2 Questionnaire Weight Replicates
12		F2Q122	BRR F2 questionnaire weight for replicate 122	F2 Questionnaire Weight Replicates
12		F2Q123	BRR F2 questionnaire weight for replicate 123	F2 Questionnaire Weight Replicates
12		F2Q124	BRR F2 questionnaire weight for replicate 124	F2 Questionnaire Weight Replicates
12		F2Q125	BRR F2 questionnaire weight for replicate 125	F2 Questionnaire Weight Replicates
12		F2Q126	BRR F2 questionnaire weight for replicate 126	F2 Questionnaire Weight Replicates
12		F2Q127	BRR F2 questionnaire weight for replicate 127	F2 Questionnaire Weight Replicates
12		F2Q128	BRR F2 questionnaire weight for replicate 128	F2 Questionnaire Weight Replicates
12		F2Q129	BRR F2 questionnaire weight for replicate 129	F2 Questionnaire Weight Replicates
12		F2Q130	BRR F2 questionnaire weight for replicate 130	F2 Questionnaire Weight Replicates
12		F2Q131	BRR F2 questionnaire weight for replicate 131	F2 Questionnaire Weight

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
				Replicates
12		F2Q132	BRR F2 questionnaire weight for replicate 132	F2 Questionnaire Weight Replicates
12		F2Q133	BRR F2 questionnaire weight for replicate 133	F2 Questionnaire Weight Replicates
12		F2Q134	BRR F2 questionnaire weight for replicate 134	F2 Questionnaire Weight Replicates
12		F2Q135	BRR F2 questionnaire weight for replicate 135	F2 Questionnaire Weight Replicates
12		F2Q136	BRR F2 questionnaire weight for replicate 136	F2 Questionnaire Weight Replicates
12		F2Q137	BRR F2 questionnaire weight for replicate 137	F2 Questionnaire Weight Replicates
12		F2Q138	BRR F2 questionnaire weight for replicate 138	F2 Questionnaire Weight Replicates
12		F2Q139	BRR F2 questionnaire weight for replicate 139	F2 Questionnaire Weight Replicates
12		F2Q140	BRR F2 questionnaire weight for replicate 140	F2 Questionnaire Weight Replicates
12		F2Q141	BRR F2 questionnaire weight for replicate 141	F2 Questionnaire Weight Replicates
12		F2Q142	BRR F2 questionnaire weight for replicate 142	F2 Questionnaire Weight Replicates
12		F2Q143	BRR F2 questionnaire weight for replicate 143	F2 Questionnaire Weight Replicates
12		F2Q144	BRR F2 questionnaire weight for replicate 144	F2 Questionnaire Weight Replicates
12		F2Q145	BRR F2 questionnaire weight for replicate 145	F2 Questionnaire Weight Replicates
12		F2Q146	BRR F2 questionnaire weight for replicate 146	F2 Questionnaire Weight Replicates
12		F2Q147	BRR F2 questionnaire weight for replicate 147	F2 Questionnaire Weight Replicates
12		F2Q148	BRR F2 questionnaire weight for replicate 148	F2 Questionnaire Weight Replicates
12		F2Q149	BRR F2 questionnaire weight for replicate 149	F2 Questionnaire Weight Replicates
12		F2Q150	BRR F2 questionnaire weight for replicate 150	F2 Questionnaire Weight Replicates
12		F2Q151	BRR F2 questionnaire weight for replicate 151	F2 Questionnaire Weight Replicates
12		F2Q152	BRR F2 questionnaire weight for replicate 152	F2 Questionnaire Weight Replicates
12		F2Q153	BRR F2 questionnaire weight for replicate 153	F2 Questionnaire Weight Replicates
12		F2Q154	BRR F2 questionnaire weight for replicate 154	F2 Questionnaire Weight Replicates
12		F2Q155	BRR F2 questionnaire weight for replicate 155	F2 Questionnaire Weight Replicates
12		F2Q156	BRR F2 questionnaire weight for replicate 156	F2 Questionnaire Weight Replicates
12		F2Q157	BRR F2 questionnaire weight for replicate 157	F2 Questionnaire Weight Replicates
12		F2Q158	BRR F2 questionnaire weight for replicate 158	F2 Questionnaire Weight Replicates
12		F2Q159	BRR F2 questionnaire weight for replicate 159	F2 Questionnaire Weight Replicates
12		F2Q160	BRR F2 questionnaire weight for replicate 160	F2 Questionnaire Weight Replicates
12		F2Q161	BRR F2 questionnaire weight for replicate 161	F2 Questionnaire Weight Replicates
12		F2Q162	BRR F2 questionnaire weight for replicate 162	F2 Questionnaire Weight Replicates
12		F2Q163	BRR F2 questionnaire weight for replicate 163	F2 Questionnaire Weight Replicates
12		F2Q164	BRR F2 questionnaire weight for replicate 164	F2 Questionnaire Weight Replicates
12		F2Q165	BRR F2 questionnaire weight for replicate 165	F2 Questionnaire Weight Replicates
12		F2Q166	BRR F2 questionnaire weight for replicate 166	F2 Questionnaire Weight Replicates
12		F2Q167	BRR F2 questionnaire weight for replicate 167	F2 Questionnaire Weight Replicates
12		F2Q168	BRR F2 questionnaire weight for replicate 168	F2 Questionnaire Weight Replicates
12		F2Q169	BRR F2 questionnaire weight for replicate 169	F2 Questionnaire Weight Replicates

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
12		F2Q170	BRR F2 questionnaire weight for replicate 170	F2 Questionnaire Weight Replicates
12		F2Q171	BRR F2 questionnaire weight for replicate 171	F2 Questionnaire Weight Replicates
12		F2Q172	BRR F2 questionnaire weight for replicate 172	F2 Questionnaire Weight Replicates
12		F2Q173	BRR F2 questionnaire weight for replicate 173	F2 Questionnaire Weight Replicates
12		F2Q174	BRR F2 questionnaire weight for replicate 174	F2 Questionnaire Weight Replicates
12		F2Q175	BRR F2 questionnaire weight for replicate 175	F2 Questionnaire Weight Replicates
12		F2Q176	BRR F2 questionnaire weight for replicate 176	F2 Questionnaire Weight Replicates
12		F2Q177	BRR F2 questionnaire weight for replicate 177	F2 Questionnaire Weight Replicates
12		F2Q178	BRR F2 questionnaire weight for replicate 178	F2 Questionnaire Weight Replicates
12		F2Q179	BRR F2 questionnaire weight for replicate 179	F2 Questionnaire Weight Replicates
12		F2Q180	BRR F2 questionnaire weight for replicate 180	F2 Questionnaire Weight Replicates
12		F2Q181	BRR F2 questionnaire weight for replicate 181	F2 Questionnaire Weight Replicates
12		F2Q182	BRR F2 questionnaire weight for replicate 182	F2 Questionnaire Weight Replicates
12		F2Q183	BRR F2 questionnaire weight for replicate 183	F2 Questionnaire Weight Replicates
12		F2Q184	BRR F2 questionnaire weight for replicate 184	F2 Questionnaire Weight Replicates
12		F2Q185	BRR F2 questionnaire weight for replicate 185	F2 Questionnaire Weight Replicates
12		F2Q186	BRR F2 questionnaire weight for replicate 186	F2 Questionnaire Weight Replicates
12		F2Q187	BRR F2 questionnaire weight for replicate 187	F2 Questionnaire Weight Replicates
12		F2Q188	BRR F2 questionnaire weight for replicate 188	F2 Questionnaire Weight Replicates
12		F2Q189	BRR F2 questionnaire weight for replicate 189	F2 Questionnaire Weight Replicates
12		F2Q190	BRR F2 questionnaire weight for replicate 190	F2 Questionnaire Weight Replicates
12		F2Q191	BRR F2 questionnaire weight for replicate 191	F2 Questionnaire Weight Replicates
12		F2Q192	BRR F2 questionnaire weight for replicate 192	F2 Questionnaire Weight Replicates
12		F2Q193	BRR F2 questionnaire weight for replicate 193	F2 Questionnaire Weight Replicates
12		F2Q194	BRR F2 questionnaire weight for replicate 194	F2 Questionnaire Weight Replicates
12		F2Q195	BRR F2 questionnaire weight for replicate 195	F2 Questionnaire Weight Replicates
12		F2Q196	BRR F2 questionnaire weight for replicate 196	F2 Questionnaire Weight Replicates
12		F2Q197	BRR F2 questionnaire weight for replicate 197	F2 Questionnaire Weight Replicates
12		F2Q198	BRR F2 questionnaire weight for replicate 198	F2 Questionnaire Weight Replicates
12		F2Q199	BRR F2 questionnaire weight for replicate 199	F2 Questionnaire Weight Replicates
12		F2Q200	BRR F2 questionnaire weight for replicate 200	F2 Questionnaire Weight Replicates
12		F2QTSCWT	Second follow-up transcript cross-sectional weight	F2 Transcript Weight Replicates
12		F2TRS1	BRR F2 transcript weight for replicate 1	F2 Transcript Weight Replicates
12		F2TRS2	BRR F2 transcript weight for replicate 2	F2 Transcript Weight Replicates
12		F2TRS3	BRR F2 transcript weight for replicate 3	F2 Transcript Weight Replicates
12		F2TRS4	BRR F2 transcript weight for replicate 4	F2 Transcript Weight Replicates
12		F2TRS5	BRR F2 transcript weight for replicate 5	F2 Transcript Weight Replicates
12		F2TRS6	BRR F2 transcript weight for replicate 6	F2 Transcript Weight Replicates
12		F2TRS7	BRR F2 transcript weight for replicate 7	F2 Transcript Weight Replicates
12		F2TRS8	BRR F2 transcript weight for replicate 8	F2 Transcript Weight Replicates











*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
12		F2BYWT	Second follow-up base year panel weight	F2 and BY Panel Weight Replicates
12		F2BYP1	BRR F2 and BY (2006 and 2002) panel weight for replicate 1	F2 and BY Panel Weight Replicates
12		F2BYP2	BRR F2 and BY (2006 and 2002) panel weight for replicate 2	F2 and BY Panel Weight Replicates
12		F2BYP3	BRR F2 and BY (2006 and 2002) panel weight for replicate 3	F2 and BY Panel Weight Replicates
12		F2BYP4	BRR F2 and BY (2006 and 2002) panel weight for replicate 4	F2 and BY Panel Weight Replicates
12		F2BYP5	BRR F2 and BY (2006 and 2002) panel weight for replicate 5	F2 and BY Panel Weight Replicates
12		F2BYP6	BRR F2 and BY (2006 and 2002) panel weight for replicate 6	F2 and BY Panel Weight Replicates
12		F2BYP7	BRR F2 and BY (2006 and 2002) panel weight for replicate 7	F2 and BY Panel Weight Replicates
12		F2BYP8	BRR F2 and BY (2006 and 2002) panel weight for replicate 8	F2 and BY Panel Weight Replicates
12		F2BYP9	BRR F2 and BY (2006 and 2002) panel weight for replicate 9	F2 and BY Panel Weight Replicates
12		F2BYP10	BRR F2 and BY (2006 and 2002) panel weight for replicate 10	F2 and BY Panel Weight Replicates
12		F2BYP11	BRR F2 and BY (2006 and 2002) panel weight for replicate 11	F2 and BY Panel Weight Replicates
12		F2BYP12	BRR F2 and BY (2006 and 2002) panel weight for replicate 12	F2 and BY Panel Weight Replicates
12		F2BYP13	BRR F2 and BY (2006 and 2002) panel weight for replicate 13	F2 and BY Panel Weight Replicates
12		F2BYP14	BRR F2 and BY (2006 and 2002) panel weight for replicate 14	F2 and BY Panel Weight Replicates
12		F2BYP15	BRR F2 and BY (2006 and 2002) panel weight for replicate 15	F2 and BY Panel Weight Replicates
12		F2BYP16	BRR F2 and BY (2006 and 2002) panel weight for replicate 16	F2 and BY Panel Weight Replicates
12		F2BYP17	BRR F2 and BY (2006 and 2002) panel weight for replicate 17	F2 and BY Panel Weight Replicates
12		F2BYP18	BRR F2 and BY (2006 and 2002) panel weight for replicate 18	F2 and BY Panel Weight Replicates
12		F2BYP19	BRR F2 and BY (2006 and 2002) panel weight for replicate 19	F2 and BY Panel Weight Replicates
12		F2BYP20	BRR F2 and BY (2006 and 2002) panel weight for replicate 20	F2 and BY Panel Weight Replicates
12		F2BYP21	BRR F2 and BY (2006 and 2002) panel weight for replicate 21	F2 and BY Panel Weight Replicates
12		F2BYP22	BRR F2 and BY (2006 and 2002) panel weight for replicate 22	F2 and BY Panel Weight Replicates
12		F2BYP23	BRR F2 and BY (2006 and 2002) panel weight for replicate 23	F2 and BY Panel Weight Replicates
12		F2BYP24	BRR F2 and BY (2006 and 2002) panel weight for replicate 24	F2 and BY Panel Weight Replicates
12		F2BYP25	BRR F2 and BY (2006 and 2002) panel weight for replicate 25	F2 and BY Panel Weight Replicates
12		F2BYP26	BRR F2 and BY (2006 and 2002) panel weight for replicate 26	F2 and BY Panel Weight Replicates
12		F2BYP27	BRR F2 and BY (2006 and 2002) panel weight for replicate 27	F2 and BY Panel Weight Replicates
12		F2BYP28	BRR F2 and BY (2006 and 2002) panel weight for replicate 28	F2 and BY Panel Weight Replicates
12		F2BYP29	BRR F2 and BY (2006 and 2002) panel weight for replicate 29	F2 and BY Panel Weight Replicates
12		F2BYP30	BRR F2 and BY (2006 and 2002) panel weight for replicate 30	F2 and BY Panel Weight Replicates
12		F2BYP31	BRR F2 and BY (2006 and 2002) panel weight for replicate 31	F2 and BY Panel Weight Replicates
12		F2BYP32	BRR F2 and BY (2006 and 2002) panel weight for replicate 32	F2 and BY Panel Weight Replicates
12		F2BYP33	BRR F2 and BY (2006 and 2002) panel weight for replicate 33	F2 and BY Panel Weight Replicates
12		F2BYP34	BRR F2 and BY (2006 and 2002) panel weight for replicate 34	F2 and BY Panel Weight Replicates
12		F2BYP35	BRR F2 and BY (2006 and 2002) panel weight for replicate 35	F2 and BY Panel Weight Replicates
12		F2BYP36	BRR F2 and BY (2006 and 2002) panel weight for replicate 36	F2 and BY Panel Weight Replicates
12		F2BYP37	BRR F2 and BY (2006 and 2002) panel weight for replicate 37	F2 and BY Panel Weight Replicates
12		F2BYP38	BRR F2 and BY (2006 and 2002) panel weight for replicate 38	F2 and BY Panel Weight









Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
				Replicates
12		F2BYP193	BRR F2 and BY (2006 and 2002) panel weight for replicate 193	F2 and BY Panel Weight Replicates
12		F2BYP194	BRR F2 and BY (2006 and 2002) panel weight for replicate 194	F2 and BY Panel Weight Replicates
12		F2BYP195	BRR F2 and BY (2006 and 2002) panel weight for replicate 195	F2 and BY Panel Weight Replicates
12		F2BYP196	BRR F2 and BY (2006 and 2002) panel weight for replicate 196	F2 and BY Panel Weight Replicates
12		F2BYP197	BRR F2 and BY (2006 and 2002) panel weight for replicate 197	F2 and BY Panel Weight Replicates
12		F2BYP198	BRR F2 and BY (2006 and 2002) panel weight for replicate 198	F2 and BY Panel Weight Replicates
12		F2BYP199	BRR F2 and BY (2006 and 2002) panel weight for replicate 199	F2 and BY Panel Weight Replicates
12		F2BYP200	BRR F2 and BY (2006 and 2002) panel weight for replicate 200	F2 and BY Panel Weight Replicates
12		F2F1WT	Second follow-up first follow-up panel weight	F2 and F1 Panel Weight Replicates
12		F2F1P1	BRR F2 and F1 (2006 and 2004) panel weight for replicate 1	F2 and F1 Panel Weight Replicates
12		F2F1P2	BRR F2 and F1 (2006 and 2004) panel weight for replicate 2	F2 and F1 Panel Weight Replicates
12		F2F1P3	BRR F2 and F1 (2006 and 2004) panel weight for replicate 3	F2 and F1 Panel Weight Replicates
12		F2F1P4	BRR F2 and F1 (2006 and 2004) panel weight for replicate 4	F2 and F1 Panel Weight Replicates
12		F2F1P5	BRR F2 and F1 (2006 and 2004) panel weight for replicate 5	F2 and F1 Panel Weight Replicates
12		F2F1P6	BRR F2 and F1 (2006 and 2004) panel weight for replicate 6	F2 and F1 Panel Weight Replicates
12		F2F1P7	BRR F2 and F1 (2006 and 2004) panel weight for replicate 7	F2 and F1 Panel Weight Replicates
12		F2F1P8	BRR F2 and F1 (2006 and 2004) panel weight for replicate 8	F2 and F1 Panel Weight Replicates
12		F2F1P9	BRR F2 and F1 (2006 and 2004) panel weight for replicate 9	F2 and F1 Panel Weight Replicates
12		F2F1P10	BRR F2 and F1 (2006 and 2004) panel weight for replicate 10	F2 and F1 Panel Weight Replicates
12		F2F1P11	BRR F2 and F1 (2006 and 2004) panel weight for replicate 11	F2 and F1 Panel Weight Replicates
12		F2F1P12	BRR F2 and F1 (2006 and 2004) panel weight for replicate 12	F2 and F1 Panel Weight Replicates
12		F2F1P13	BRR F2 and F1 (2006 and 2004) panel weight for replicate 13	F2 and F1 Panel Weight Replicates
12		F2F1P14	BRR F2 and F1 (2006 and 2004) panel weight for replicate 14	F2 and F1 Panel Weight Replicates
12		F2F1P15	BRR F2 and F1 (2006 and 2004) panel weight for replicate 15	F2 and F1 Panel Weight Replicates
12		F2F1P16	BRR F2 and F1 (2006 and 2004) panel weight for replicate 16	F2 and F1 Panel Weight Replicates
12		F2F1P17	BRR F2 and F1 (2006 and 2004) panel weight for replicate 17	F2 and F1 Panel Weight Replicates
12		F2F1P18	BRR F2 and F1 (2006 and 2004) panel weight for replicate 18	F2 and F1 Panel Weight Replicates
12		F2F1P19	BRR F2 and F1 (2006 and 2004) panel weight for replicate 19	F2 and F1 Panel Weight Replicates
12		F2F1P20	BRR F2 and F1 (2006 and 2004) panel weight for replicate 20	F2 and F1 Panel Weight Replicates
12		F2F1P21	BRR F2 and F1 (2006 and 2004) panel weight for replicate 21	F2 and F1 Panel Weight Replicates
12		F2F1P22	BRR F2 and F1 (2006 and 2004) panel weight for replicate 22	F2 and F1 Panel Weight Replicates
12		F2F1P23	BRR F2 and F1 (2006 and 2004) panel weight for replicate 23	F2 and F1 Panel Weight Replicates
12		F2F1P24	BRR F2 and F1 (2006 and 2004) panel weight for replicate 24	F2 and F1 Panel Weight Replicates
12		F2F1P25	BRR F2 and F1 (2006 and 2004) panel weight for replicate 25	F2 and F1 Panel Weight Replicates
12		F2F1P26	BRR F2 and F1 (2006 and 2004) panel weight for replicate 26	F2 and F1 Panel Weight Replicates
12		F2F1P27	BRR F2 and F1 (2006 and 2004) panel weight for replicate 27	F2 and F1 Panel Weight Replicates
12		F2F1P28	BRR F2 and F1 (2006 and 2004) panel weight for replicate 28	F2 and F1 Panel Weight Replicates
12		F2F1P29	BRR F2 and F1 (2006 and 2004) panel weight for replicate 29	F2 and F1 Panel Weight Replicates











*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
12		F2F1P184	BRR F2 and F1 (2006 and 2004) panel weight for replicate 184	F2 and F1 Panel Weight Replicates
12		F2F1P185	BRR F2 and F1 (2006 and 2004) panel weight for replicate 185	F2 and F1 Panel Weight Replicates
12		F2F1P186	BRR F2 and F1 (2006 and 2004) panel weight for replicate 186	F2 and F1 Panel Weight Replicates
12		F2F1P187	BRR F2 and F1 (2006 and 2004) panel weight for replicate 187	F2 and F1 Panel Weight Replicates
12		F2F1P188	BRR F2 and F1 (2006 and 2004) panel weight for replicate 188	F2 and F1 Panel Weight Replicates
12		F2F1P189	BRR F2 and F1 (2006 and 2004) panel weight for replicate 189	F2 and F1 Panel Weight Replicates
12		F2F1P190	BRR F2 and F1 (2006 and 2004) panel weight for replicate 190	F2 and F1 Panel Weight Replicates
12		F2F1P191	BRR F2 and F1 (2006 and 2004) panel weight for replicate 191	F2 and F1 Panel Weight Replicates
12		F2F1P192	BRR F2 and F1 (2006 and 2004) panel weight for replicate 192	F2 and F1 Panel Weight Replicates
12		F2F1P193	BRR F2 and F1 (2006 and 2004) panel weight for replicate 193	F2 and F1 Panel Weight Replicates
12		F2F1P194	BRR F2 and F1 (2006 and 2004) panel weight for replicate 194	F2 and F1 Panel Weight Replicates
12		F2F1P195	BRR F2 and F1 (2006 and 2004) panel weight for replicate 195	F2 and F1 Panel Weight Replicates
12		F2F1P196	BRR F2 and F1 (2006 and 2004) panel weight for replicate 196	F2 and F1 Panel Weight Replicates
12		F2F1P197	BRR F2 and F1 (2006 and 2004) panel weight for replicate 197	F2 and F1 Panel Weight Replicates
12		F2F1P198	BRR F2 and F1 (2006 and 2004) panel weight for replicate 198	F2 and F1 Panel Weight Replicates
12		F2F1P199	BRR F2 and F1 (2006 and 2004) panel weight for replicate 199	F2 and F1 Panel Weight Replicates
12		F2F1P200	BRR F2 and F1 (2006 and 2004) panel weight for replicate 200	F2 and F1 Panel Weight Replicates
13		Sch_ID	School ID	School Weight Replicates
13		BYSCHWT	School weight	School Weight Replicates
13		BYSCH1	BRR school weight for replicate 1	School Weight Replicates
13		BYSCH2	BRR school weight for replicate 2	School Weight Replicates
13		BYSCH3	BRR school weight for replicate 3	School Weight Replicates
13		BYSCH4	BRR school weight for replicate 4	School Weight Replicates
13		BYSCH5	BRR school weight for replicate 5	School Weight Replicates
13		BYSCH6	BRR school weight for replicate 6	School Weight Replicates
13		BYSCH7	BRR school weight for replicate 7	School Weight Replicates
13		BYSCH8	BRR school weight for replicate 8	School Weight Replicates
13		BYSCH9	BRR school weight for replicate 9	School Weight Replicates
13		BYSCH10	BRR school weight for replicate 10	School Weight Replicates
13		BYSCH11	BRR school weight for replicate 11	School Weight Replicates
13		BYSCH12	BRR school weight for replicate 12	School Weight Replicates
13		BYSCH13	BRR school weight for replicate 13	School Weight Replicates
13		BYSCH14	BRR school weight for replicate 14	School Weight Replicates
13		BYSCH15	BRR school weight for replicate 15	School Weight Replicates
13		BYSCH16	BRR school weight for replicate 16	School Weight Replicates
13		BYSCH17	BRR school weight for replicate 17	School Weight Replicates
13		BYSCH18	BRR school weight for replicate 18	School Weight Replicates
13		BYSCH19	BRR school weight for replicate 19	School Weight Replicates
13		BYSCH20	BRR school weight for replicate 20	School Weight Replicates
13		BYSCH21	BRR school weight for replicate 21	School Weight Replicates
13		BYSCH22	BRR school weight for replicate 22	School Weight Replicates
13		BYSCH23	BRR school weight for replicate 23	School Weight Replicates
13		BYSCH24	BRR school weight for replicate 24	School Weight Replicates
13		BYSCH25	BRR school weight for replicate 25	School Weight Replicates

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
13		BYSCH26	BRR school weight for replicate 26	School Weight Replicates
13		BYSCH27	BRR school weight for replicate 27	School Weight Replicates
13		BYSCH28	BRR school weight for replicate 28	School Weight Replicates
13		BYSCH29	BRR school weight for replicate 29	School Weight Replicates
13		BYSCH30	BRR school weight for replicate 30	School Weight Replicates
13		BYSCH31	BRR school weight for replicate 31	School Weight Replicates
13		BYSCH32	BRR school weight for replicate 32	School Weight Replicates
13		BYSCH33	BRR school weight for replicate 33	School Weight Replicates
13		BYSCH34	BRR school weight for replicate 34	School Weight Replicates
13		BYSCH35	BRR school weight for replicate 35	School Weight Replicates
13		BYSCH36	BRR school weight for replicate 36	School Weight Replicates
13		BYSCH37	BRR school weight for replicate 37	School Weight Replicates
13		BYSCH38	BRR school weight for replicate 38	School Weight Replicates
13		BYSCH39	BRR school weight for replicate 39	School Weight Replicates
13		BYSCH40	BRR school weight for replicate 40	School Weight Replicates
13		BYSCH41	BRR school weight for replicate 41	School Weight Replicates
13		BYSCH42	BRR school weight for replicate 42	School Weight Replicates
13		BYSCH43	BRR school weight for replicate 43	School Weight Replicates
13		BYSCH44	BRR school weight for replicate 44	School Weight Replicates
13		BYSCH45	BRR school weight for replicate 45	School Weight Replicates
13		BYSCH46	BRR school weight for replicate 46	School Weight Replicates
13		BYSCH47	BRR school weight for replicate 47	School Weight Replicates
13		BYSCH48	BRR school weight for replicate 48	School Weight Replicates
13		BYSCH49	BRR school weight for replicate 49	School Weight Replicates
13		BYSCH50	BRR school weight for replicate 50	School Weight Replicates
13		BYSCH51	BRR school weight for replicate 51	School Weight Replicates
13		BYSCH52	BRR school weight for replicate 52	School Weight Replicates
13		BYSCH53	BRR school weight for replicate 53	School Weight Replicates
13		BYSCH54	BRR school weight for replicate 54	School Weight Replicates
13		BYSCH55	BRR school weight for replicate 55	School Weight Replicates
13		BYSCH56	BRR school weight for replicate 56	School Weight Replicates
13		BYSCH57	BRR school weight for replicate 57	School Weight Replicates
13		BYSCH58	BRR school weight for replicate 58	School Weight Replicates
13		BYSCH59	BRR school weight for replicate 59	School Weight Replicates
13		BYSCH60	BRR school weight for replicate 60	School Weight Replicates
13		BYSCH61	BRR school weight for replicate 61	School Weight Replicates
13		BYSCH62	BRR school weight for replicate 62	School Weight Replicates
13		BYSCH63	BRR school weight for replicate 63	School Weight Replicates
13		BYSCH64	BRR school weight for replicate 64	School Weight Replicates
13		BYSCH65	BRR school weight for replicate 65	School Weight Replicates
13		BYSCH66	BRR school weight for replicate 66	School Weight Replicates
13		BYSCH67	BRR school weight for replicate 67	School Weight Replicates
13		BYSCH68	BRR school weight for replicate 68	School Weight Replicates
13		BYSCH69	BRR school weight for replicate 69	School Weight Replicates
13		BYSCH70	BRR school weight for replicate 70	School Weight Replicates
13		BYSCH71	BRR school weight for replicate 71	School Weight Replicates
13		BYSCH72	BRR school weight for replicate 72	School Weight Replicates
13		BYSCH73	BRR school weight for replicate 73	School Weight Replicates

*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
13		BYSCH74	BRR school weight for replicate 74	School Weight Replicates
13		BYSCH75	BRR school weight for replicate 75	School Weight Replicates
13		BYSCH76	BRR school weight for replicate 76	School Weight Replicates
13		BYSCH77	BRR school weight for replicate 77	School Weight Replicates
13		BYSCH78	BRR school weight for replicate 78	School Weight Replicates
13		BYSCH79	BRR school weight for replicate 79	School Weight Replicates
13		BYSCH80	BRR school weight for replicate 80	School Weight Replicates
13		BYSCH81	BRR school weight for replicate 81	School Weight Replicates
13		BYSCH82	BRR school weight for replicate 82	School Weight Replicates
13		BYSCH83	BRR school weight for replicate 83	School Weight Replicates
13		BYSCH84	BRR school weight for replicate 84	School Weight Replicates
13		BYSCH85	BRR school weight for replicate 85	School Weight Replicates
13		BYSCH86	BRR school weight for replicate 86	School Weight Replicates
13		BYSCH87	BRR school weight for replicate 87	School Weight Replicates
13		BYSCH88	BRR school weight for replicate 88	School Weight Replicates
13		BYSCH89	BRR school weight for replicate 89	School Weight Replicates
13		BYSCH90	BRR school weight for replicate 90	School Weight Replicates
13		BYSCH91	BRR school weight for replicate 91	School Weight Replicates
13		BYSCH92	BRR school weight for replicate 92	School Weight Replicates
13		BYSCH93	BRR school weight for replicate 93	School Weight Replicates
13		BYSCH94	BRR school weight for replicate 94	School Weight Replicates
13		BYSCH95	BRR school weight for replicate 95	School Weight Replicates
13		BYSCH96	BRR school weight for replicate 96	School Weight Replicates
13		BYSCH97	BRR school weight for replicate 97	School Weight Replicates
13		BYSCH98	BRR school weight for replicate 98	School Weight Replicates
13		BYSCH99	BRR school weight for replicate 99	School Weight Replicates
13		BYSCH100	BRR school weight for replicate 100	School Weight Replicates
13		BYSCH101	BRR school weight for replicate 101	School Weight Replicates
13		BYSCH102	BRR school weight for replicate 102	School Weight Replicates
13		BYSCH103	BRR school weight for replicate 103	School Weight Replicates
13		BYSCH104	BRR school weight for replicate 104	School Weight Replicates
13		BYSCH105	BRR school weight for replicate 105	School Weight Replicates
13		BYSCH106	BRR school weight for replicate 106	School Weight Replicates
13		BYSCH107	BRR school weight for replicate 107	School Weight Replicates
13		BYSCH108	BRR school weight for replicate 108	School Weight Replicates
13		BYSCH109	BRR school weight for replicate 109	School Weight Replicates
13		BYSCH110	BRR school weight for replicate 110	School Weight Replicates
13		BYSCH111	BRR school weight for replicate 111	School Weight Replicates
13		BYSCH112	BRR school weight for replicate 112	School Weight Replicates
13		BYSCH113	BRR school weight for replicate 113	School Weight Replicates
13		BYSCH114	BRR school weight for replicate 114	School Weight Replicates
13		BYSCH115	BRR school weight for replicate 115	School Weight Replicates
13		BYSCH116	BRR school weight for replicate 116	School Weight Replicates
13		BYSCH117	BRR school weight for replicate 117	School Weight Replicates
13		BYSCH118	BRR school weight for replicate 118	School Weight Replicates
13		BYSCH119	BRR school weight for replicate 119	School Weight Replicates
13		BYSCH120	BRR school weight for replicate 120	School Weight Replicates
13		BYSCH121	BRR school weight for replicate 121	School Weight Replicates

Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)

FileNumber	DASFlag	VariableName	VariableLabel	SectionDescription
13		BYSCH122	BRR school weight for replicate 122	School Weight Replicates
13		BYSCH123	BRR school weight for replicate 123	School Weight Replicates
13		BYSCH124	BRR school weight for replicate 124	School Weight Replicates
13		BYSCH125	BRR school weight for replicate 125	School Weight Replicates
13		BYSCH126	BRR school weight for replicate 126	School Weight Replicates
13		BYSCH127	BRR school weight for replicate 127	School Weight Replicates
13		BYSCH128	BRR school weight for replicate 128	School Weight Replicates
13		BYSCH129	BRR school weight for replicate 129	School Weight Replicates
13		BYSCH130	BRR school weight for replicate 130	School Weight Replicates
13		BYSCH131	BRR school weight for replicate 131	School Weight Replicates
13		BYSCH132	BRR school weight for replicate 132	School Weight Replicates
13		BYSCH133	BRR school weight for replicate 133	School Weight Replicates
13		BYSCH134	BRR school weight for replicate 134	School Weight Replicates
13		BYSCH135	BRR school weight for replicate 135	School Weight Replicates
13		BYSCH136	BRR school weight for replicate 136	School Weight Replicates
13		BYSCH137	BRR school weight for replicate 137	School Weight Replicates
13		BYSCH138	BRR school weight for replicate 138	School Weight Replicates
13		BYSCH139	BRR school weight for replicate 139	School Weight Replicates
13		BYSCH140	BRR school weight for replicate 140	School Weight Replicates
13		BYSCH141	BRR school weight for replicate 141	School Weight Replicates
13		BYSCH142	BRR school weight for replicate 142	School Weight Replicates
13		BYSCH143	BRR school weight for replicate 143	School Weight Replicates
13		BYSCH144	BRR school weight for replicate 144	School Weight Replicates
13		BYSCH145	BRR school weight for replicate 145	School Weight Replicates
13		BYSCH146	BRR school weight for replicate 146	School Weight Replicates
13		BYSCH147	BRR school weight for replicate 147	School Weight Replicates
13		BYSCH148	BRR school weight for replicate 148	School Weight Replicates
13		BYSCH149	BRR school weight for replicate 149	School Weight Replicates
13		BYSCH150	BRR school weight for replicate 150	School Weight Replicates
13		BYSCH151	BRR school weight for replicate 151	School Weight Replicates
13		BYSCH152	BRR school weight for replicate 152	School Weight Replicates
13		BYSCH153	BRR school weight for replicate 153	School Weight Replicates
13		BYSCH154	BRR school weight for replicate 154	School Weight Replicates
13		BYSCH155	BRR school weight for replicate 155	School Weight Replicates
13		BYSCH156	BRR school weight for replicate 156	School Weight Replicates
13		BYSCH157	BRR school weight for replicate 157	School Weight Replicates
13		BYSCH158	BRR school weight for replicate 158	School Weight Replicates
13		BYSCH159	BRR school weight for replicate 159	School Weight Replicates
13		BYSCH160	BRR school weight for replicate 160	School Weight Replicates
13		BYSCH161	BRR school weight for replicate 161	School Weight Replicates
13		BYSCH162	BRR school weight for replicate 162	School Weight Replicates
13		BYSCH163	BRR school weight for replicate 163	School Weight Replicates
13		BYSCH164	BRR school weight for replicate 164	School Weight Replicates
13		BYSCH165	BRR school weight for replicate 165	School Weight Replicates
13		BYSCH166	BRR school weight for replicate 166	School Weight Replicates
13		BYSCH167	BRR school weight for replicate 167	School Weight Replicates
13		BYSCH168	BRR school weight for replicate 168	School Weight Replicates
13		BYSCH169	BRR school weight for replicate 169	School Weight Replicates



*Appendix L. Variable List for the ELS:2002 Electronic Codebook (ECB) and Data Analysis System (DAS)*

<b>FileNumber</b>	<b>DASFlag</b>	<b>VariableName</b>	<b>VariableLabel</b>	<b>SectionDescription</b>
13		BYSCH170	BRR school weight for replicate 170	School Weight Replicates
13		BYSCH171	BRR school weight for replicate 171	School Weight Replicates
13		BYSCH172	BRR school weight for replicate 172	School Weight Replicates
13		BYSCH173	BRR school weight for replicate 173	School Weight Replicates
13		BYSCH174	BRR school weight for replicate 174	School Weight Replicates
13		BYSCH175	BRR school weight for replicate 175	School Weight Replicates
13		BYSCH176	BRR school weight for replicate 176	School Weight Replicates
13		BYSCH177	BRR school weight for replicate 177	School Weight Replicates
13		BYSCH178	BRR school weight for replicate 178	School Weight Replicates
13		BYSCH179	BRR school weight for replicate 179	School Weight Replicates
13		BYSCH180	BRR school weight for replicate 180	School Weight Replicates
13		BYSCH181	BRR school weight for replicate 181	School Weight Replicates
13		BYSCH182	BRR school weight for replicate 182	School Weight Replicates
13		BYSCH183	BRR school weight for replicate 183	School Weight Replicates
13		BYSCH184	BRR school weight for replicate 184	School Weight Replicates
13		BYSCH185	BRR school weight for replicate 185	School Weight Replicates
13		BYSCH186	BRR school weight for replicate 186	School Weight Replicates
13		BYSCH187	BRR school weight for replicate 187	School Weight Replicates
13		BYSCH188	BRR school weight for replicate 188	School Weight Replicates
13		BYSCH189	BRR school weight for replicate 189	School Weight Replicates
13		BYSCH190	BRR school weight for replicate 190	School Weight Replicates
13		BYSCH191	BRR school weight for replicate 191	School Weight Replicates
13		BYSCH192	BRR school weight for replicate 192	School Weight Replicates
13		BYSCH193	BRR school weight for replicate 193	School Weight Replicates
13		BYSCH194	BRR school weight for replicate 194	School Weight Replicates
13		BYSCH195	BRR school weight for replicate 195	School Weight Replicates
13		BYSCH196	BRR school weight for replicate 196	School Weight Replicates
13		BYSCH197	BRR school weight for replicate 197	School Weight Replicates
13		BYSCH198	BRR school weight for replicate 198	School Weight Replicates
13		BYSCH199	BRR school weight for replicate 199	School Weight Replicates
13		BYSCH200	BRR school weight for replicate 200	School Weight Replicates

# **Appendix M**

## **Second Follow-up Composite Variables**

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A number of composite variables (also called derived, constructed, or created variables) were generated in the ELS:2002 second follow-up to facilitate analysis. The second follow-up composite variables are listed in this appendix. In a few cases, the variable appears only on the restricted-use electronic codebook (ECB), not on the Data Analysis System (DAS). Appendix L provides information about the status (included versus excluded) of each second follow-up variable in relation to the DAS. In addition to composite variables, second follow-up weights and flags are included.

### **G12COHRT**

This variable indicates whether the sample member is a Senior Cohort member (i.e., a spring 2004 12th-grader). F1-identified senior cohort members include F1 respondents and base-year schools, as well as those who transferred, if they indicated they were 12th-graders. Spring 2004 grade was imputed where missing for F1 respondents (see also F1GRADE/F2F1GRDE). G12COHRT has also been updated since the first follow-up version to identify F1 nonrespondents whose second follow-up or transcript information indicates they were in fact spring 2004 12th-graders. Values of 2 also include freshened cases who were F1 questionnaire ineligible.

Use G12COHRT in concert with F1, transcript, or F2 weights to get an appropriately weighted sample that generalizes to the 2004 spring-term senior class. For example, G12COHRT used with F1QWT generates estimates for a nationally representative, cross-sectional population of the 2004 spring-term senior class. G12COHRT>0 used with F2F1WT generates estimates for a nationally representative panel of the spring-term senior class, including F1 nonrespondents.

### **TXACTC**

Most recent ACT composite test score as provided by ACT or the sample member's high school transcript.

### **TXACTM**

Most recent ACT math component test score as provided by ACT or the sample member's high school transcript.

### **TXACTR**

Most recent ACT reading component test score as provided by ACT or the sample member's high school transcript.

### **TXACTE**

Most recent ACT English component test score as provided by ACT or the sample member's high school transcript.

### **TXACTS**

Most recent ACT science component test score as provided by ACT or the sample member's high school transcript.

### **TXEESATC**

Higher entrance exam (i.e., SAT, ACT) composite score, standardized in terms of SAT score. TXEESATC takes the higher entrance exam composite score between TXSATC and TXACTC using ACT to SAT concordance.

### **TXEESATM**

Higher entrance exam (i.e., SAT, ACT) math score, standardized in terms of SAT score. TXEESATM takes the higher entrance exam math score between TXSATM and TXACTM using ACT to SAT concordance.

### **TXEEACTC**

Higher entrance exam (i.e., SAT, ACT) composite score, standardized in terms of SAT score. TXEEACTC takes the highest entrance exam composite score between TXSATC and TXACTC using SAT to ACT concordance.

### **TXEEACTM**

Highest entrance exam (i.e., SAT, ACT) math score, standardized in terms of ACT score. TXEESATM takes the highest entrance exam math score between TXSATM and TXACTM using SAT to ACT concordance.

### **TXSATM**

Most recent SAT math test score as provided by College Board or the sample member's high school transcript.

### **TXSATV**

Most recent SAT verbal test score as provided by College Board or the sample member's high school transcript.

### **TXSATC**

Most recent SAT composite test score as provided by College Board or the sample member's high school transcript.

### **TXAPBIO**

Advanced Placement Exam: biology. Programming notes: Exam score as provided by College Board or the sample member's high school transcript.

### **TXAPCHE**

Advanced Placement Exam: chemistry. Programming notes: Exam score as provided by College Board or the sample member's high school transcript.

### **TXAPCGP**

Advanced Placement Exam: comparative government and politics. Programming notes: Exam score as provided by College Board or the sample member's high school transcript.

### **TXAPCSA**

Advanced Placement Exam: computer science A. Programming notes: Exam score as provided by College Board or the sample member's high school transcript.

### **TXAPCSB**

Advanced Placement Exam: computer science AB. Programming notes: Exam score as provided by College Board or the sample member's high school transcript.

### **TXAPLIT**

Advanced Placement Exam: English literature and composition. Programming notes: Exam score as provided by College Board or the sample member's high school transcript.

### **TXAPLAN**

Advanced Placement Exam: English language and composition. Programming notes: Exam score as provided by College Board or the sample member's high school transcript.

### **TXAPEUH**

Advanced Placement Exam: European history. Programming notes: Exam score as provided by College Board or the sample member's high school transcript.

### **TXAPFLA**

Advanced Placement Exam: French language. Programming notes: Exam score as provided by College Board or the sample member's high school transcript.

### **TXAPFLI**

Advanced Placement Exam: French literature. Programming notes: Exam score as provided by College Board or the sample member's high school transcript.

### **TXAPGER**

Advanced Placement Exam: German language. Programming notes: Exam score as provided by College Board or the sample member's high school transcript.

### **TXAPHAR**

Advanced Placement Exam: Art history. Programming notes: Exam score as provided by College Board or the sample member's high school transcript.

### **TXAPLVE**

Advanced Placement Exam: Latin/Vergil. Programming notes: Exam score as provided by College Board or the sample member's high school transcript.

### **TXAPCAA**

Advanced Placement Exam: mathematics: calculus AB. Programming notes: Exam score as provided by College Board or the sample member's high school transcript.

### **TXAPCAB**

Advanced Placement Exam: mathematics: calculus BC. Programming notes: Exam score as provided by College Board or the sample member's high school transcript.

### **TXAPMAC**

Advanced Placement Exam: macroeconomics. Programming notes: Exam score as provided by College Board or the sample member's high school transcript.

### **TXAPMIC**

Advanced Placement Exam: microeconomics. Programming notes: Exam score as provided by College Board or the sample member's high school transcript.

### **TXAPMT**

Advanced Placement Exam: music theory. Programming notes: Exam score as provided by College Board or the sample member's high school transcript.

### **TXAPPB**

Advanced Placement Exam: physics B. Programming notes: Exam score as provided by College Board or the sample member's high school transcript.

### **TXAPPCE**

Advanced Placement Exam: physics C: E & M. Programming notes: Exam score as provided by College Board or the sample member's high school transcript.

### **TXAPPCM**

Advanced Placement Exam: physics C: mechanics. Programming notes: Exam score as provided by College Board or the sample member's high school transcript.

### **TXAPPSY**

Advanced Placement Exam: psychology. Programming notes: Exam score as provided by College Board or the sample member's high school transcript.

### **TXAPSLA**

Advanced Placement Exam: Spanish language. Programming notes: Exam score as provided by College Board or the sample member's high school transcript.

### **TXAPSLI**

Advanced Placement Exam: Spanish literature. Programming notes: Exam score as provided by College Board or the sample member's high school transcript.

### **TXAPSAD**

Advanced Placement Exam: studio art: drawing. Programming notes: Exam score as provided by College Board or the sample member's high school transcript.

### **TXAPUSG**

Advanced Placement Exam: United States government and politics. Programming notes: Exam score as provided by College Board or the sample member's high school transcript.

### **TXAPUSH**

Advanced Placement Exam: United States history. Programming notes: Exam score as provided by College Board or the sample member's high school transcript.

### **TXAPENV**

Advanced Placement Exam: environmental science. Programming notes: Exam score as provided by College Board or the sample member's high school transcript.

### **TXAPHUM**

Advanced Placement Exam: human geography. Programming notes: Exam score as provided by College Board or the sample member's high school transcript.

### **TXAPLAT**

Advanced Placement Exam: Latin literature. Programming notes: Exam score as provided by College Board or the sample member's high school transcript.

### **TXAPSTA**

Advanced Placement Exam: statistics. Programming notes: Exam score as provided by College Board or the sample member's high school transcript.

### **TXAPSA2**

Advanced Placement Exam: studio art 2-d design. Programming notes: Exam score as provided by College Board or the sample member's high school transcript.

### **TXAPSA3**

Advanced Placement Exam: studio art 3-d design. Programming notes: Exam score as provided by College Board or the sample member's high school transcript.

### **TXAPWOR**

Advanced Placement Exam: world history. Programming notes: Exam score as provided by College Board or the sample member's high school transcript.

### **TXSATM1**

College Board SAT Subject Test Score: mathematics level 1. The valid range for this test score is 200 to 800. Programming notes: Subject test score as provided by College Board or the sample member's high school transcript.



### **TXSATM2**

College Board SAT Subject Test Score: mathematics level 2. The valid range for this test score is 200 to 800. Programming notes: Subject test score as provided by College Board or the sample member's high school transcript.

### **TXSATPH**

College Board SAT Subject Test Score: physics. The valid range for this test score is 200 to 800. Programming notes: Subject test score as provided by College Board or the sample member's high school transcript.

### **TXSATCH**

College Board SAT Subject Test Score: chemistry. The valid range for this test score is 200 to 800. Programming notes: Subject test score as provided by College Board or the sample member's high school transcript.

### **TXSATBY**

College Board SAT Subject Test Score: biology. The valid range for this test score is 200 to 800. Programming notes: Subject test score as provided by College Board or the sample member's high school transcript.

### **TXSATLI**

College Board SAT Subject Test Score: literature. The valid range for this test score is 200 to 800. Programming notes: Subject test score as provided by College Board or the sample member's high school transcript.

### **TXSATUS**

College Board SAT Subject Test Score: U.S. history. The valid range for this test score is 200 to 800. Programming notes: Subject test score as provided by College Board or the sample member's high school transcript.

### **TXSATFR**

College Board SAT Subject Test Score: French. The valid range for this test score is 200 to 800. Programming notes: Subject test score as provided by College Board or the sample member's high school transcript.

### **TXSATGE**

College Board SAT Subject Test Score: German. The valid range for this test score is 200 to 800. Programming notes: Subject test score as provided by College Board or the sample member's high school transcript.

### **TXSATLA**

College Board SAT Subject Test Score: Latin. The valid range for this test score is 200 to 800. Programming notes: Subject test score as provided by College Board or the sample member's high school transcript.

### **TXSATSP**

College Board SAT Subject Test Score: Spanish. The valid range for this test score is 200 to 800. Programming notes: Subject test score as provided by College Board or the sample member's high school transcript.

### **TXSATMH**

College Board SAT Subject Test Score: modern Hebrew. The valid range for this test score is 200 to 800. Programming notes: Subject test score as provided by College Board or the sample member's high school transcript.

### **TXSATCL**

College Board SAT Subject Test Score: Chinese with listening. The valid range for this test score is 200 to 800. Programming notes: Subject test score as provided by College Board or the sample member's high school transcript.

### **TXSATEP**

College Board SAT Subject Test Score: English-language proficiency. The valid range for this test score is 200 to 800. Programming notes: Subject test score as provided by College Board or the sample member's high school transcript.

### **TXSATFL**

College Board SAT Subject Test Score: French with listening. The valid range for this test score is 200 to 800. Programming notes: Subject test score as provided by College Board or the sample member's high school transcript.

### **TXSATGL**

College Board SAT Subject Test Score: German with listening. The valid range for this test score is 200 to 800. Programming notes: Subject test score as provided by College Board or the sample member's high school transcript.

### **TXSATSL**

College Board SAT Subject Test Score: Spanish with listening. The valid range for this test score is 200 to 800. Programming notes: Subject test score as provided by College Board or the sample member's high school transcript.

### **TXSATWH**

College Board SAT Subject Test Score: world history. The valid range for this test score is 200 to 800. Programming notes: Subject test score as provided by College Board or the sample member's high school transcript.

### **TXSATWR**

College Board SAT Subject Test Score: writing. The valid range for this test score is 200 to 800. Programming notes: Subject test score as provided by College Board or the sample member's high school transcript.

## **F2QTSCWT**

This cross-sectional weight applies to all sample members for whom at least one transcript with at least one course record was received, and who participated in the second follow-up. When used with the appropriate sample flags (selection criteria appear in parentheses below), it allows projections to the following populations:

Spring 2002 10th-graders (G10COHRT=1)

or

Spring 2004 12th-graders (G12COHRT=1 or 2).

For additional information, see the ELS:2002 Data File Documentation.

## **F2QWT**

This weight applies to all second follow-up respondents. When used with the appropriate sample flags (selection criteria appear in parentheses below), it allows projections to the following populations:

Spring 2002 10th-graders (G10COHRT=1)

or

Spring 2004 12th-graders (G12COHRT=1 or 2).

For additional information, see the ELS:2002 Data File Documentation.

## **F2F1WT**

This weight applies to all sample members who responded in the first follow-up and the second follow-up. When used with the appropriate sample flags (selection criteria appear in parentheses below), it allows projections to the following populations:

Spring 2002 10th-graders (G10COHRT=1)

or

Spring 2004 12th-graders (G12COHRT=1 or 2).

For additional information, see the ELS:2002 Data File Documentation.

## **F2BYWT**

This weight applies to all sample members who responded in the base year and the second follow-up. This weight allows projections to the following population: Spring 2002 10th-graders.

For additional information, see the ELS:2002 Data File Documentation.

## **F2NRSTAT**

Reason for nonresponse to second follow-up survey, if applicable, as indicated in Survey Control System. Available only on restricted-use file.

## **F2QSTAT**

Indicates whether the sample member completed entire interview, partial interview, or no interview.

## **F2QMODE**

The second follow-up survey employed a single web-based survey instrument used across three modes: self-administration, computer-assisted telephone interviewing, and field interviewing.

## **F2RTYPE**

This variable classifies respondents on the basis of their postsecondary participation and the timing of their postsecondary enrollment. Categories include:

1. Standard enrollee: indicates a respondent with “immediate” postsecondary enrollment, who has continued their enrollment into 2006. Respondents are considered to have “immediate” enrollment if their postsecondary attendance began by October of their high school completion/exit year (if their high school completion/exit date was between January and July), or by the following February (if their high school completion/exit date was after July).
2. Delayer: indicates a respondent with delayed postsecondary enrollment. Respondents are considered to have delayed enrollment when they did not begin their postsecondary attendance by October of their high school completion/exit year (if their high school completion/exit date was between January and July), or by the following February (if their high school completion/exit date was after July). The Delayer designation (as opposed to Delayer-Leaver; see below) also indicates the respondent’s postsecondary enrollment continued into 2006.
3. Leaver: indicates a respondent with “immediate” postsecondary enrollment (as with Standard enrollee), but has no 2006 enrollment.
4. Delayer-Leaver: indicates a respondent with delayed postsecondary enrollment (as with Delayer), and has no 2006 enrollment.
5. Nonenrollee: indicates a respondent who has not enrolled in a postsecondary institution since leaving high school.
6. High school student: indicates a respondent still enrolled in high school.

Note: F2HSCPDR is used as the high school completion/exit date for respondents who have received a high school credential; F2HSLVDR is used as the high school completion/exit date for respondents who have not received a high school credential.

## **F2SEX**

Updates F1SEX with information from second follow-up interviewers and/or respondents who reported that F1SEX was incorrect (F1SEX was used as a survey instrument input for customized question wording).

## **F2EVERDO**

Indicates whether the sample member has dropped out at some point in time. Cases identified by F1EVERDO as “ever dropouts” remain as such in F2EVERDO; these cases include student-reported dropouts (as reported via F1 participation; note, however, that F1 student, transfer, and homeschool questionnaire respondents were not asked whether they had had a dropout episode), and school-reported dropouts (as reported at any of the three enrollment status updates). F1EVERDO is then updated with second follow-up and transcript information as follows: first follow-up nonrespondents who reported in the second follow-up that they were not in school during the spring term of 2004 (F2A12=5) or that they were out for 4 or more weeks during that term (F2A13=1) are classified as “ever dropouts.” Also classified as “ever dropouts” are second follow-up respondents who reported that they had completed a GED since they were last interviewed (F2A02=3), or they had not received a high school credential and were not in a high school completion program (F2A07=3 or 4). Finally, cases where the sample member’s transcript indicates that the sample member dropped out, received a GED, was dismissed, or incarcerated (F1RTROUT=8, 12, 14, or 15, respectively) are coded as “ever dropouts” in F2EVERDO.

## **F2DOSTAT**

Dropout status as of the second follow-up interview. Based on F2HSSTAT and F2EVERDO.

## **F2SP04DO**

This variable categorizes spring-term 2004 dropouts and early alternative completers as identified in the first follow-up, or identified retrospectively via the second follow-up interview or transcript data. F1 dropout questionnaire completers are coded as “F1 identified spring-term 2004 dropouts” (see also F1DOQFLG). F1 early graduate questionnaire completers who had earned a GED are coded as “F1 identified early GED recipients” (see also F1EGQFLG).

F1 student and transfer questionnaire completers who reported in F2 having dropped out in spring 2004 subsequent to F1 participation are coded as “F2 identified spring-term 2004 dropouts.” F1 nonrespondents are also classified as “F2 identified spring-term 2004 dropouts” when reporting in F2 either: (1) they dropped out of school prior to May 2004 (and had not received a GED before April 2004) (F2A11), (2) they were not in school during the spring term of 2004 (F2A12), or (3) they were out of school for 4 or more consecutive weeks during the spring term of 2004 for reasons other than illness or injury (F2A13). Finally, F1 nonrespondents are classified as “F2 identified early GED recipients” if they reported in the second follow-up interview that they had earned a GED prior to April 2004 (F2A02 and F2A03). When missing relevant F2 data (as a result of item or unit nonresponse), first follow-up nonrespondents are classified as early alternative completers if their transcript indicates receipt of a GED prior to April 2004.

Note: F2SP04DO updates F1DOSTAT.

## **F2F1GRDE**

High school grade level in the spring term of 2004. For first follow-up respondents who were in school in the spring term of 2004 (i.e., F1 student and transfer questionnaire completers),

F2F1GRDE is set to F1GRADE; first follow-up respondents who were not in school in the spring term of 2004 (i.e., F1 early graduate, dropout, and home school questionnaire completers) are assigned a F2F1GRDE value of -3. F2F1GRDE updates F1GRADE for first follow-up nonrespondents as follows: first follow-up nonrespondents who completed high school with a diploma or certificate of attendance in April, May, or June 2004 as reported in the second follow-up interview (F2A02 and F2A03) or on their high school transcript (F1RTROUT and F1RDTLFT) were logically imputed as 12th-graders. All other first follow-up nonrespondents who reported in F2 being in school during the spring term of 2004 were directly asked for their grade level at that time (F2A12). Finally, first follow-up nonrespondents who were found to be early graduates or spring-term 2004 dropouts (see F2SP04DO) were assigned a value of -3.

## **F2HSSTAT**

First follow-up, transcript, and second follow-up data are all used as inputs for F2HSSTAT. First follow-up data are used in cases where respondents indicated during the first follow-up that they had already received a high school credential; transcript data (as preloaded for the F2 instrument) are used in cases where respondents' transcripts indicated they received a May or June 2004 diploma or certificate of attendance (see also F2PHSDG and F2PHSDT). For second follow-up respondents for whom neither of these conditions apply, F2HSSTAT is determined by the following variables: type of high school credential received (F2A02); high school credential date (F2A03); or, for respondents who had not yet received a high school credential, whether they are currently pursuing any such credential (F2A07). For second follow-up nonrespondents, F2HSSTAT is determined by transcript or first follow-up data (if they indicate a final high school completion status).

Note: There are a small set of cases where F2HSSTAT is set to 1, 2, or 3 as a result of a re-examination of transcript information during F2 data editing activities. This small set of cases is made up of F2 nonrespondents who did not indicate receipt of a high school credential during F1 participation (or were F1 nonrespondents), and where F1RTROUT=8 (dropped out) or 9 (transferred).

## **F2EDLEVL**

This variable indicates the highest level of education attempted by the sample member, as of the second follow-up. For respondents who have attended a postsecondary institution (F2B07=1), F2EDLEVL is determined by the highest level among the respondent's attended institution(s) (F2ILEVEL). For respondents who have not attended a postsecondary institution, F2EDLEVL is determined by their 2006 high school completion status (F2HSSTAT).

Note: Not completing high school does not preclude postsecondary enrollment; therefore, a non-high school completer may have an F2EDLEVL value of 4, 5, or 6.

## **F2HIGRDE**

The most advanced high school grade level attempted as of the second follow-up interview. For respondents in high school at the time of the second follow-up interview (F2A07=1 or 2), this is their current grade level in 2006. For second follow-up respondents who have not received a high school credential and are not in a high school completion program (F2A07=3 or 4), this is the grade they were in when they last attended high school. It is drawn

directly from F2A08. If F2A08 indicates a grade which is less than F2F1GRDE (the respondent's spring 2004 grade level), then F2HIGRDE is set to F2F1GRDE.

Note: This variable differs from other F2 high school composite variables in that it is not applicable to F2 nonrespondents.

### **F2HSCPDR**

Year and month the respondent completed high school with a diploma, certificate of attendance, or GED (YYYYMM format). Available only on the restricted-use file; public-use version of this variable is F2HSCPDP. First follow-up, transcript, and second follow-up data are all used as inputs for F2HSCPDR. First follow-up data are used in cases where the respondent indicated during the first follow-up he or she had already received a high school credential; otherwise, preloaded transcript data (see also F2PHSDT) are used for cases where respondents' transcripts indicated they received a May or June 2004 diploma or certificate of attendance. For second follow-up respondents for whom neither of these conditions apply, F2HSCPDR is determined by the high school credential date as reported in the second follow-up (F2A03). For second follow-up nonrespondents, F2HSCPDR is determined by transcript data (if they indicate a final high school completion status).

### **F2HSCPDP**

Year and quarter the respondent completed high school with a diploma, certificate of attendance, or GED (YYYYQ format). First follow-up, transcript, and second follow-up data are all used as inputs for F2HSCPDP. First follow-up data are used in cases where the respondent indicated during the first follow-up he or she had already received a high school credential; otherwise, transcript data are used for cases where the respondent's preloaded transcript data (see also F2PHSDT) indicated he or she received a May or June 2004 diploma or certificate of attendance. For second follow-up respondents for whom neither of these conditions apply, F2HSCPDP is determined by the high school credential date as reported in the second follow-up (F2A03). For second follow-up nonrespondents, F2HSCPDP is determined by transcript data (if they indicate a final high school completion status).

### **F2HSLVDR**

Year and month last attended high school (YYYYMM format) for sample members who have not completed high school, or sample members who dropped out of high school and subsequently earned a GED. Leave dates are taken from the first follow-up interview for early GED recipients (i.e., those who received a GED prior to March 16, 2004) (F1E20 or F1D19), and from the second follow-up interview for respondents who had earned a GED since their last interview and current dropouts (F2A11). Available only on the restricted-use file; public-use version of this variable is F2HSLVDP.

### **F2HSLVDP**

Year and quarter last attended high school (YYYYQ format) for sample members who have not completed high school, or sample members who dropped out of high school and subsequently earned a GED. Leave dates are taken from the first follow-up interview for early GED recipients (i.e., those who received a GED prior to March 16, 2004) (F1E20 or F1D19),

and from the second follow-up interview for respondents who had earned a GED since their last interview and current dropouts (F2A11).

### **F2EVRGED**

F2EVRGED identifies sample members with any evidence of having received a GED; that is, either (1) the sample member reported in F1 or F2 that they received a GED, (2) their high school transcript indicates receipt of a GED, or (3) they have a record in the GED Testing Program data file indicating receipt of a GED (i.e., GEDPASSD=1).

### **F2HSPLAN**

Whether second follow-up respondents who have not completed high school (F2A01=0) or whose high school completion status is unknown (F2A01=-9) intend to do so at some time in the future. F2 respondents who were currently in high school (F2RTYPE=6) were logically imputed to F2HSPLAN=1.

Note: This variable differs from other F2 high school composite variables in that it is not applicable to F2 nonrespondents.

### **F2HSPLDR**

Year and month respondent plans to receive their high school diploma, certificate of attendance, or GED (YYYYMM format). Available only on the restricted-use file; public-use version of this variable is F2HSPLDP. Any given sample member may have a planned high school completion date (F2HSPLDR/P), or an actual high school completion date (F2HSCPDR/P), but will not have both.

Note: This variable differs from other F2 high school composite variables in that it is not applicable to F2 nonrespondents.

### **F2HSPLDP**

Year and quarter respondent plans to receive their high school diploma, certificate of attendance, or GED (YYYYQ format). Any given sample member may have a planned high school completion date (F2HSPLDR/P), or an actual high school completion date (F2HSCPDR/P), but will not have both.

Note: This variable differs from other F2 high school composite variables in that it is not applicable to F2 nonrespondents.

### **F2GEDPRG**

Combines and updates F1D42 and F1E24 (from F1 dropout questionnaire and F1 early graduate questionnaire, respectively) with information (F2A04) from first follow-up nonrespondents who reported during the second follow-up that they had earned a GED.

### **F2GEDOTH**

Combines and updates F1D42A and F1E24A (from F1 dropout questionnaire and F1 early graduate questionnaire, respectively) with information (F2A04A) from first follow-up nonrespondents who reported during the second follow-up that they had earned a GED.



## **F2GEDST**

Combines and updates F1D44 and F1E26 (from F1 dropout questionnaire and F1 early graduate questionnaire, respectively) with information (F2A05) from first follow-up nonrespondents who reported during the second follow-up that they had earned a GED.

## **F2WYGED1**

Combines and updates F1D43A and F1E25A (from F1 dropout questionnaire and F1 early graduate questionnaire, respectively) with information (F2A06A) from first follow-up nonrespondents who reported during the second follow-up that they had earned a GED.

## **F2WYGED2**

Combines and updates F1D43B and F1E25B (from F1 dropout questionnaire and F1 early graduate questionnaire, respectively) with information (F2A06B) from first follow-up nonrespondents who reported during the second follow-up that they had earned a GED.

## **F2WYGED3**

Combines and updates F1D43C and F1E25C (from F1 dropout questionnaire and F1 early graduate questionnaire, respectively) with information (F2A06C) from first follow-up nonrespondents who reported during the second follow-up that they had earned a GED.

## **F2WYGED4**

Combines and updates F1D43D and F1E25D (from F1 dropout questionnaire and F1 early graduate questionnaire, respectively) with information (F2A06D) from first follow-up nonrespondents who reported during the second follow-up that they had earned a GED.

## **F2WYGED5**

Combines and updates F1D43E and F1E25E (from F1 dropout questionnaire and F1 early graduate questionnaire, respectively) with information (F2A06E) from first follow-up nonrespondents who reported during the second follow-up that they had earned a GED.

## **F2WYGED6**

Combines and updates F1D43F and F1E25F (from F1 dropout questionnaire and F1 early graduate questionnaire, respectively) with information (F2A06F) from first follow-up nonrespondents who reported during the second follow-up that they had earned a GED.

## **F2WYLV1**

Combines and updates F1D29A and F1E22A (from F1 dropout questionnaire and F1 early graduate questionnaire, respectively) with information (F2A14A) from first follow-up nonrespondents who reported during the second follow-up they had left high school before or during spring 2004.

## **F2WYLV2**

Combines and updates F1D29B and F1E22B (from F1 dropout questionnaire and F1 early graduate questionnaire, respectively) with information (F2A14B) from first follow-up

nonrespondents who reported during the second follow-up they had left high school before or during spring 2004.

**F2WYLV3**

Combines and updates F1D29C/D and F1E22C/D (from F1 dropout questionnaire and F1 early graduate questionnaire, respectively) with information (F2A14C) from first follow-up nonrespondents who reported during the second follow-up they had left high school before or during spring 2004.

**F2WYLV4**

Combines and updates F1D29E/F and F1E22E/F (from F1 dropout questionnaire and F1 early graduate questionnaire, respectively) with information (F2A14D) from first follow-up nonrespondents who reported during the second follow-up that they had left high school before or during spring 2004.

**F2WYLV5**

Combines and updates F1D29G/J and F1E22G/J (from F1 dropout questionnaire and F1 early graduate questionnaire, respectively) with information (F2A14E) from first follow-up nonrespondents who reported during the second follow-up that they had left high school before or during spring 2004.

**F2WYLV6**

Combines and updates F1D29H/K and F1E22H/K (from F1 dropout questionnaire and F1 early graduate questionnaire, respectively) with information (F2A14F) from first follow-up nonrespondents who reported during the second follow-up that they had left high school before or during spring 2004.

**F2WYLV7**

Combines and updates F1D29I and F1E22I (from F1 dropout questionnaire and F1 early graduate questionnaire, respectively) with information (F2A14G) from first follow-up nonrespondents who reported during the second follow-up that they had left high school before or during spring 2004.

**F2WYLV8**

Combines and updates F1D29L and F1E22L (from F1 dropout questionnaire and F1 early graduate questionnaire, respectively) with information (F2A14H) from first follow-up nonrespondents who reported during the second follow-up that they had left high school before or during spring 2004.

**F2WYLV9**

Combines and updates F1D29M and F1E22M (from F1 dropout questionnaire and F1 early graduate questionnaire, respectively) with information (F2A14I) from first follow-up nonrespondents who reported during the second follow-up that they had left high school before or during spring 2004.

### **F2WYLV10**

Combines and updates F1D29N and F1E22N (from F1 dropout questionnaire and F1 early graduate questionnaire, respectively) with information (F2A14J) from first follow-up nonrespondents who reported during the second follow-up that they had left high school before or during spring 2004.

### **F2WYLV11**

Combines and updates F1D29Q and F1E22Q (from F1 dropout questionnaire and F1 early graduate questionnaire, respectively) with information (F2A14K) from first follow-up nonrespondents who reported during the second follow-up that they had left high school before or during spring 2004.

### **F2WYLV12**

Combines and updates F1D29R/S and F1E22R/S (from F1 dropout questionnaire and F1 early graduate questionnaire, respectively) with information (F2A14L) from first follow-up nonrespondents who reported during the second follow-up that they had left high school before or during spring 2004.

### **F2WYLV13**

Combines and updates F1D29T and F1E22T (from F1 dropout questionnaire and F1 early graduate questionnaire, respectively) with information (F2A14M) from first follow-up nonrespondents who reported during the second follow-up that they had left high school before or during spring 2004.

### **F2WYLV14**

Combines and updates F1D29U and F1E22U (from F1 dropout questionnaire and F1 early graduate questionnaire, respectively) with information (F2A14N) from first follow-up nonrespondents who reported during the second follow-up that they had left high school before or during spring 2004.

### **F2EVRAPP**

This variable indicates whether the respondent has ever applied to a postsecondary institution; taken directly from the second follow-up interview (F2B01) if available, and imputed for second follow-up respondents if missing.

### **F2PSAPSL**

Highest level of admissions selectivity (based on 2005 Carnegie classifications) of all postsecondary institutions to which the respondent applied. Institutions identified as 4-year schools via Integrated Postsecondary Education Data System (IPEDS) data are further classified as highly selective, moderately selective, or inclusive according to the Carnegie selectivity measure; institutions identified as 4-year schools via IPEDS data with unknown Carnegie selectivity (or Carnegie-classified as something other than a 4-year institution) are coded in F2PSAPSL as “selectivity not classified, 4-year institution.” Institutions identified as 2-year or less-than-2-year via IPEDS data are coded as such in F2PSAPSL. Original Carnegie

classification based on 25th percentile scores of entering freshmen on the SAT and/or ACT (using data from IPEDS and the College Board). The “inclusive,” “moderately selective,” and “highly selective” categories correspond to 25th percentile ACT-equivalent scores of less than 18, 18–21, and greater than 21, respectively. Based on the IPEDS variable CCUGPROF (Carnegie Classification 2005: Undergraduate Profile).

### **F2NAPPLY**

The number of postsecondary schools the respondent applied to in his or her first round of applications. Drawn directly from F2B03, and set to zero for respondents who have not applied for admission to a postsecondary institution (F2EVRAPP=0). The number of “applied to” institutions appearing on the F2 institution file for any one respondent may be less than (but not more than) the value stored in F2NAPPLY; for example, when a respondent reports (in F2B03) having applied to 10 schools but is only able to provide information for 8 of those schools.

Note: The “first round of applications” refers to when the respondent first applied to a postsecondary institution, as reported in F2A02 (i.e., while still in high school or sometime after high school).

### **F2NACCPT**

Number of postsecondary institutions at which the respondent was accepted.

### **F2NATTND**

The number of postsecondary institutions attended by the respondent. Drawn directly from F2B10, and set to zero for respondents who have not attended a postsecondary institution (F2EVRATT=0).

Note: The number of attended institutions appearing on the F2 institution file for any one respondent may be less than (but not more than) the value stored in F2NATTND; for example, when a respondent reports (in F2B10) having applied to three schools but is only able to provide information for two of those schools.

### **F2PSACSL**

Highest level of admissions selectivity (based on 2005 Carnegie classifications) of all postsecondary institutions at which the respondent was accepted. Institutions identified as 4-year schools via IPEDS data are further classified as highly selective, moderately selective, or inclusive according to the Carnegie selectivity measure; institutions identified as 4-year schools via IPEDS data with unknown Carnegie selectivity (or Carnegie-classified as something other than a 4-year institution) are coded in F2PSACSL as “selectivity not classified, 4-year institution.” Institutions identified as 2-year or less-than-2-year via IPEDS data are coded as such in F2PSACSL. Original Carnegie classification based on 25th percentile scores of entering freshmen on the SAT and/or ACT (using data from IPEDS and the College Board). The “inclusive,” “moderately selective,” and “highly selective” categories correspond to 25th percentile ACT-equivalent scores of less than 18, 18–21, and greater than 21, respectively. Based on the IPEDS variable CCUGPROF (Carnegie Classification 2005: Undergraduate Profile).

## **F2EVRATT**

This variable indicates whether the respondent has ever attended a postsecondary institution since high school completion/exit; taken directly from the second follow-up interview (F2B07) if available, and imputed for second follow-up respondents if missing.

## **F2PS1**

This variable stores the location on the institution file (see also F2IORDER) of the first “real” postsecondary institution attended by the respondent. This institution is referenced in questions corresponding to variables F2B13A–F, F2B14, F2B15, F2B16A–C, F2B17A–D, and F2B18A–G. In most cases, the first “real” institution is the institution with the earliest start date (and will therefore appear first on the ELS institution file, i.e. F2IORDER=1). An exception is made, however, if (1) the first chronological institution (as opposed to the first “real” institution) is a summer school (defined as an institution with a start date of May, June, or July, and a same-year end date of May, June, July, or August); (2) the summer school was attended in the same year as high school completion/exit; and (3) a second postsecondary institution (with longer total enrollment) was also started in August, September, or October of that same year. If all the above conditions are met, the post-summer school institution is identified in F2PS1. If the earliest start date is shared by more than one institution, the one with the longest enrollment period is identified in F2PS1.

Note: The institution identified in F2PS1 was selected by the F2 survey instrument based on enrollment information provided by the respondent; this institution was selected during the F2 interview and determined which institution was referenced in questions associated with variables F2B13A–F, F2B14, F2B15, F2B16A–C, F2B17A–D, and F2B18A–G.

## **F2PS1LVL**

Level of the first postsecondary institution attended (F2PS1), as indicated by IPEDS; for institutions with no IPEDS code, institutional level (if available) was provided by the respondent.

## **F2PS1CTR**

Control of the first postsecondary institution attended (F2PS1) as indicated by IPEDS. For institutions with no IPEDS code, institutional control (if available) was provided by the respondent.

## **F2PS1SEC**

Sector of the first postsecondary institution attended (F2PS1) as indicated by IPEDS. For institutions with no IPEDS code, institutional sector (if available) was provided by the respondent.

## **F2PS1SLC**

Measure of the admissions selectivity (based on 2005 Carnegie classifications) of the first attended institution (F2PS1).

Institutions identified as 4-year schools via IPEDS data are further classified as highly selective, moderately selective, or inclusive according to the Carnegie selectivity measure; institutions identified as 4-year schools via IPEDS data with unknown Carnegie selectivity (or

Carnegie-classified as something other than a 4-year institution) are coded in F2PS1SLC as “selectivity not classified, 4-year institution.”

Institutions identified as 2-year or less-than-2-year via IPEDS data are coded as such in F2PS1SLC. Original Carnegie classification based on 25th percentile scores of entering freshmen on the SAT and/or ACT (using data from IPEDS and the College Board). The “inclusive,” “moderately selective,” and “highly selective” categories correspond to 25th percentile ACT-equivalent scores of less than 18, 18–21, and greater than 21, respectively. Based on the IPEDS variable CCUGPROF (Carnegie Classification 2005: Undergraduate Profile).

### **F2PS1GRT**

Indicates whether the respondent was offered a first-year scholarship or grant by his or her first-attended postsecondary institution (F2PS1).

### **F2PS1LN**

Indicates whether the respondent was offered a first-year student loan or grant by his or her first-attended postsecondary institution (F2PS1).

### **F2PS1WKS**

Indicates whether the respondent was offered a first-year work study or grant by his or her first-attended postsecondary institution (F2PS1).

### **F2PS1WVR**

Indicates whether the respondent was offered a first-year tuition or grant by his or her first-attended postsecondary institution (F2PS1).

### **F2PS1AID**

Indicates whether the respondent was offered financial aid for his or her first year by his or her first “real” postsecondary institution attended (see also F2PS1). “Financial aid” here refers to the particular forms of aid detailed in F2PS1GRT, F2PS1LN, F2PS1WKS, and F2PS1WVR; that is, scholarship/grant, loan, work study, and tuition waiver/discount (respectively). Respondents who were not offered any of these forms of aid will be coded in F2PS1AID as “no aid offered,” although it is possible they were offered some other form of financial aid not specifically referred to in the F2 instrument.

Note: Implicit in categories 1–4 is that the respondent did in fact apply for admission to his or her first “real” postsecondary institution attended. Application is based on student report (F2IAPPLY). Some students will perceive registration at an open admissions institution as an instance of application (these cases can be identified through F2IOPNAP, which indicates which institutions have open admissions policies).

### **F2PS1FTP**

Enrollment intensity at the first-attended postsecondary institution (F2PS1).

## **F2PS1OUT**

Indicates whether the state of the first-attended postsecondary institution (F2PS1) differs from the state associated with the respondent's first follow-up residential zip code; for cases where the F1 residential zip code is not available, the base-year residential zip code is substituted.

## **F2PSSTRT**

First period of attendance at the respondent's first attended postsecondary institution (see also F2PS1).

Note: Second follow-up data collection spanned from January through August 2006; information on the respondent's 2006 postsecondary enrollment is therefore dependent on the date of his or her F2 participation. As a result, "2006" has been constructed as a single time period rather than using the cut-points employed for 2004 and 2005.

## **F2HS2PS1**

Number of months between high school completion/exit and the respondent's first enrollment at his or her first attended postsecondary institution (see also F2PS1). F2HSCPDR is used as the high school completion/exit date for respondents who have earned a high school credential; F2HSLVDR is used for respondents who have not earned a high school credential.

Note: Sample members who reported enrolling in postsecondary education while in high school but left prior to high school completion/exit, and did not subsequently enroll in any postsecondary education, are recorded as missing (-9).

## **F2PSYR1**

Number of months with attendance at any postsecondary institution during the first 12 months after high school completion/exit. F2HSCPDR is used as the high school completion/exit date for respondents who have received a high school credential; F2HSLVDR is used as the high school completion/exit date for respondents who have not received a high school credential. For respondents with postsecondary enrollment during the month of their high school completion/exit, F2PSYR1 is calculated beginning with that month. For respondents who were not enrolled in a postsecondary institution during the month of their high school completion/exit, F2PSYR1 is calculated beginning with the month following their high school completion/exit.

## **F2PSEND**

Last period of attendance at any postsecondary institution.

Note: Second follow-up data collection spanned from January through August 2006; information on the respondent's 2006 postsecondary enrollment is therefore dependent on the date of his or her F2 participation. As a result, "2006" has been constructed as a single time period rather than using the cut-points employed for 2004 and 2005.

## **F2PSMO45**

Number of months with attendance at any postsecondary institution during the 2004–05 school year (from July 2004 [F2PS0407] through June 2005 [F2PS0506]). Values are calculated

for all second follow-up respondents with postsecondary enrollment, regardless of their high school completion status and/or high school exit date.

**F2ENRGAP**

This variable indicates a gap in postsecondary enrollment across institutions; a gap is defined as a period of nonenrollment lasting 4 or more consecutive months (excluding June and July), with episodes of postsecondary attendance both before and after the gap. Sample members with a gap in enrollment (F2ENRGAP=1) who had not switched schools (F2SWITCH=1) are the group of respondents who were asked their reasons for taking a break from postsecondary school (F2B19A–F2B19K).

Note: F2ENRGAP was computed by the F2 survey instrument based on enrollment information provided by the respondent; this calculation occurred during the F2 interview and determined whether the respondent was routed to or around questions associated with variables F2B19A–F2B19K.

**F2PSPRE4**

This variable indicates the total number of months the respondent was enrolled at any postsecondary institution during the 2002 and 2003 calendar years.

**F2PS0401**

January 2004 enrollment status across postsecondary institutions.

**F2PS0402**

February 2004 enrollment status across postsecondary institutions.

**F2PS0403**

March 2004 enrollment status across postsecondary institutions.

**F2PS0404**

April 2004 enrollment status across postsecondary institutions.

**F2PS0405**

May 2004 enrollment status across postsecondary institutions.

**F2PS0406**

June 2004 enrollment status across postsecondary institutions.

**F2PS0407**

July 2004 enrollment status across postsecondary institutions.

**F2PS0408**

August 2004 enrollment status across postsecondary institutions.



**F2PS0409**

September 2004 enrollment status across postsecondary institutions.

**F2PS0410**

October 2004 enrollment status across postsecondary institutions.

**F2PS0411**

November 2004 enrollment status across postsecondary institutions.

**F2PS0412**

December 2004 enrollment status across postsecondary institutions.

**F2PS0501**

January 2005 enrollment status across postsecondary institutions.

**F2PS0502**

February 2005 enrollment status across postsecondary institutions.

**F2PS0503**

March 2005 enrollment status across postsecondary institutions.

**F2PS0504**

April 2005 enrollment status across postsecondary institutions.

**F2PS0505**

May 2005 enrollment status across postsecondary institutions.

**F2PS0506**

June 2005 enrollment status across postsecondary institutions.

**F2PS0507**

July 2005 enrollment status across postsecondary institutions.

**F2PS0508**

August 2005 enrollment status across postsecondary institutions.

**F2PS0509**

September 2005 enrollment status across postsecondary institutions.

**F2PS0510**

October 2005 enrollment status across postsecondary institutions.

**F2PS0511**

November 2005 enrollment status across postsecondary institutions.

**F2PS0512**

December 2005 enrollment status across postsecondary institutions.

**F2PS0601**

January 2006 enrollment status across postsecondary institutions.

**F2PS0602**

February 2006 enrollment status across postsecondary institutions.

**F2PS0603**

March 2006 enrollment status across postsecondary institutions.

**F2PS0604**

April 2006 enrollment status across postsecondary institutions.

**F2PS0605**

May 2006 enrollment status across postsecondary institutions.

**F2PS0606**

June 2006 enrollment status across postsecondary institutions.

**F2PS0607**

July 2006 enrollment status across postsecondary institutions.

**F2PS0608**

August 2006 enrollment status across postsecondary institutions.

**F2SWITCH**

This variable indicates whether a respondent has transferred/switched postsecondary institutions; a transfer/switch is indicated for respondents who have attended multiple institutions and at least one of these institutions has both: (1) a start date which is later than the start date for the first “real” institution attended (see also F2PS1), and (2) an end date which is later than the end date for the first “real” institution attended. A transfer/switch is not indicated, however, when the respondent has any 2006 enrollment at the first “real” institution attended, regardless of whether another institution has a later end date. F2SWITCH can also be used to identify those respondents who were asked their reasons for transferring (F2B21A–F2B21L).

Note: F2SWITCH was computed by the F2 survey instrument based on enrollment information provided by the respondent; this calculation occurred during the F2 interview and determined whether the respondent was routed to or around questions associated with variables F2B21A–F2B21L.

## **F2PS2006**

This variable stores the location on the institution file (see also F2IORDER) of the postsecondary institution the respondent attended in 2006, if applicable (since the second follow-up data collection concluded in early September 2006, no enrollment information is known for fall/winter 2006). The 2006 institution is referenced in questions corresponding to variables F2B22, F2B23A–C, F2MAJOR2, F2MAJOR4, F2D07, and F2D08A–I. If the respondent attended more than one postsecondary institution in 2006, the 2006 institution was chosen as follows: if the first “real” postsecondary institution attended (see also F2PS1) is one of the institutions attended in 2006, then it is the institution identified in F2PS2006. Otherwise, the institution with the latest 2006 enrollment date is selected as the 2006 institution.

Note: The institution identified in F2PS2006 was selected by the F2 survey instrument based on enrollment information provided by the respondent; this institution was selected during the F2 interview and determined which institution was referenced in questions associated with variables F2B22, F2B23A–C, F2MAJOR2, F2MAJOR4, F2D07, and F2D08A–I.

## **F2MAJOR4**

Respondent’s 2006 field-of-study code, based on the Classification of Instructional Programs (CIP) code frame. Available only on the restricted-use file; public-use version of this variable is F2MAJOR2.

F2MAJOR4 is a four-digit code, with the first two digits (equivalent to F2MAJOR2) indicating a general category, and the last two digits indicating a specific category. Field-of-study codes were assigned primarily by the survey instrument assisted coder, and secondarily by upcoding activities. See section 4.3.2.4 of the ELS:2002 Base-Year to Second Follow-Up Data File Documentation for more information regarding field-of-study coding.

## **F2MAJOR2**

Respondent’s 2006 field-of-study, coded with a two-digit general category based on the CIP code frame. Field-of-study codes were assigned primarily by the survey instrument assisted coder, and secondarily by upcoding activities. See section 4.3.2.4 of the ELS:2002 Base-Year to Second Follow-up Data File Documentation for more information regarding field-of-study coding.

## **F2STEXP**

This variable is taken directly from the second follow-up questionnaire (F2B30) and is imputed, when missing, for second follow-up respondents.

## **F2EVRJOB**

This variable indicates whether the respondent has ever held a job for pay since high school completion/exit; taken directly from the second follow-up interview (F2C01) if available, and imputed for second follow-up respondents if missing.

## **F21STOCC**

Respondent’s first occupation after high school, mapped from the Occupational Information Network (O\*NET) coding scheme to the ELS:2002 base-year/first follow-up

occupation coding scheme. Occupation codes were assigned primarily by the survey instrument assisted coder, and secondarily by upcoding activities. See section 4.3.2.4 of the ELS:2002 Base-Year to Second Follow-up Data File Documentation for more information regarding occupation coding.

### **F2ONET16**

Respondent's first occupation after high school, coded based on the O\*NET coding scheme. Available only on the restricted-use file; public-use version of this variable is F2ONET12. F2ONET16 is a six-digit code, with the first two digits (equivalent to F2ONET12) indicating a general category, the third digit a mid-level category, and the last three digits a specific category. Occupation codes were assigned primarily by the survey instrument assisted coder, and secondarily by upcoding activities. See section 4.3.2.4 of the ELS:2002 Base-Year to Second Follow-up Data File Documentation for more information regarding occupation coding.

### **F2ONET12**

Respondent's first occupation after high school, coded with a two-digit general category based on the O\*NET coding scheme. Occupation codes were assigned primarily by the survey instrument assisted coder, and secondarily by upcoding activities. See section 4.3.2.4 of the ELS:2002 Base-Year to Second Follow-up Data File Documentation for more information regarding occupation coding.

### **F2FSTWGE**

First job dollar earnings (F2C06A) per time unit (F2C06B) standardized to dollar earnings per hour.

### **F2OCC1Q**

This variable indicates whether the job provided by the respondent as their first job since high school has associated start and end dates which actually precede high school completion/exit (F2HSCPDR is used as the high school completion/exit date for respondents who have received a high school credential; F2HSLVDR is used as the high school completion/exit date for respondents who have not received a high school credential). Despite being prompted in the F2 interview to only report employment subsequent to F2HSCPDR (or, where applicable, F2HSLVDR), employment which preceded high school completion/exit was sometimes reported. F2OCC1Q values of 1 imply that, according to the dates provided by the respondent, the associated job is not a post-high school occupation.

### **F2CUROCC**

Respondent's current occupation, mapped from the O\*NET coding scheme to the ELS:2002 base-year/first follow-up occupation coding scheme. Occupation codes were assigned primarily by the survey instrument assisted coder, and secondarily by upcoding activities. See section 4.3.2.4 of the ELS:2002 Base-Year to Second Follow-up Data File Documentation for more information regarding occupation coding.

## **F2ONETC6**

Respondent's current occupation, coded based on the O\*NET coding scheme. Available only on the restricted-use file; public-use version of this variable is F2ONETC2. F2ONETC6 is a six-digit code, with the first two digits (equivalent to F2ONETC2) indicating a general category, the third digit a mid-level category, and the last three digits a specific category. Occupation codes were assigned primarily by the survey instrument assisted coder, and secondarily by upcoding activities. See section 4.3.2.4 of the ELS:2002 Base-Year to Second Follow-up Data File Documentation for more information regarding occupation coding.

## **F2ONETC2**

Respondent's current occupation, coded with a two-digit general category based on the O\*NET coding scheme. Occupation codes were assigned primarily by the survey instrument assisted coder, and secondarily by upcoding activities. See section 4.3.2.4 of the ELS:2002 Base-Year to Second Follow-up Data File Documentation for more information regarding occupation coding.

## **F2CURWGE**

Current job dollar earnings (F2C19A) per time unit (F2C19B) standardized to dollar earnings per hour.

## **F2NUNEMP**

This variable indicates the total number of months the nonenrollee reported being unemployed since high school exit. Months out of the labor force are not counted as months unemployed. The high school exit date is the date the respondent received a high school diploma, certificate of attendance, GED, or equivalent (F2HSCPDR). If the respondent is not credentialed, the high school exit date is the last date of high school attendance (F2HSLVDR).

Note: F2NUNEMP is set to -9 (missing) for any case having a value of 4 (not working, unknown if in labor force) or -9 for at least 1 month-by-month employment variable (F2EMyymm series). F2NUNEMP is set to -3 (not applicable) for any nonenrollee where all of their month-by-month employment variables are set to either 3 (out of the labor force), 8 (pre-high school exit), or 9 (post-F2 interview).

## **F2PUNEMP**

This variable indicates the percent of months the nonenrollee reported being unemployed since high school exit. Months out of the labor force are not counted as months unemployed. The high school exit date is the date the respondent received a high school diploma, certificate of attendance, GED, or equivalent (F2HSCPDR); or, if the respondent is not credentialed, the high school exit date is the last date of high school attendance (F2HSLVDR). The numerator is the number of months unemployed since high school exit (F2NUNEMP). The denominator is the number of months employed since high school exit plus the number of months unemployed since high school exit (months out of the labor force are excluded from both the numerator and denominator).

**F2ERN05R**

Respondent's total earnings from all jobs in 2005 in continuous form. Responses to F2C34 were used as the basis for F2ERN05R. When F2C34 was missing data, F2ERN05R was imputed using F2C35 as an imputation class variable. In cases where both F2C34 and F2C35 were missing data, stochastic imputation was employed.

**F2ERN05P**

Respondent's total earnings from all jobs in 2005 in categorical form. Data from F2ERN05R were mapped to the same categories used in F2C34.

**F2OCC30**

Respondent's anticipated occupation at age 30, mapped from the O\*NET coding scheme to the ELS:2002 base-year/first follow-up occupation coding scheme. Occupation codes were assigned primarily by the survey instrument assisted coder, and secondarily by upcoding activities. See section 4.3.2.4 of the ELS:2002 Base-Year to Second Follow-up Data File Documentation for more information regarding occupation coding.

**F2ONET36**

Respondent's anticipated occupation at age 30, coded based on the O\*NET coding scheme. Available only on the restricted-use file; public-use version of this variable is F2ONET32. F2ONET36 is a six-digit code, with the first two digits (equivalent to F2ONET32) indicating a general category, the third digit a mid-level category, and the last three digits a specific category. Occupation codes were assigned primarily by the survey instrument assisted coder, and secondarily by upcoding activities. See section 4.3.2.4 of the ELS:2002 Base-Year to Second Follow-up Data File Documentation for more information regarding occupation coding.

**F2ONET32**

Respondent's anticipated occupation at age 30, coded with a two-digit general category based on the O\*NET coding scheme. Occupation codes were assigned primarily by the survey instrument assisted coder, and secondarily by upcoding activities. See section 4.3.2.4 of the ELS:2002 Base-Year to Second Follow-up Data File Documentation for more information regarding occupation coding.

**F2EM0206**

Respondent's June 2002 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0207**

Respondent's July 2002 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0208**

Respondent's August 2002 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0209**

Respondent's September 2002 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0210**

Respondent's October 2002 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high

school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0211**

Respondent's November 2002 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0212**

Respondent's December 2002 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0301**

Respondent's January 2003 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0302**

Respondent's February 2003 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June



2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0303**

Respondent's March 2003 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0304**

Respondent's April 2003 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0305**

Respondent's May 2003 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0306**

Respondent's June 2003 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high

school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0307**

Respondent's July 2003 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0308**

Respondent's August 2003 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0309**

Respondent's September 2003 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0310**

Respondent's October 2003 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0311**

Respondent's November 2003 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0312**

Respondent's December 2003 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0401**

Respondent's January 2004 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high

school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0402**

Respondent's February 2004 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0403**

Respondent's March 2004 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0404**

Respondent's April 2004 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0405**

Respondent's May 2004 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June

2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0406**

Respondent's June 2004 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0407**

Respondent's July 2004 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0408**

Respondent's August 2004 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0409**

Respondent's September 2004 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the

high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

#### **F2EM0410**

Respondent's October 2004 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

#### **F2EM0411**

Respondent's November 2004 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

#### **F2EM0412**

Respondent's December 2004 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0501**

Respondent's January 2005 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0502**

Respondent's February 2005 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0503**

Respondent's March 2005 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0504**

Respondent's April 2005 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high

school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0505**

Respondent's May 2005 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0506**

Respondent's June 2005 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0507**

Respondent's July 2005 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0508**

Respondent's August 2005 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June



2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0509**

Respondent's September 2005 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0510**

Respondent's October 2005 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0511**

Respondent's November 2005 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0512**

Respondent's December 2005 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the

high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0601**

Respondent's January 2006 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0602**

Respondent's February 2006 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0603**

Respondent's March 2006 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0604**

Respondent's April 2006 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0605**

Respondent's May 2006 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0606**

Respondent's June 2006 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0607**

Respondent's July 2006 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high

school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2EM0608**

Respondent's August 2006 employment status. The month-by-month employment status variables refer to post-high school employment; that is, employment subsequent to the high school completion date (F2HSCPDR), if applicable, or the most recent high school exit date (F2HSLVDR) for those respondents without a high school credential. When the high school completion/exit date is unknown, the modal month and year of high school completion/exit (June 2004) is used as a reference point for populating the month-by-month employment variables. Under these conditions, the variables up to and including June 2004 (F2EM0406) are set to -9 (missing) rather than 8 (pre-high school completion/exit) due to the uncertainty of the high school completion/exit date. The subsequent month-by-month employment variables, beginning with July 2004 (F2EM0407), are populated as if they were post-high school months.

### **F2HHTOTL**

This variable summarizes F2D08A-I by totaling the number of 2006 household members (including the respondent).

### **F2HHPAR**

This variable indicates whether the sample member lived with his or her parents in the spring of 2006.

### **F2NLFEVT**

This variable summarizes F2D15A–F2D15G by totaling the number of different types of stressful life events that occurred in the past 2 years.

### **F2RESZIP**

Respondent's residential zip code.

### **F2QXDATR**

Date the second follow-up survey was administered/completed (YYYYMMDD format). Available only on the restricted-use file; public-use version of this variable is F2QXDATP.

### **F2QXDATP**

Year and month the second follow-up survey was administered/completed (YYYYMM format).

### **F2EVAPIM**

Flag indicating whether the variable F2EVRAPP was statistically imputed or not imputed. F2 nonrespondents and out-of-scope cases were not imputed for F2EVRAPP.

### **F2EVATIM**

Flag indicating whether the variable F2EVRATT was statistically imputed or not imputed. F2 nonrespondents and out-of-scope cases were not imputed for F2EVRATT.

### **F2STEXIM**

Flag indicating whether the variable F2STEXP was statistically imputed or not imputed. F2 nonrespondents and out-of-scope cases were not imputed for F2STEXP.

### **F2EVRJIM**

Flag indicating whether the variable F2EVRJOB was statistically imputed or not imputed. F2 nonrespondents and out-of-scope cases were not imputed for F2EVRJOB.

### **F2ERN5IM**

Flag indicating whether the variable F2ERN05R was statistically imputed or not imputed. F2 nonrespondents and out-of-scope cases were not imputed for F2ERN05R.

### **F2MTCHAT**

Flag indicating whether a match was attempted for at least one of the ELS:2002 extant data sources. The ELS:2002 extant data sources are: U.S. Department of Education Central Processing System (information from the Free Application for Federal Student Aid; FAFSA); National Student Loan Data System (NSLDS; student loan and Pell grant data); American Council on Education (GED Testing Program data); College Board (SAT, AP test, and SAT subject test scores); and ACT (ACT scores).

### **F2CPSTAT**

This variable indicates whether the sample member has associated records in the 2004–2005, 2005–2006, and/or 2006–2007 Central Processing System data files of the ELS:2002 ECB. The U.S. Department of Education Central Processing System houses data collected from FAFSA.

### **F2NSSTAT**

This variable indicates whether the sample member has any associated records in the loan and/or Pell grant data files of the ELS:2002 ECB.

### **F2GESTAT**

This variable indicates whether the sample member has an associated record in the GED Testing Program data file of the ELS:2002 ECB.

### **PELL0405**

Pell grant received for academic year 2004–05 as reported by NSLDS.

### **PELL0506**

Pell grant received for academic year 2005–06 as reported by NSLDS.

**PELL0607**

Pell grant received for the fall (July 1 through December 31, 2006) of academic year 2006–07 as reported by NSLDS.

**PELLCUM**

Pell grants received cumulatively as of the fall of 2006 as reported by NSLDS.

**PELLYRS**

Indicates the number of years the sample member received Pell grants as reported by NSLDS.

**STSB0405**

Stafford subsidized loan received for academic year 2004–05 as reported by NSLDS.

**STSB0506**

Stafford subsidized loan received for academic year 2005–06 as reported by NSLDS.

**STSB0607**

Stafford subsidized loan received for the fall (July 1 through December 31, 2006) of academic year 2006–07 as reported by NSLDS.

**STUN0405**

Stafford unsubsidized loan received for academic year 2004–05 as reported by NSLDS.

**STUN0506**

Stafford unsubsidized loan received for academic year 2005–06 as reported by NSLDS.

**STUN0607**

Stafford subsidized loan received for the fall (July 1 through December 31, 2006) of academic year 2006–07 as reported by NSLDS.

**PLUS0405**

Parent Loan for Undergraduate Students (PLUS) received for academic year 2004–05 as reported by NSLDS.

**PLUS0506**

PLUS received for academic year 2005–06 as reported by NSLDS.

**PLUS0607**

PLUS received for the fall (July 1 through December 31, 2006) of academic year 2006–07 as reported by NSLDS.

**PERKCUM**

Perkins loans received cumulatively as of the fall of 2006 as reported by NSLDS.

**CNSOWED**

Sum of consolidation loans owed as of the fall of 2006 as reported by NSLDS.

**STFY0405**

Stafford loans (subsidized and unsubsidized) received for academic year 2004–05 as reported by NSLDS.

**STFY0506**

Stafford loans (subsidized and unsubsidized) received for academic year 2005–06 as reported by NSLDS.

**STFY0607**

Stafford loans (subsidized and unsubsidized) received for the fall (July 1 through December 31, 2006) of academic year 2006 as reported by NSLDS.

**STAFTCUM**

Stafford loans (subsidized and unsubsidized) received cumulatively as of the fall of 2006 as reported by NSLDS.

**STAFSCUM**

Stafford subsidized loans received cumulatively as of the fall of 2006 as reported by NSLDS.

**STAFUCUM**

Stafford unsubsidized loans received cumulatively as of the fall of 2006 as reported by NSLDS.

**PLUSCUM**

PLUS received cumulatively as of the fall of 2006 as reported by NSLDS.

**SSPCUM**

Sum of Stafford subsidized loans and Perkins loans received cumulatively as of the fall of 2006 as reported by NSLDS.

**STPCUM**

Sum of Stafford loans (subsidized and unsubsidized) and Perkins loans received cumulatively as of the fall of 2006 as reported by NSLDS.

**SPPCUM**

Sum of Stafford loans (subsidized and unsubsidized), Perkins loans, and PLUS received cumulatively as of the fall of 2006 (July 1 through December 31, 2006) as reported by NSLDS.

**STAFYRS**

Indicates the number of years the sample member received Stafford loans as reported by NSLDS.

**PLUSYRS**

Indicates the number of years the sample member received PLUS as reported by NSLDS.

**STPOWED**

Sum of Perkins and Stafford (subsidized and unsubsidized) loans owed cumulatively as of the fall of 2006 as reported by NSLDS.

**SPPOWED**

Sum of PLUS, Perkins, and Stafford (subsidized and unsubsidized) loans owed cumulatively as of the fall of 2006 as reported by NSLDS.

**TOTOWED**

Total amount owed on Stafford and Perkins loans (including consolidation loans, but excluding PLUS loans) cumulatively as of the fall of 2006 as reported by NSLDS.



**Appendix N**  
**Data Imported Into ELS:2002 From External**  
**Sources**

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## **N.1 ECB-based Linked Data From External Sources**

Ancillary data from various extant sources has, in a number of instances, been imported into the ELS:2002 database and integrated into the electronic codebook (ECB). For each external data source, separate files were constructed that can be linked to the student file. Sample members have one or more records on each data source file when data are available. If information is not available for that data source, then the student record was excluded from that data source file. The following data source files may be accessed:

- the Central Processing System (CPS),
- the National Student Loan Data System (NSLDS),
- the Scholastic Assessment Test (SAT),
- the ACT, and
- the General Educational Development Test (GED).

Some composite variables have been constructed from data obtained from the various extant data sources and included on the student file. In some instances, such as the ACT and SAT, the available data represent the merging of sources: test scores obtained from schools in the high school transcript component of ELS:2002, and data obtained from records matching with the College Board (SAT) or ACT.

Each of the ancillary data sources are briefly described in this appendix.

### **N.1.1 CPS (Central Processing System—FAFSA)**

This database contains all information from the FAFSA (Free Application for Federal Student Aid) for all students who applied for aid in any given academic year and has been matched to academic years 2004–05, 2005–06, and 2006–07. Information includes Expected Family Contribution (EFC) as well as responses to FAFSA questions.

### **N.1.2 NSLDS (National Student Loan Data System)**

The NSLDS database contains records of all federal loan and Pell grant information for anyone who has such a loan or grant. Information includes dates and amounts for loans, name of loan program (e.g., Stafford, Perkins), and dates and amounts for Pell grants.

### **N.1.3 SAT**

SAT scores were collected in the ELS:2002 high school transcript study and have been augmented through records matching with the College Board, based on the year 2004 and earlier. Verbal and math scores are included as well as AP scores. Additionally, school-level mean scores have been included for individual sample members. An SAT-ACT concordance was created, so that both sets of scores would be on a common scale.

### **N.1.4 ACT**

ACT scores were collected in the ELS:2002 transcript study and have been augmented through records matching. Scores include the ACT composite score and scores in English, math, reading, and science. In addition, school-level mean ACT composite scores have been linked to

individual ELS:2002 sample members. An SAT-ACT concordance was created, so that both sets of scores would be on a common scale.

### **N.1.5 GED Test and Survey Data**

The General Educational Development Test (GED) provides the basis for high school equivalency certification. Where records could be matched for ELS:2002 sample members who took the GED, this information has been incorporated into the ELS:2002 database. Specific information includes state in which tested, whether passed or failed, and responses to certain GED survey items.

*Accessing the data.* All of the ancillary data files contain a Stu\_ID field which corresponds to the Stu\_ID field contained in the student file. The student file can be linked to any of the extant data files using that field. The following ancillary data files all have up to one record per applicable sample member: CPS 2004-2005, CPS 2005-2006, CPS 2006-2007, NSLDS: Pell, and GED. The only extant data file that has multiple records per sample member is the NSLDS Loan file.

When merging the NSLDS Loan file with the student file, the resulting dataset will contain at least one row for cases common to both files and multiple rows for cases where multiple rows exist in the NSLDS Loan file. The values of student file variables included in the resulting dataset will be replicated on each row for any case that has multiple rows in the resulting dataset.

If information for a given external data source was not available for any given sample member, that particular data file will not contain a record for that case. When merged with the student file, only cases common to both the student file and the target extant data file will be included in the resulting dataset.

## **N.2 Non-ECB Restricted Files: Augmented Geocode Data From 2000 Decennial Census**

In addition to restricted-use data that have been integrated into the ECB, student-level geocode data are available as a separate file, linkable to the ECB data. The base-year geocode file can be obtained from NCES only through a separate licensing agreement.

A layout file, a SAS program, and an SPSS program have been provided for use of the geocode data. Student ID is provided to facilitate merges to the ECB data.

In constructing the geocode file, the best available source of residential address information was geographically matched to zip code, FIPS state and county code, and Census tract and block code. Claritas Prizm NE codes were utilized as a source of additional geodemographic and neighborhood lifestyle data. More information about Prizm NE codes can be obtained from <http://www.claritas.com>.

## **N.3 Listing of Variables Associated With the Ancillary Data; Explication of Composite Variables Based on These Sources**

Please refer to appendixes L and M for further information. Specifically, appendix L contains a listing of all base-year through second follow-up ECB variables. Variables from the

external extant data sources are included in this listing. Further information about composite variables based on these sources can be found in appendix M.

File Number	Variable Name	Variable Label	Source
1	STU_ID	Analysis case ID	
1	TXACTC	Highest ACT composite score	ACT and Transcript
1	TXACTM	Highest ACT math component score	ACT and Transcript
1	TXACTR	Highest ACT reading component score	ACT and Transcript
1	TXACTE	Highest ACT English component score	ACT and Transcript
1	TXACTS	Highest ACT science component score	ACT and Transcript
1	TXEESATC	Highest entrance exam composite score in terms of SAT	ACT, College Board, Transcript
1	TXEESATM	Highest entrance exam math score in terms of SAT	ACT, College Board, Transcript
1	TXEEACTC	Highest entrance exam composite score in terms of ACT	ACT, College Board, Transcript
1	TXEEACTM	Highest entrance exam math score in terms of ACT	ACT, College Board, Transcript
1	TXSATM	Highest SAT math score	College Board and Transcript
1	TXSATV	Highest SAT verbal score	College Board and Transcript
1	TXSATC	SAT composite score	College Board and Transcript
1	TXAPBIO	AP exam: Biology	College Board and Transcript
1	TXAPCHE	AP exam: Chemistry	College Board and Transcript
1	TXAPCGP	AP exam: Comparative government and politics	College Board and Transcript
1	TXAPCSA	AP exam: Computer science A	College Board and Transcript
1	TXAPCSB	AP exam: Computer science AB	College Board and Transcript
1	TXAPLIT	AP exam: English literature and composition	College Board and Transcript
1	TXAPLAN	AP exam: English language and composition	College Board and Transcript
1	TXAPEUH	AP exam: European history	College Board and Transcript
1	TXAPFLA	AP exam: French language	College Board and Transcript
1	TXAPFLI	AP exam: French literature	College Board and Transcript
1	TXAPGER	AP exam: German language	College Board and Transcript
1	TXAPHAR	AP exam: Art History	College Board and Transcript
1	TXAPLVE	AP exam: Latin/Vergil	College Board and Transcript
1	TXAPCAA	AP exam: Calculus AB	College Board and Transcript
1	TXAPCAB	AP exam: Calculus BC	College Board and Transcript
1	TXAPMAC	AP exam: Macroeconomics	College Board and Transcript
1	TXAPMIC	AP exam: Microeconomics	College Board and Transcript
1	TXAPMT	AP exam: Music theory	College Board and Transcript
1	TXAPPB	AP exam: Physics B	College Board and Transcript
1	TXAPPCE	AP exam: Physics C, E & M	College Board and Transcript
1	TXAPPCM	AP exam: Physics C, mechanics	College Board and Transcript
1	TXAPPSY	AP exam: Psychology	College Board and Transcript
1	TXAPSLA	AP exam: Spanish language	College Board and Transcript
1	TXAPSLI	AP exam: Spanish literature	College Board and Transcript
1	TXAPSad	AP exam: Studio art drawing	College Board and Transcript
1	TXAPUSG	AP exam: U.S. government and politics	College Board and Transcript
1	TXAPUSH	AP exam: U.S. history	College Board and Transcript
1	TXAPENV	AP exam: Environmental science	College Board and Transcript
1	TXAPHUM	AP exam: Human geography	College Board and Transcript
1	TXAPLAT	AP exam: Latin literature	College Board and Transcript
1	TXAPSTA	AP exam: Statistics	College Board and Transcript
1	TXAPSA2	AP exam: Studio art 2-d design	College Board and Transcript

Appendix N. Data Imported Into ELS:2002 from External Sources

File Number	Variable Name	Variable Label	Source
1	TXAPSA3	AP exam: Studio art 3-d design	College Board and Transcript
1	TXAPWOR	AP exam: World history	College Board and Transcript
1	TXSATM1	SAT subject test: Mathematics 1	College Board and Transcript
1	TXSATM2	SAT subject test: Mathematics 2	College Board and Transcript
1	TXSATPH	SAT subject test: Physics	College Board and Transcript
1	TXSATCH	SAT subject test: Chemistry	College Board and Transcript
1	TXSATBY	SAT subject test: Biology	College Board and Transcript
1	TXSATLI	SAT subject test: Literature	College Board and Transcript
1	TXSATUS	SAT subject test: U.S. History	College Board and Transcript
1	TXSATFR	SAT subject test: French	College Board and Transcript
1	TXSATGE	SAT subject test: German	College Board and Transcript
1	TXSATLA	SAT subject test: Latin	College Board and Transcript
1	TXSATSP	SAT subject test: Spanish	College Board and Transcript
1	TXSATMH	SAT subject test: Modern Hebrew	College Board and Transcript
1	TXSATCL	SAT subject test: Chinese with listening	College Board and Transcript
1	TXSATEP	SAT subject test: English language proficiency	College Board and Transcript
1	TXSATFL	SAT subject test: French with listening	College Board and Transcript
1	TXSATGL	SAT subject test: German with listening	College Board and Transcript
1	TXSATSL	SAT subject test: Spanish with listening	College Board and Transcript
1	TXSATWH	SAT subject test: World history	College Board and Transcript
1	TXSATWR	SAT subject test: Writing	College Board and Transcript
1	PELL0405	Pell grant 2004-05	NSLDS Pell Composites
1	PELL0506	Pell grant 2005-06	NSLDS Pell Composites
1	PELL0607	Pell grant 2006-07 (Fall 2006 only)	NSLDS Pell Composites
1	PELLCUM	Cumulative Pell	NSLDS Pell Composites
1	PELLYRS	Pell: number of years received	NSLDS Pell Composites
1	STSB0405	Stafford subsidized loan 2004-05	NSLDS Loan Composites
1	STSB0506	Stafford subsidized loan 2005-06	NSLDS Loan Composites
1	STSB0607	Stafford subsidized loan 2006-07 (Fall 2006 only)	NSLDS Loan Composites
1	STUN0405	Stafford unsubsidized loan 2004-05	NSLDS Loan Composites
1	STUN0506	Stafford unsubsidized loan 2005-06	NSLDS Loan Composites
1	STUN0607	Stafford unsubsidized loan 2006-07 (Fall 2006 only)	NSLDS Loan Composites
1	PLUS0405	PLUS loan 2004-05	NSLDS Loan Composites
1	PLUS0506	PLUS loan 2005-06	NSLDS Loan Composites
1	PLUS0607	PLUS loan 2006-07 (Fall 2006 only)	NSLDS Loan Composites
1	PERKCUM	Cumulative Perkins	NSLDS Loan Composites
1	CNSOWED	Consolidated loan: amount owed	NSLDS Loan Composites
1	STFY0405	Stafford loan total 2004-05	NSLDS Loan Composites
1	STFY0506	Stafford loan total 2005-06	NSLDS Loan Composites
1	STFY0607	Stafford loan total 2006-07 (Fall 2006 only)	NSLDS Loan Composites
1	STAFTCUM	Cumulative Stafford total	NSLDS Loan Composites
1	STAFSCUM	Cumulative Stafford subsidized	NSLDS Loan Composites
1	STAFUCUM	Cumulative Stafford unsubsidized	NSLDS Loan Composites
1	PLUSCUM	Cumulative PLUS	NSLDS Loan Composites
1	SSPCUM	Cumulative Stafford sub and Perkins	NSLDS Loan Composites
1	STPCUM	Cumulative Stafford and Perkins	NSLDS Loan Composites
1	SPPCUM	Cumulative Stafford, Perkins, PLUS	NSLDS Loan Composites
1	STAFYRS	Stafford: number of years borrowed	NSLDS Loan Composites

File Number	Variable Name	Variable Label	Source
1	PLUSYRS	PLUS: number of years borrowed	NSLDS Loan Composites
1	STPOWED	Stafford and Perkins: amount owed	NSLDS Loan Composites
1	SPPOWED	Stafford, Perkins, PLUS: amount owed	NSLDS Loan Composites
1	TOTOWED	Total amount owed except for PLUS	NSLDS Loan Composites
6	STU_ID	Analysis case ID	
6	C05021	Student's state of legal residence	CPS 2004-2005
6	C05022	Student legal resident before 1-1-1999?	CPS 2004-2005
6	C05023	Student's legal residence date	CPS 2004-2005
6	C05026	Degree/certificate	CPS 2004-2005
6	C05027	Grade level in college	CPS 2004-2005
6	C05030	Interested in student loans?	CPS 2004-2005
6	C05031	Interested in Work-Study?	CPS 2004-2005
6	C05038	Student's adj gross inc on IRS form	CPS 2004-2005
6	C05039	Student's U.S. income tax paid	CPS 2004-2005
6	C05040	Student's exemptions claimed	CPS 2004-2005
6	C05041	Student's income earned from work	CPS 2004-2005
6	C05046	Student's cash, savings, checking	CPS 2004-2005
6	C05047	Student's investment net worth	CPS 2004-2005
6	C05058	Parents' marital status	CPS 2004-2005
6	C05068	Parents' number of family members	CPS 2004-2005
6	C05069	Parents' number in college	CPS 2004-2005
6	C05070	Parents' state of legal residence	CPS 2004-2005
6	C05071	Parents' legal residents before 1-1-1999?	CPS 2004-2005
6	C05072	Parents' legal residence date	CPS 2004-2005
6	C05076	Parents' adjusted gross income	CPS 2004-2005
6	C05077	Parents' U.S. income tax paid	CPS 2004-2005
6	C05078	Parents' exemptions claimed	CPS 2004-2005
6	C05079	Father's income earned from work	CPS 2004-2005
6	C05080	Mother's income earned from work	CPS 2004-2005
6	C05081	Parents' total amount from worksheet A	CPS 2004-2005
6	C05082	Parents' total amount from worksheet B	CPS 2004-2005
6	C05083	Parents' total amount from worksheet C	CPS 2004-2005
6	C05084	Parents' cash, savings, checking	CPS 2004-2005
6	C05085	Parents' investment net worth	CPS 2004-2005
6	C05086	Parents' business and/or farm net worth	CPS 2004-2005
6	C05089	Federal School code #1	CPS 2004-2005
6	C05090	Federal School code #1 Housing Plans	CPS 2004-2005
6	C05091	Federal School code #2	CPS 2004-2005
6	C05092	Federal School code #2 Housing Plans	CPS 2004-2005
6	C05093	Federal School code #3	CPS 2004-2005
6	C05094	Federal School code #3 Housing Plans	CPS 2004-2005
6	C05095	Federal School code #4	CPS 2004-2005
6	C05096	Federal School code #4 Housing Plans	CPS 2004-2005
6	C05097	Federal School code #5	CPS 2004-2005
6	C05098	Federal School code #5 Housing Plans	CPS 2004-2005
6	C05099	Federal School code #6	CPS 2004-2005
6	C05100	Federal School code #6 Housing Plans	CPS 2004-2005
6	C05101	Enrollment status	CPS 2004-2005

Appendix N. Data Imported Into ELS:2002 from External Sources

File Number	Variable Name	Variable Label	Source
6	C05110	Dependency status	CPS 2004-2005
6	C05134	Application receipt date	CPS 2004-2005
6	C05144	Pell grant eligibility flag	CPS 2004-2005
6	C05150	Automatic zero EFC	CPS 2004-2005
6	C05151	Simplified needs test (SNT)	CPS 2004-2005
6	C05179	Primary EFC	CPS 2004-2005
6	C05181	Primary EFC type	CPS 2004-2005
6	C05205	TI: Total Income	CPS 2004-2005
6	C05206	ATI: Allowances Against Total Income	CPS 2004-2005
6	C05207	STX: State Tax Allowance	CPS 2004-2005
6	C05208	EA: Employment Allowance	CPS 2004-2005
6	C05209	IPA: Income Protection Allowance	CPS 2004-2005
6	C05210	AI: Available Income	CPS 2004-2005
6	C05211	CAI: Contribution from available income	CPS 2004-2005
6	C05212	DNW: Discretionary Net Worth	CPS 2004-2005
6	C05213	NW: Net Worth	CPS 2004-2005
6	C05214	APA: Asset Protection Allowance	CPS 2004-2005
6	C05215	PCA: Parents' Contribution from Assets	CPS 2004-2005
6	C05216	AAI: Adjusted Available Income	CPS 2004-2005
6	C05217	TSC: Total Student Contribution	CPS 2004-2005
6	C05218	TPC: Total Parent Contribution	CPS 2004-2005
6	C05219	PC: Parents' Contribution	CPS 2004-2005
6	C05220	STI: Student's Total Income	CPS 2004-2005
6	C05221	SATI: Student's Allow Agnst Total Income	CPS 2004-2005
6	C05222	SIC: Dependent Student's Inc Contribution	CPS 2004-2005
6	C05223	SDNW: Student's Discretionary Net Worth	CPS 2004-2005
6	C05224	SCA: Student's Contribution from Assets	CPS 2004-2005
6	C05225	FTI: FISAP total income	CPS 2004-2005
7	STU_ID	Analysis case ID	
7	C06021	Student's state of legal residence	CPS 2005-2006
7	C06022	Student legal resident before 1-1-2000?	CPS 2005-2006
7	C06023	Student's legal residence date	CPS 2005-2006
7	C06026	Degree/certificate	CPS 2005-2006
7	C06027	Grade level in college	CPS 2005-2006
7	C06030	Interested in student loans?	CPS 2005-2006
7	C06031	Interested in Work-Study?	CPS 2005-2006
7	C06038	Student's adj gross inc on IRS form	CPS 2005-2006
7	C06039	Student's U.S. income tax paid	CPS 2005-2006
7	C06040	Student's exemptions claimed	CPS 2005-2006
7	C06041	Student's income earned from work	CPS 2005-2006
7	C06046	Student's cash, savings, checking	CPS 2005-2006
7	C06047	Student's investment net worth	CPS 2005-2006
7	C06058	Parents' marital status	CPS 2005-2006
7	C06068	Parents' number of family members	CPS 2005-2006
7	C06069	Parents' number in college	CPS 2005-2006
7	C06070	Parents' state of legal residence	CPS 2005-2006
7	C06071	Parents' legal residents before 1-1-2000?	CPS 2005-2006
7	C06072	Parents' legal residence date	CPS 2005-2006



File Number	Variable Name	Variable Label	Source
7	C06076	Parents' adjusted gross income	CPS 2005-2006
7	C06077	Parents' U.S. income tax paid	CPS 2005-2006
7	C06078	Parents' exemptions claimed	CPS 2005-2006
7	C06079	Father's income earned from work	CPS 2005-2006
7	C06080	Mother's income earned from work	CPS 2005-2006
7	C06081	Parents' total amount from worksheet A	CPS 2005-2006
7	C06082	Parents' total amount from worksheet B	CPS 2005-2006
7	C06083	Parents' total amount from worksheet C	CPS 2005-2006
7	C06084	Parents' cash, savings, checking	CPS 2005-2006
7	C06085	Parents' investment net worth	CPS 2005-2006
7	C06086	Parents' business and/or farm net worth	CPS 2005-2006
7	C06089	Federal School code #1	CPS 2005-2006
7	C06090	Federal School code #1 Housing Plans	CPS 2005-2006
7	C06091	Federal School code #2	CPS 2005-2006
7	C06092	Federal School code #2 Housing Plans	CPS 2005-2006
7	C06093	Federal School code #3	CPS 2005-2006
7	C06094	Federal School code #3 Housing Plans	CPS 2005-2006
7	C06095	Federal School code #4	CPS 2005-2006
7	C06096	Federal School code #4 Housing Plans	CPS 2005-2006
7	C06097	Federal School code #5	CPS 2005-2006
7	C06098	Federal School code #5 Housing Plans	CPS 2005-2006
7	C06099	Federal School code #6	CPS 2005-2006
7	C06100	Federal School code #6 Housing Plans	CPS 2005-2006
7	C06101	Enrollment status	CPS 2005-2006
7	C06110	Dependency status	CPS 2005-2006
7	C06140	Application receipt date	CPS 2005-2006
7	C06152	Pell grant eligibility flag	CPS 2005-2006
7	C06158	Automatic zero EFC	CPS 2005-2006
7	C06159	Simplified needs test (SNT)	CPS 2005-2006
7	C06186	Primary EFC	CPS 2005-2006
7	C06188	Primary EFC type	CPS 2005-2006
7	C06212	TI: Total Income	CPS 2005-2006
7	C06213	ATI: Allowances Against Total Income	CPS 2005-2006
7	C06214	STX: State Tax Allowance	CPS 2005-2006
7	C06215	EA: Employment Allowance	CPS 2005-2006
7	C06216	IPA: Income Protection Allowance	CPS 2005-2006
7	C06217	AI: Available Income	CPS 2005-2006
7	C06218	CAI: Contribution from available income	CPS 2005-2006
7	C06219	DNW: Discretionary Net Worth	CPS 2005-2006
7	C06220	NW: Net Worth	CPS 2005-2006
7	C06221	APA: Asset Protection Allowance	CPS 2005-2006
7	C06222	PCA: Parents' Contribution from Assets	CPS 2005-2006
7	C06223	AAI: Adjusted Available Income	CPS 2005-2006
7	C06224	TSC: Total Student Contribution	CPS 2005-2006
7	C06225	TPC: Total Parent Contribution	CPS 2005-2006
7	C06226	PC: Parents' Contribution	CPS 2005-2006
7	C06227	STI: Student's Total Income	CPS 2005-2006
7	C06228	SATI: Student's Allow Agnst Total Income	CPS 2005-2006

Appendix N. Data Imported Into ELS:2002 from External Sources

File Number	Variable Name	Variable Label	Source
7	C06229	SIC: Dependent Student's Inc Contribution	CPS 2005-2006
7	C06230	SDNW: Student's Discretionary Net Worth	CPS 2005-2006
7	C06231	SCA: Student's Contribution from Assets	CPS 2005-2006
7	C06232	FTI: FISAP total income	CPS 2005-2006
8	STU_ID	Analysis case ID	
8	C07021	Student's state of legal residence	CPS 2006-2007
8	C07022	Student legal resident before 1-1-2001?	CPS 2006-2007
8	C07023	Student's legal residence date	CPS 2006-2007
8	C07026	Degree/certificate	CPS 2006-2007
8	C07027	Grade level in college	CPS 2006-2007
8	C07030	Interested in student loans?	CPS 2006-2007
8	C07031	Interested in Work-Study?	CPS 2006-2007
8	C07038	Student's adj gross inc on IRS form	CPS 2006-2007
8	C07039	Student's U.S. income tax paid	CPS 2006-2007
8	C07040	Student's exemptions claimed	CPS 2006-2007
8	C07046	Student's cash, savings, checking	CPS 2006-2007
8	C07047	Student's investment net worth	CPS 2006-2007
8	C07058	Parents' marital status	CPS 2006-2007
8	C07068	Parents' number of family members	CPS 2006-2007
8	C07069	Parents' number in college	CPS 2006-2007
8	C07070	Parents' state of legal residence	CPS 2006-2007
8	C07071	Parents' legal residents before 1-1-2001?	CPS 2006-2007
8	C07072	Parents' legal residence date	CPS 2006-2007
8	C07076	Parents' adjusted gross income	CPS 2006-2007
8	C07077	Parents' U.S. income tax paid	CPS 2006-2007
8	C07078	Parents' exemptions claimed	CPS 2006-2007
8	C07079	Father's income earned from work	CPS 2006-2007
8	C07080	Mother's income earned from work	CPS 2006-2007
8	C07081	Parents' total amount from worksheet A	CPS 2006-2007
8	C07082	Parents' total amount from worksheet B	CPS 2006-2007
8	C07083	Parents' total amount from worksheet C	CPS 2006-2007
8	C07084	Parents' cash, savings, checking	CPS 2006-2007
8	C07085	Parents' investment net worth	CPS 2006-2007
8	C07086	Parents' business and/or farm net worth	CPS 2006-2007
8	C07089	Federal School code #1	CPS 2006-2007
8	C07090	Federal School code #1 Housing Plans	CPS 2006-2007
8	C07091	Federal School code #2	CPS 2006-2007
8	C07092	Federal School code #2 Housing Plans	CPS 2006-2007
8	C07093	Federal School code #3	CPS 2006-2007
8	C07094	Federal School code #3 Housing Plans	CPS 2006-2007
8	C07095	Federal School code #4	CPS 2006-2007
8	C07096	Federal School code #4 Housing Plans	CPS 2006-2007
8	C07097	Federal School code #5	CPS 2006-2007
8	C07098	Federal School code #5 Housing Plans	CPS 2006-2007
8	C07099	Federal School code #6	CPS 2006-2007
8	C07100	Federal School code #6 Housing Plans	CPS 2006-2007
8	C07101	Enrollment status	CPS 2006-2007
8	C07110	Dependency status	CPS 2006-2007

File Number	Variable Name	Variable Label	Source
8	C07140	Application receipt date	CPS 2006-2007
8	C07152	Pell grant eligibility flag	CPS 2006-2007
8	C07158	Automatic zero EFC	CPS 2006-2007
8	C07159	Simplified needs test (SNT)	CPS 2006-2007
8	C07186	Primary EFC	CPS 2006-2007
8	C07188	Primary EFC type	CPS 2006-2007
8	C07212	TI: Total Income	CPS 2006-2007
8	C07213	ATI: Allowances Against Total Income	CPS 2006-2007
8	C07214	STX: State Tax Allowance	CPS 2006-2007
8	C07215	EA: Employment Allowance	CPS 2006-2007
8	C07216	IPA: Income Protection Allowance	CPS 2006-2007
8	C07217	AI: Available Income	CPS 2006-2007
8	C07218	CAI: Contribution from available income	CPS 2006-2007
8	C07219	DNW: Discretionary Net Worth	CPS 2006-2007
8	C07220	NW: Net Worth	CPS 2006-2007
8	C07221	APA: Asset Protection Allowance	CPS 2006-2007
8	C07222	PCA: Parents' Contribution from Assets	CPS 2006-2007
8	C07223	AAI: Adjusted Available Income	CPS 2006-2007
8	C07224	TSC: Total Student Contribution	CPS 2006-2007
8	C07225	TPC: Total Parent Contribution	CPS 2006-2007
8	C07226	PC: Parents' Contribution	CPS 2006-2007
8	C07227	STI: Student's Total Income	CPS 2006-2007
8	C07228	SATI: Student's Allow Agnst Total Income	CPS 2006-2007
8	C07229	SIC: Dependent Student's Inc Contribution	CPS 2006-2007
8	C07230	SDNW: Student's Discretionary Net Worth	CPS 2006-2007
8	C07231	SCA: Student's Contribution from Assets	CPS 2006-2007
8	C07232	FTI: FISAP total income	CPS 2006-2007
9	STU_ID		
9	PDATE1	Pell grant enrollment begin	NSLDS Pell
9	PLAMTP1	Pell grant paid amount	NSLDS Pell
9	PLAMTP2	Pell grant remaining	NSLDS Pell
9	PLAMTSCH	Pell grant scheduled amount	NSLDS Pell
9	PLBR1	Pell institution branch	NSLDS Pell
9	PLCOST1	Pell cost of attendance	NSLDS Pell
9	PLEFC	Pell grant EFC	NSLDS Pell
9	PLSCHL1	Pell institution code (OPEID)	NSLDS Pell
9	PLYEAR	Pell paid year (FY)	NSLDS Pell
10	STU_ID		NSLDS Loan Composites
10	ACADLVL	Academic level	NSLDS Loan Composites
10	BEGDATE	Loan period begin date	NSLDS Loan Composites
10	BRNCHCOD	School branch code	NSLDS Loan Composites
10	ENDDATE	Loan period end date	NSLDS Loan Composites
10	GACODE	Current guaranty agency code	NSLDS Loan Composites
10	LNSTDAT2	Prior loan status date	NSLDS Loan Composites
10	LNSTDATE	Current loan status date	NSLDS Loan Composites
10	LOANAMT	Loan amount guaranteed	NSLDS Loan Composites
10	LOANDATE	Loan guaranteed date	NSLDS Loan Composites
10	LOANSTA2	Prior loan status code	NSLDS Loan Composites

Appendix N. Data Imported Into ELS:2002 from External Sources

File Number	Variable Name	Variable Label	Source
10	LOANSTAT	Current loan status	NSLDS Loan Composites
10	LOANTYPE	Loan type	NSLDS Loan Composites
10	OUTSTAND	Outstanding principal balance	NSLDS Loan Composites
10	OUTSTDAT	Outstanding principal balance date	NSLDS Loan Composites
10	SCHCODE	Title IV school code (OPEID)	NSLDS Loan Composites
10	SEQNO	Record sequence number	NSLDS Loan Composites
10	TOTCAN	Total canceled	NSLDS Loan Composites
10	TOTDIS	Total amount disbursed	NSLDS Loan Composites
11	Stu ID		GED Questionnaire
11	GEDSTATE	State where candidate last took GED test	GED Questionnaire
11	GEDPRACT	Whether candidate took official practice test	GED Questionnaire
11	GEDPASSD	Whether candidate passed GED test	GED Questionnaire
11	GEDPASDT	Date passed GED test	GED Questionnaire
11	GEDRSN01	Took GED test to enroll in tech/trade program	GED Questionnaire
11	GEDRSN02	Took GED test to enter 2-year college	GED Questionnaire
11	GEDRSN03	Took GED test to enter 4-year college	GED Questionnaire
11	GEDRSN04	Took GED test for job training	GED Questionnaire
11	GEDRSN05	Took GED test to get first job or better job	GED Questionnaire
11	GEDRSN06	Took GED test to keep current job or satisfy employer requirement	GED Questionnaire
11	GEDRSN07	Took GED test to gain military entrance or for military career	GED Questionnaire
11	GEDRSN08	Took GED test to be a role model for family	GED Questionnaire
11	GEDRSN09	Took GED test for personal satisfaction	GED Questionnaire
11	GEDRSN10	Took GED test for some other reason	GED Questionnaire
11	GEDLRN01	First learned about GED from friend/family	GED Questionnaire
11	GEDLRN02	First learned about GED from classmate	GED Questionnaire
11	GEDLRN03	First learned about GED from counselor/teacher	GED Questionnaire
11	GEDLRN04	First learned about GED through the media	GED Questionnaire
11	GEDLRN05	First learned about GED from some other source	GED Questionnaire
11	GEDPRP01	Prepared for GED test through public school adult education class	GED Questionnaire
11	GEDPRP02	Prepared for GED test through community college adult education class	GED Questionnaire
11	GEDPRP03	Prepared for GED test through internet/computer	GED Questionnaire
11	GEDPRP04	Prepared for GED test through home study/schooling or family literacy	GED Questionnaire
11	GEDPRP05	Prepared for GED test through official practice test	GED Questionnaire
11	GEDPRP06	Prepared for GED test through library	GED Questionnaire
11	GEDPRP07	Prepared for GED test through GED option	GED Questionnaire
11	GEDPRP08	Prepared for GED test through homeless program	GED Questionnaire
11	GEDPRP09	Prepared for GED test through job corps or employment/training program	GED Questionnaire
11	GEDPRP10	Prepared for GED test by self-teaching	GED Questionnaire
11	GEDPRP11	Prepared for GED test in some other way	GED Questionnaire

# **Appendix O**

## **Glossary of Terms**

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**Accommodations (testing):** In the Education Longitudinal Study of 2002 (ELS:2002), certain accommodations were offered to students with barriers to participation, such as students with disabilities or English-language learners with limited English proficiency. An accommodation is a change in how a test is presented, in how a test is administered, or in how the test taker is allowed to respond. This term generally refers to changes that do not substantially alter what the test measures. The proper use of accommodations does not substantially change academic level or performance criteria. Appropriate accommodations are made to provide equal opportunity to demonstrate knowledge. Examples of test accommodations include allowing extra time, use of a large-print version of a test, or conveying instructions in sign language. Cases in which accommodations were implemented in ELS:2002 are specially flagged (the indicators are BYTXACC and FITXACC).

**Adaptive testing:** Beyond being “grade-level” adaptive, procedures were followed in ELS:2002 to make the assessments further adaptive by matching test items to student ability. In the ELS:2002 base year, multiple test forms of varying levels of difficulty were assigned based on the examinee’s score on a routing test. Thus, the specific sequence of questions that each student answered was tailored to that student’s ability level. An advantage of adaptive tests is that reliability per unit of testing time is greater than in a nonadaptive test. Adaptive procedures help to minimize floor and ceiling effects (see *Ceiling effect* and *Floor effect*). ELS:2002 adaptive testing relies on Item Response Theory (see *IRT*) assumptions to place students who have taken different test forms on the same vertical score scale. In the first follow-up, each student’s test form was assigned on the basis of base-year test performance.

**American Indian or Alaska Native:** An American Indian or Alaska Native is a person who has origins in any of the original peoples of North and South America (including Central America) and who maintains tribal affiliation or community attachment.

**Asian:** An Asian is a person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent, including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam.

**Base weights:** See *Design weights*.

**Bias:** Bias is the difference between the reported value and the true value. Thus, the bias of an estimate is the difference between the expected value of a sample estimate and the corresponding true value for the population. Response bias is the difference between respondent reports and their behavior or characteristics. Nonresponse bias is the difference that occurs when respondents differ as a group from nonrespondents on a characteristic being studied. Sample bias is the unequal selection or the omission of members of the population, without appropriate weighting. Relatedly, undercoverage bias arises because some portion of the potential sampling frame is missed or excluded, or there are duplicate units. For example, if the school list from which a school sample is drawn is incomplete or inaccurate (owing, for example, to the birth of new schools subsequent to the time the list was drawn up), school undercoverage may occur. (See also *Nonresponse bias* and *Bias analysis*.)

**Bias analysis:** Nonresponse bias analysis compares the characteristics of respondents and nonrespondents. Both unit nonresponse (school, student) and item nonresponse on questionnaires were subject to bias analyses in ELS:2002. For example, certain key data items were obtained for both responding and nonresponding schools, so that a school nonresponse analysis could be conducted and bias in school-level estimates quantified.

**Black or African American:** A person having origins in any of the Black racial groups of Africa.

**Burden:** Formally, burden is the aggregate hours realistically required for data providers to participate in a data collection. Burden also has a subjective or psychological dimension: the degree to which providing information is regarded as onerous may depend on the salience to the respondent of the questions that are being posed and on other factors, such as competing time demands.

**Carnegie unit:** A factor used to standardize credits in secondary education. This standard measurement represents the completion of a course that meets one period per day (45 to 60 minutes) for 1 academic year.

**CAPI:** Computer-assisted personal interviewing, in which the questionnaire is loaded into a field interviewer's laptop computer.

**CATI:** Computer-assisted telephone interviewing.

**CCD:** Common Core of Data. Data annually collected from all public schools in the United States by *NCES*. Data from the CCD supplied the public school sampling frame for the ELS:2002 base year.

**CD-ROM:** Compact Disc Read-Only Memory. ELS:2002 data are distributed primarily in an optical laser disc medium, specifically, CD-ROM. A CD-ROM is a computer storage disc in the same physical form as an audio CD; it can store approximately 650 megabytes of digital data.

**Ceiling effect:** The result of a test having insufficient numbers of the more difficult items. In a longitudinal study, ceiling effects in the follow-up can cause change scores to be artificially constrained for high-ability examinees. The measurement problems related to floor and ceiling effects in combination with regression effects found at the extreme score ranges seriously hamper the accuracy of change measures in longitudinal studies. More information (i.e., smaller error of measurement) is obtained with respect to ability level if high-ability individuals receive relatively harder items (and if low-ability individuals receive proportionately easier items). The matching of item difficulty to a person's ability level yields increased reliability at the extremes of the score distribution, where it is most needed for studies of longitudinal change. A strategy employed in ELS:2002 to minimize ceiling (and floor) effects is to employ test forms that are "adaptive" to the ability level of the examinee. Multilevel tests—with second stage test assignment that is based on the first stage (routing test) performance work—minimize the possibility that ceiling effects might bias the estimates of the score gains. (See also *Adaptive testing* and *Floor effect*.)

**Classical test theory:** Classical test theory postulates that a test score can be decomposed into two parts—a true score and an error component; that the error component is random with a mean of zero and is uncorrelated with true scores; and that true scores, observed scores, and error components are linearly related.

**Closed-ended:** A type of question in which the data provider's responses are limited to given alternatives (as opposed to an open-ended question). (See also *Open-ended*.)

**Clustering:** A sample selection method in which small geographical areas such as schools (as is the case in ELS:2002), school districts, counties, or residential blocks are selected as an initial stage, with individuals selected in a subsequent step. (See also *Primary sampling unit*.)



**Cluster size:** The number of ELS:2002 sample members attending a particular high school.

**Codebook:** Documentation of each variable being measured, including variable name, columns occupied by each variable in the data matrix, values used to define each variable, unweighted frequencies, unweighted percents, and weighted valid percents. (See *ECB*.)

**Coefficient of variation:** The ratio of the standard deviation of an estimate to the value of the estimate.

**Cognitive test battery:** One of the two parts of the student survey (the second part being the student questionnaire). Two achievement areas (mathematics and reading) were measured in the base year. Mathematics achievement was measured again in the first follow-up.

**Cohort:** A group of individuals who have a statistical factor in common—for example, year of birth, grade in school, or year of high school graduation. ELS:2002 is a sophomore-grade cohort based on the spring term of the 2001–02 school year. It also contains, however, a nationally representative sample of high school seniors in the spring term of the 2003–04 school year (see *Freshening*). In contrast, the Program for International Student Assessment (*PISA*) is an age cohort, based on students who were 15.25 years of age in April of 2000 or 2003.

**Composite variable:** A composite variable is one that is either constructed through the combination of two or more variables (socioeconomic status, for example, combines mother’s education, father’s education, mother’s occupation, father’s occupation, and family income) or calculated through the application of a mathematical function or transformation to a variable (e.g., conversion of raw test scores to percentile ranks). Also called a derived variable, created variable, or constructed variable.

**Concordance:** Concordance is a weaker form of test linkage than equating in that the link is based on population distributions rather than the equivalence of interchangeable scores. Implementation in ELS:2002 of PISA scale scores in reading and math and of *NAEP* math scores was through a concordance using (primarily) an equipercentile transformation or linkage. (See also *Equating* and *Equated test score*.)

**Confidence interval:** A sample-based estimate expressed as an interval or range of values within which the true population value is expected to be located (with a specified degree of confidence).

**Confidentiality protections:** *NCES* is required by law to protect individually identifiable data from unauthorized disclosure. To this end, the ELS:2002 data have been subject to a disclosure risk analysis to determine which records require masking to produce the public-use data file from the restricted-use data file. Disclosure coarsening techniques (such as recoding of continuous variables into categorical, top and bottom coding, and so on) and data perturbation techniques (e.g., data swapping) have been used to provide disclosure protection to the ELS:2002 data. (See also *Data swapping* and *Disclosure risk analysis*.)

**Consent, active (explicit):** One variety of informed consent is called active or explicit consent. Typically, in active consent, a signed agreement to participate in a study must be obtained. In ELS:2002, permission of parents was required before students could be surveyed. Some schools required active parental consent (i.e., that a signed permission form be obtained).

**Consent, passive (implied):** Another variety of informed consent is called passive or implied consent. In passive consent, a permission form is sent to the relevant party (in ELS:2002,

normally the parent or guardian of the sampled student), who has the opportunity to return the form to indicate denial of permission. If the form is not returned, it is assumed that the individual has no objection to survey participation. In ELS:2002, most schools allowed passive parental consent for their child's participation in the study.

**Constructed response item:** In the ELS:2002 assessment battery in the base year, a non-multiple-choice item that required some type of written response.

**Contextual data:** In ELS:2002, the primary unit of analysis is the student, and information from the other study components, referred to as contextual data, should be viewed as extensions of the student data. For example, observations made in school administrator, teacher, librarian, and parent reports on the student's school learning environment or home situation would be considered contextual data.

**Course offerings file:** An ELS:2002 restricted-use data file providing a comprehensive list of the courses offered by schools participating in the base year of the study. A *CSSC* (Classification of Secondary School Courses) code is associated with each course title.

**Coverage rate:** In ELS:2002 base-year contextual samples, the proportion of the responding student sample with a report from a given contextual source (e.g., the parent survey, the teacher survey, or the school administrator survey). For the teacher survey, the student coverage rate can be calculated as either the percentage of participating students with two teacher reports or the percentage with at least one teacher report. The teacher and parent surveys in ELS:2002 are purely contextual. The base-year school-level surveys (school administrator, library media center, facilities checklist) can be used contextually (with the student as the unit of analysis) or in standalone fashion (with the school as the unit of analysis). (See *Response rate*.) Finally, test completions (reading assessments, mathematics assessments) are also calculated on a base of the student questionnaire completers (in the first follow-up, for the in-school student sample only), rather than on the entire sample, and thus express a coverage rate. "Coverage" can also refer to the issue of missed target population units on the sampling frame (undercoverage), or duplicated or erroneously enumerated units (overcoverage) (see *Bias* for discussion of undercoverage bias).

**Criterion-referenced:** A criterion-referenced test allows its user to measure how well a student or groups of students have learned a specific body of knowledge and skills—it tests what they can do and what they know, and at least in theory, all examinees could obtain a perfect score. The ELS:2002 IRT-estimated number-right scores are examples of criterion-referenced measures of status at a point in time. The criterion is the knowledge and set of skills defined by the assessment framework and represented by the assessment item pool. In contrast, the purpose of norm-referenced tests is to rank or compare students. (See *Norm-referenced*.)

**Cross-cohort (or intercohort) analysis:** The ELS:2002 base-year and first follow-up surveys contained many data elements that were comparable to items from prior studies. (Comparatively few items, however, are comparable across ELS:2002/2006, National Education Longitudinal Study of 1988 [NELS:88/94], and similar time points for the High School and Beyond [HS&B] cohorts and National Longitudinal Study of the High School Class of 1972 [NLS:72]). Repeated items supply a basis for comparison with earlier sophomore cohorts (such as 1980 sophomores in the HS&B longitudinal study and 1990 sophomores in NELS:88). With a freshened senior sample, the ELS:2002 first follow-up supports comparisons to 1972 (NLS:72), 1980 (HS&B), and 1992 (NELS:88). The first follow-up academic transcript component will offer a further opportunity for cross-cohort comparisons with the high school transcript studies of HS&B,

NELS:88, and the National Assessment of Educational Progress (*NAEP*). With three or more timepoints, *trend analyses* are possible. With ELS:2002, this condition has now been met for both the sophomore and senior cohorts. Essentially, three kinds of intercohort comparison are possible. First, cohorts can be compared on an *intergenerational or cross-cohort time-lag basis*. Both cross-sectional and longitudinal time-lag comparisons may be made. An example of a cross-sectional time-lag comparison would be looking at the status of HS&B (1980), NELS:88 (1990), and ELS:2002 (2002) sophomores to see how the situation of sophomores has changed over time. An example of longitudinal time-lag comparison would be an examination of the magnitude and correlates of achievement gain of HS&B, NELS:88, and ELS:2002 sophomores over the last 2 years of high school. Second, *fixed-time comparisons* are also possible, in which groups within each study are compared at different ages but the same point in time (e.g., NLS:72, HS&B senior, and HS&B sophomore cohorts all could be looked at in 1986, some 14, 6, and 4 years after each respective cohort graduated from high school). Such a perspective would permit one to compare, for example, employment rates for 22-, 24-, and 32-year-old high school graduates. Finally, *longitudinal comparative analysis* of the cohorts can be performed by modeling the history of the grade cohorts.

**Cross-sectional analysis:** A cross-sectional design represents events and statuses at a single point in time. For example, a cross-sectional survey may measure the cumulative educational attainment (achievements, attitudes, statuses) of students at a particular stage of schooling, such as 10th or 12th grade. In contrast, a longitudinal survey (or repeated measurement of the same sample units) measures the change or growth in educational attainment that occurs over a particular period of schooling. The longitudinal design of ELS:2002 generates two representative cross sections (high school sophomores in 2002 and, through sample freshening, seniors in 2004). It also permits analysis of individual-level change over time through longitudinal analysis and of group-level and intercohort change through the cross-sectional comparisons to past studies of similarly defined grade cohorts. (See also *Cross-cohort analysis* and *Longitudinal or panel survey*.)

**CSSC:** Classification of Secondary School Courses. A coding system, used since *HS&B* and updated many times, employed for the purpose of standardizing transcripts. The CSSC is a modification of the Classification of Instructional Program (CIP) used for classifying college courses. Each CSSC course code contains six digits. The first two digits identify the main program area; the second two digits represent a subcategory of courses within the main program area; and the final two digits define the specific course. For example, for CSSC code 400522, the first two digits (40) define physical sciences, the middle two digits (05) define the chemistry subcategory, and the final two digits (22) define the course Advanced Chemistry.

**DAS:** Data analysis system. The DAS is an NCES web-based software application that allows analysts to conduct basic analyses. Each DAS runs in two modes—Tables and Correlations—and a regression capability has been added to the latest version. ELS:2002 data are available on the DAS as well as in *ECB* (electronic codebook) format.

**Data element:** The most basic unit of information. In data processing, it is the fundamental data structure. It is defined by its size (in characters) and data type (e.g., alphanumeric, numeric only, true/false, date) and may include a specific set of values or range of values.

**Data swapping:** Data swapping is defined in the *NCES Statistical Standards* (Seastrom 2003) as a perturbation disclosure limitation technique that results in a confidentiality edit. An example of

data swapping would be to assume a data file has two potential individual identifying variables, for example, sex and age. If a sample case needs disclosure protection, it is paired with another sampled case so that each element of the pair has the same age, but different sexes. The data on these two records are then swapped. After the swapping, anyone thinking they have identified either one of the paired cases gets the data of the other case, so they have not made an accurate match and the data have been protected. (See also *Confidentiality protections*.)

**Delayers:** In the ELS:2002 second follow-up (2006), delayers were enrollees who started their postsecondary education *after* the first enrollment window following their high school completion or exit date and had some postsecondary enrollment in 2006 prior to the date of their interview. (See also *Leavers*, *Nonenrollees*, and *Standard enrollees*.)

**Design effect:** A measure of sample efficiency. The design effect (DEFF) is the variance of an estimate divided by the variance of the estimate that would have occurred if a sample of the same size had been selected using simple random sampling. Sometimes it is more useful to work with standard errors than with variances. The root design effect (DEFT) expresses the relation between the actual standard error of an estimate and the standard error of the corresponding estimates from a simple random sample. (See also *Effective sample size*.)

**Design weights:** Design weights compensate for unequal probabilities of selection. More specifically, the design weight is the inverse of the probability of selection. Design weights are also called raw weights, base weights, unadjusted weights, or sampling weights. Design weights may be contrasted to adjusted weights (adjusted to compensate for nonresponse, and also called final weights or analysis weights). Roughly, the design weight is calculated as the inverse of the probability of selection, taking into account all stages of the sample selection process. More precisely, design weights are the inverses of the expected frequencies with which population units appear in conceptually repeated samples selected using the sampling design developed for the study. Unlike the final weights, design weights are generated for all sample members, respondents and nonrespondents alike. Design weights do not appear on the ELS:2002 public-use files. (See also *Final weights* and *Sampling weights*.)

**DIF:** Differential Item Functioning. DIF exists when examinees of equal ability differ on an item solely because of their membership in a particular group (e.g., if an item favors males over females, or one racial or ethnic group over another, and cannot be explained by relevant factors such as differential coursetaking). DIF for ELS:2002 items was examined in the base-year and first follow-up field tests. Items with DIF problems were revised or deleted.

**Disability:** A disability is a physical or mental impairment that substantially limits one or more of the major life activities (Title 42 U.S.C. Section 12102).

**Disclosure risk analysis:** Investigation of study data to evaluate and minimize the risk of identification of individual sample units to preserve the confidentiality of the data. ELS:2002 data have been subjected to a disclosure risk analysis to protect confidential information about individual respondents (see *Public-use data file*). For a more detailed account of disclosure risk analysis, and of means of altering data (including masking, data perturbation, and data swapping) to prevent disclosure, see the *NCES Statistical Standards* (Seastrom 2003).

**Domain:** In assessment a domain refers to a defined universe of knowledge, skills, abilities, attitudes, interests, or other human characteristics, or the full array of manifestations of the particular subject matter being measured. A domain in the context of sample design refers to an

analysis group within the target population, such as (in ELS:2002) sophomore cohort dropouts, graduating seniors, males, females, Asians, and so on, for which certain precision requirements must be met to support analysis.

**Dropouts:** A dropout was defined as a sophomore cohort member who, during spring term 2004, had not been in school for 4 consecutive weeks or more and was not absent due to accident or illness. Also surveyed as a dropout were students who, at the time of their school's survey day, had been back in school less than 2 weeks after a period in which the student had missed school for 4 or more consecutive weeks not due to accident or illness. (See also *NCSQ*.)

**ECB:** Electronic codebook. While hardcopy codebooks with item stems, response categories, associated response frequency distributions, unweighted percents, and weighted valid percents are contained within the ELS:2002 base-year user's manual, ELS:2002 data are also available on CD-ROM in an electronic codebook (ECB) format. Electronic codebooks are menu-driven systems that allow users to perform functions such as the following: (a) search a list of database variables based on key words or variable names/labels, (b) display unweighted percentages for each variable in the database, (c) display question text for each variable in the database, (d) select or tag variables for subsequent analysis, (e) generate SAS-PC or SPSS-PC+ program code/command statements for subsequently constructing a system file of the selected variables, and (f) generate a codebook of the selected variables.

**Effective sample size:** Effective sample size may be defined as the ratio of the raw sample size divided by the design effect. (For example, the sampling variance of a mean standard score is equal to the reciprocal of the effective sample size, not the reciprocal of the raw sample size.) In essence, then, effective sample size is the sample size under a simple random sample design that is equivalent to the actual sample under the complex sample design, wherein the actual sample size is determined by multiplying the effective sample size by the anticipated design effect. (See also *Design effect*.)

**EGQ:** Early graduate questionnaire. This first follow-up questionnaire was administered to individuals who had graduated or received high school equivalency certification (e.g., the GED) prior to March 15, 2004.

**Equated test score:** Test equating takes place in two distinct contexts in ELS:2002. One context is vertical equating of forms for use in successive grades, such that the achievement growth of individual ELS:2002 sample members over time can be accurately measured. Another context is cross-sectional equating and linking, as to other tests (e.g., placing ELS:2002 sophomores and *HS&B* or *NELS:88* sophomores on an equivalent scale).

**Equating:** Equating of two tests is established when examinees of every ability level and from every population group can be indifferent about which of two tests they take. Not only should they have the same expected mean score on each test, but they should also have the same errors of measurement. In contrast, test *linkage* results from placing two or more tests on the same scale, so that scores can be used interchangeably. In ELS:2002, there is both vertical equating (the scale spans grades 10 and 12) and lateral equating to the tests of *NELS:88* (and in sophomore math, *HS&B*). This equating was achieved through IRT methods such as anchor (common item) equating. (See also *Concordance* and *Equated test score*.)

**ETS:** Educational Testing Service. RTI's subcontractor for ELS:2002 cognitive test development, scoring, and scaling.

**Expanded sample:** Although no sophomores were excluded from ELS:2002, those who could not validly be assessed or could not validly complete the student questionnaire (e.g., students with a severe disability or limitation in their knowledge of the English language) were not eligible for these components. Contextual data (parent, teacher, school administrator) reports were collected for this group. In 2004–05, their transcripts were collected. The base-year expanded sample comprises all ELS:2002 sophomores, that is, both those who were eligible to complete the student questionnaire and test and those who were not. The first follow-up expanded sample also includes freshened cases. Some students who were eligible for questionnaire completion in 2002 suffered an impairment that led to their reclassification as ineligible in 2004. With greater frequency, some 2002 sophomores who were not capable of questionnaire completion became eligible in 2004, as their status changed. The expanded sample comprises all sample members regardless of eligibility for questionnaire completion. (See also *Questionnaire-incapable students*.)

**Facilities checklist:** Completed by the RTI survey administrator in the base year of the study, the facilities checklist is designed to extend the information available about the school by providing data on the school buildings and grounds that will help researchers understand the adequacy and appearance of the school’s physical plant, its safety and security features, and its role as a constituent of the school’s general environment.

**FAFSA:** Free Application for Federal Student Aid. Generally students interested in financial aid for postsecondary education must complete this form, data from which has been included on the ELS:2002 second follow-up restricted-use *ECB*.

**File:** Refers to a data file containing a set of related computerized records.

**Final weights:** Final weights are sometimes called nonresponse-adjusted weights, adjusted weights, or analysis weights. Building on the design (raw) weight, they compensate for nonresponse. (See *Design weights*.)

**Floor effect:** The result of a cognitive test being too difficult for a large number of the examinees, causing the low-ability examinees to receive chance scores on the first testing, and on subsequent testings if the test remains too difficult. Floor effects result in an inability to discriminate among low-ability individuals at time one or time two and, thus, no reliable discrimination among examinees with respect to amounts of change. A possible solution, used in ELS:2002, is to develop test forms that are “adaptive” to the ability level of the examinee, which tends to minimize the possibility of floor effects biasing the estimates of the score gains. (See also *Adaptive testing* and *Ceiling effect*.)

**Frame:** A list of all the sampling units that represent the population. The Common Core of Data (*CCD*) and Private School Survey (*PSS*) were drawn upon for the ELS:2002 school frame. For an implicit list of the nation’s high school sophomores as of spring term 2002, school rosters from participating schools listing their sophomore class were relied on.

**Frame population:** The set of elements (e.g., schools) that can be enumerated prior to the selection of a survey sample.

**Freshening:** A freshened sample includes cases from the longitudinal sample of a dataset, plus new cases added to produce cross-sectional estimates of the population at the time of a subsequent wave of a longitudinal data collection. In the ELS:2002 first follow-up, freshening was the means by which high school seniors were added who had not been in the 10th grade in the United States 2 years before. A similar freshening procedure was implemented in *NELS:88*. (See also *Half-open interval*.)

**GED recipient:** A person who has obtained certification of high school equivalency by meeting state requirements and passing an approved exam, which is intended to provide an appraisal of the person's achievement or performance in the broad subject matter areas usually required for high school graduation. (See also *GED test*.)

**GED test:** General Educational Development test. A test administered by the American Council on Education as the basis for awarding a high school equivalent certification.

**Half-open interval:** A technique used to increase coverage. It is usually applied to a new list that includes cases that were covered in a previous frame, as well as new in-scope units not included in the previous frame. In this technique, new in-scope units between unit A on the previous frame up to, but not including, unit B (the next unit on the previous frame) are associated with unit A. These new units have the same selection probability as do unit As. This process is repeated for every unit on the previous frame. The new units associated with the actual sample cases are now included in the sample with their respective selection probabilities (freshening). Student sample freshening in the *NELS:88* first and second follow-ups, and the freshening conducted in the ELS:2002 first follow-up, relied on such a procedure. The half-open interval procedure was also used for ELS:2002 base-year sample updating prior to survey day. (See also *Freshening* and *Sample updating or refreshing*.)

**Hispanic or Latino:** A person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race. The term "Spanish origin" can be used in addition to "Hispanic or Latino."

**HS&B:** High School and Beyond. The second in the series of longitudinal high school cohort studies sponsored by *NCES*. The HS&B base-year study surveyed sophomore and senior students in 1980. The sophomore cohort was last interviewed in 1992 and their postsecondary transcripts collected in 1993. The senior cohort was last interviewed in 1986.

**HSQ:** Homeschool student questionnaire. In the first follow-up, this questionnaire was administered to sophomore cohort members who were in a homeschool situation as of the spring term of the 2003–04 school year.

**IEP:** Individualized Education Program. A written statement or plan for each individual with a disability that is developed, reviewed, and revised in accordance with Title 42 U.S.C. Section 1414(d).

**Imputation:** Imputation involves substituting values for missing or inconsistent data in a dataset. Prediction of a missing value is typically based on a procedure that uses a mathematical model in combination with available information. Imputation is used to reduce nonresponse bias in survey estimates, simplify analyses, and improve the consistency of results across analyses. Imputations should also preserve multivariate distributions. Missing data for key items in ELS:2002 have been imputed.

**Individually identifiable data:** Data from any record, response form, completed survey, or aggregation about an individual or individuals from which information about particular individuals may be revealed.

**Instrument:** An evaluative device that includes tests, scales, and inventories to measure a domain using standardized procedures.

**IRT:** Item Response Theory. A method of estimating achievement level by considering the pattern of right, wrong, and omitted responses on all items administered to an individual student. IRT postulates that the probability of correct responses to a set of test questions is a function of true proficiency and of one or more parameters specific to each test question. Rather than merely counting right and wrong responses, the IRT procedure also considers characteristics of each of the test items, such as their difficulty and the likelihood that they could be guessed correctly by low-ability individuals. IRT scores are less likely than simple number-right or formula scores to be distorted by correct guesses on difficult items if a student's response vector also contains incorrect answers to easier questions. Another attribute of IRT that makes it useful for ELS:2002 is the calibration of item parameters for all items administered to all students. This makes it possible to obtain scores on the same scale for students who took harder or easier forms of the test. IRT also was used to vertically scale across ELS:2002 rounds, that is, between the two grade levels (10th grade in 2002, 12th grade in 2004). (See, in contrast, *Classical test theory*.)

**Item nonresponse:** The amount of missing information when a valid response to an item or variable was expected. (See also *Bias analysis* and *Unit nonresponse*.)

**Leavers:** In the ELS:2002 second follow-up (2006), leavers were enrollees who began their postsecondary education "on time," but had no postsecondary enrollment in 2006 prior to the date of their interview. Leavers had either dropped out of their postsecondary program, or obtained a subbaccalaureate credential of some kind. (See also *Delayers*, *Nonenrollees*, and *Standard enrollees*.)

**LEP:** Limited English proficient. A concept developed to assist in identifying those language-minority students (individuals from non-English-language backgrounds) who need language assistance services, in their own language or in English, in the schools. (See also *NEP* and *LM*.) An LEP student is one who meets one or more of the following conditions:

- a. the student was born outside of the United States or the student's native language is not English;
- b. the student comes from an environment in which a language other than English is dominant; or
- c. the student is an American Indian or Alaska Native and comes from an environment in which a language other than English has had a significant impact on his or her level of English language proficiency,

and who has such difficulty speaking, reading, writing, or understanding the English language as to deny him or her the opportunity to learn successfully in English-only classrooms. The related term "English language learners" is also extensively in use.

**Library media center questionnaire:** This base-year instrument supplies information about library/media center organization and staffing, technology resources, extent of library and media



holdings, student access to and use of the library/media center, and its role in supporting the school's curriculum.

**LM:** Language Minority. A non-, limited-, or fully English-proficient student in whose home a non-English language is typically spoken.

**Longitudinal or panel survey:** In a longitudinal design, similar measurements—of the same sample of individuals, institutions, households, or of some other defined unit—are taken at multiple time points. ELS:2002 employs a longitudinal design that follows the same individuals over time and permits the analysis of individual-level change. (See also *Cross-sectional analysis*.)

**Machine editing:** Also called forced data cleaning or logical editing. Uses computerized instructions (including logical or deductive imputation) in the data cleaning program that ensure common sense consistency within and across the responses from a data provider.

**Microdata (microrecords):** Observations of individual sample members, such as those contained on the ELS:2002 data files.

**Mode effects:** Mode of administration effects can sometimes be a problem for surveys. ELS:2002 second follow-up, for example, was administered in three modes: self-administration via the web, interviewer administration by telephone, and in-person interviewer administration. The concern is that sometimes (and in particular when social desirability of questionnaire responses is a salient consideration) respondents may respond differently to the different stimuli provided by differing administration modes. Every effort was made in ELS:2002 to adapt questions so that differences between modes would be minimized; nor were there highly sensitive questions of the sort most likely to be affected by mode.

**NAEP:** The National Assessment of Educational Progress. NAEP is a cross-sectional assessment program that measures achievement at the group level for students in 4th, 8th, and 12th grades and provides a time series for measuring trends in academic progress of 9-, 13-, and 17-year-olds. ELS:2002 tests differ from but complement those of NAEP by providing a basis for measuring individual-level achievement growth between 10th and 12th grades in mathematics and relating cognitive gains in this subject to the individual, school, and family factors and processes that are measured in the various ELS:2002 questionnaires and school records (transcript) studies. The ELS:2002 scale score (IRT-estimated number right) for mathematics in 2004 has been put on the NAEP scale (based on the 2005 12th-grade NAEP mathematics assessment); this concordant score has now been added to the database.

**Native Hawaiian or Other Pacific Islander:** Any person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.

**NCES:** The National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. This governmental agency is the sponsor of ELS:2002 and is also the sponsoring agency for (among other studies) the National Assessment of Educational Progress (*NAEP*), the U.S. component of the Program for International Student Assessment (*PISA*), the National Education Longitudinal Study of 1988 (*NELS:88*), the High School and Beyond (*HS&B*) longitudinal study, and the National Longitudinal Study of the High School Class of 1972 (*NLS:72*).

**NCSQ:** Not currently in school questionnaire. This first follow-up questionnaire was administered to sophomore cohort dropouts. It includes questions both on present circumstances

and retrospective items on schooling experience and school disengagement behaviors. (See also *Dropouts*.)

**NELS:88:** The National Education Longitudinal Study of 1988. Third in the series of longitudinal high school cohort studies sponsored by *NCES*. The study represents three cohorts: the eighth-grade class of 1988, the sophomore class of 1990, and the senior class of 1992. The study collected questionnaire and test data in 1988, 1990, and 1992 on students' school experiences, as well as background information from school administrators, teachers, parents (in the base year and second follow-up only), and school records. Data on postsecondary and out-of-school experiences were collected in interviews conducted in 1994 and 2000 and through a postsecondary education transcripts study in 2000–01.

**NEP:** No English proficiency. A student who does not speak English. (See also *LEP*.)

**New participant supplement (NPS):** Base-year nonrespondents who responded in the first follow-up but were not enrolled in the base-year schools (e.g., transfers, dropouts, early graduates) completed this supplement in addition to an appropriate questionnaire. The supplement consists wholly of items from the base year, so that the standard classification variables could be captured for all sample members.

**NLS:72:** The National Longitudinal Study of the High School Class of 1972. This project was the first in the series of longitudinal high school cohort studies sponsored by *NCES*. The final round of data collection took place in 1986.

**Noncoverage:** Units of the target population that are missing from the frame population. Includes the problems of incomplete frames and missing units.

**Nonenrollees:** In the ELS:2002 second follow-up (2006), nonenrollees had no postsecondary enrollment following high school. A small number were still enrolled in high school. (See also postsecondary *Delayers*, *Leavers*, and *Standard enrollees*.)

**Nonresponse:** See *Bias analysis*, *Item nonresponse*, *Nonresponse bias*, and *Unit nonresponse*.

**Nonresponse bias:** Nonresponse bias may occur as a result of not obtaining 100 percent response from the selected cases. More specifically, nonresponse bias occurs when the expected observed value deviates from the population parameter. The potential magnitude of nonresponse bias is estimated as the product of the nonresponse rate and the difference in values of a characteristic between respondents and nonrespondents. (See also *Bias* and *Bias analysis*.)

**Nonsampling error:** An error in sample estimates that cannot be attributed to sampling fluctuations. Such errors may arise from many sources, including imperfect implementation of sampling procedures, differential unit or item nonresponse across subgroups, bias in estimation, or errors in observation and recording.

**Norm-referenced:** A norm-referenced test is used to rank or compare students or groups of students relative to each other. It is interpreted based on comparison of an examinee's performance relative to the performance of others in a specified reference population, or by a comparison of a group to other groups. ELS:2002 provides both norm-referenced (normative) and criterion-referenced scores. (See also *Criterion-referenced*.)

**NPSQ:** New participant student questionnaire. This first follow-up questionnaire was administered to students in the base-year schools 2 years later. The NPSQ elicited responses from two distinct groups: sophomore cohort members who had been base-year nonparticipants,

and students brought in through sample freshening. (A small number of students whose eligibility status had changed between rounds completed an NPSQ.) The questionnaire comprised both base-year items (the standard classification variables) and first follow-up items pertaining to students' current school experience.

**NSLDS:** The National Student Loan Data System. Data from the NSLDS have been included on the ELS:2002 second follow-up restricted use *ECB*.

**OMB:** The Office of Management and Budget, U.S. Executive Branch. OMB is a federal agency with the responsibility for reviewing all studies funded by executive branch agencies. OMB reviewed, commented on, and approved the ELS:2002 questionnaires, as indicated by their approval number and its expiration date in the top right corner of the questionnaire covers.

**O\*NET:** Occupational Information Network. One of the industry and occupation coding schemes used on ELS:2002. The O\*NET database was developed for the U.S. Department of Labor and represents an extensive set of worker attributes and job characteristics. O\*NET provides a nested coding scheme; 23 general-level categories expand to 96 midlevel categories, which expand to 821 specific-level categories.

**Open-ended:** A type of question in which the data provider's responses are not limited to given alternatives.

**Optical disc:** A disc that is read optically (e.g., by laser technology), rather than magnetically. (See also *CD-ROM*.)

**Optical scanning:** A system of recording responses that transfers responses into machine-readable data through optical mark reading. Data from base-year and first follow-up in-school survey sessions (and indeed all non-CATI operations across components) were optically scanned.

**Out-of-scope:** Permanently out-of-scope individuals are no longer associated with the target population. Permanently out-of-scope cases include a sample member determined to be a sampling error (not truly eligible, e.g., not a spring 2002 sophomore or not a freshening-eligible spring 2004 senior), a sample member who has died, or sample members who have been subsampled out of the study by probabilistic methods and their weights redistributed. However, some cases are only temporarily out of scope: these individuals continue to be associated with the target population, but were excluded for a given round. If a sample member was unavailable for the field period (for example, incarcerated, or on a military assignment outside the country and unreachable, or hospitalized), that individual would be classified as out of scope for the current round only; the sample member's status would be investigated again in the next round and an interview pursued at that time if at all possible. Cases that are temporarily or permanently out of scope do not count against the ELS:2002 response rate.

**Oversampling:** Deliberately sampling a portion of the population at a higher rate than the remainder of the population. For example, in ELS:2002, private schools have been oversampled. Within schools, Asians have been oversampled.

**Parent/guardian questionnaire:** The ELS:2002 base-year parent component sought to collect information from parents of all base-year student sample members. The parent or guardian who knew most about his or her child's educational experience was asked to complete the questionnaire.

**PISA:** The Program for International Student Assessment. PISA assesses 15-year-olds in reading, mathematics, and science. In 2000, the primary focus of the assessment was reading. The United States and 31 other nations participated, under the aegis of the Organization for Economic Cooperation and Development. In 2003, the primary focus was mathematics, and in 2006, the primary focus was science. A crosswalk (or concordance) has been developed between the ELS:2002 reading test and the PISA reading test, so that the PISA scale can be implemented in ELS:2002. A similar scale linkage (again a concordance) was effected between the ELS:2002 mathematics test (2002) and the PISA math test (2003).

**Population:** All individuals in the group to which conclusions from a data collection activity are to be applied. Weighted results of ELS:2002 data provide estimates for populations and subgroups.

**Population variance:** A measure of dispersion defined as the average of the squared deviations between the observed values of the elements of a population or sample and the population mean of those values.

**Postsecondary education:** The provision of formal instructional programs with a curriculum designed primarily for students who have completed the requirements for a high school diploma or equivalent. This includes programs of an academic, vocational, and continuing professional education purpose and excludes vocational and adult basic education programs.

**Poststratification adjustment:** A weight adjustment that forces survey estimates to match independent population totals within selected poststrata (adjustment cells). More specifically, poststratification is an estimation method that adjusts the sampling weights after the sample has been selected so that certain sample totals (for example, the proportion of Asians) match counterpart population totals.

**Precision:** The difference between a sample-based estimate and its expected value. Precision is measured in terms of the sampling error (or standard error) of an estimate.

**Probability sample:** A sample selected by a method such that each unit has a fixed and determined probability of selection—that is, each population unit has a known, nonzero chance of being included.

**Proficiency score:** Proficiency scores (or criterion-referenced mastery scores) are based on clusters of items within each test that are of similar content and difficulty. The probability of proficiency is a continuous score that can be reported as a mean or a population percentage.

**PSS:** Private School Survey. An *NCES* universe survey encompassing the nation's private schools. PSS was the private school sampling frame for the ELS:2002 base year.

**PSU:** Primary sampling unit. Unit chosen at the first stage of a multistage (cluster) sample. In ELS:2002, the PSU is the school; in other studies, geographical units such as a county or metropolitan statistical area (MSA) may serve as the PSU.

**Public-use data file:** A public-use file that includes a subset of data that have been coded, aggregated, or otherwise altered to mask individually identifiable information; it thus is available to all external users. Unique identifiers, geographic detail, and other variables that cannot be suitably altered are not included in public-use data files. Public-use edits are based on an assumption that external users have access to both individual respondent records and secondary data sources that include data that could be used to identify respondents. For this reason, the

editing process is relatively extensive. When determining an appropriate masking process, the public-use edit takes into account and guards against matches on common variables from all known files that could be matched to the public-use file. The analysis used to determine which records require masking is called a disclosure risk analysis.

**Questionnaire-incapable students:** It was determined that some ELS:2002 students could not be validly assessed or surveyed, owing to severe physical or mental disabilities or to language barriers. These students were classified as “questionnaire-incapable” but they were not deemed ineligible for the study. They were included in the study; their status was reviewed in the subsequent round or rounds (at which time a few classifications changed); and while assessment and questionnaire data could not be collected from them, school, teacher and parent contextual data were gathered for this group, and high school transcripts collected for them as well. In some ELS:2002 documentation, this group is called “questionnaire ineligible.” (See also *Expanded Sample*.)

**Range check:** A determination of whether responses fall within a predetermined set of acceptable values.

**Record format:** The layout of the information contained in a data record (includes the name, type, and size of each field in the record).

**Records:** A logical grouping of data elements within a file upon which a computer program acts.

**Refreshed student:** See *Sample updating or refreshing*.

**Relative bias:** Relative bias is the bias of the estimate divided by the estimate. It provides an indication of the order of magnitude of the bias with respect to the estimate.

**Reliability:** The consistency in results of a test or measurement including the tendency of the test or measurement to produce the same results when applied twice to some entity or attribute believed not to have changed in the interval between measurements.

**Reserve code (or reserved code):** Certain codes have been reserved to represent various situations in which missing data occur in response frequencies. In ELS:2002, the reserve code conventions are as follows: -1 = “Don’t know”; -2 = “Refuse”; -3 = “Legitimate skip/NA”; -4 = “Nonrespondent”; -5 = “Out of range”; -6 = “Multiple response”; -7 = “Partial interview—breakoff”; -8 = “Item not applicable to sample member”; and -9 = “Missing.”

**Response rate:** unconditional *unit response* rates are calculated as the ratio of the weighted number of completed instruments to the weighted number of eligible cases, using the sample base weight (the inverse of the probability of selection). In multistage samples, such as the base year of ELS:2002, overall response is the product of both stages (though for many purposes, the stages [school and student] are reported separately, especially, as in ELS:2002, if the first-stage analysis reveals little bias). The second follow-up response rate that is reported in this document is a conditional response rate, that is, it is conditioned on the case having been fielded. The response rate is weighted, using the base weight. A conditional response rate is appropriate for methodological reporting in that the fielded cases supply the best basis for evaluating survey effort and success. Thus response rates for the second follow-up do not include unfielded eligible ( $n = 370$ ) or unfielded ineligible ( $n = 460$ ) cases in the denominator of the rate. The unfielded eligible cases include the following: a handful of sample members who asked to be removed from the study; about 330 double (base-year and first follow-up) nonrespondents, and about 40 first follow-up freshened nonrespondents (who also lack data for both prior rounds).

Also excluded are round-ineligible cases that were not fielded, specifically, some 460 permanently or temporarily out-of-scope cases. The permanent out-of-scope cases include deceased sample members (n = 40) and a handful of corrected sampling errors. Temporarily out-of-scope cases include sample members who were unavailable for the second follow-up (n = 80), sample members who were out of the country (n = 210), sample members who were incarcerated or otherwise institutionalized (n = 50), and sample members who were incapacitated or otherwise incapable of completing the questionnaire (n = 80). *Item response* rates are calculated as the ratio of the number of respondents for whom an in-scope response was obtained to the number of respondents who are asked to answer a given item. Calculation of unit and item response rates can be a complex matter, and additional considerations arise in reporting in follow-up waves of longitudinal studies, for composite (constructed) variables, and for other cases. More detailed information can be found by consulting NCES Standard 1-3 in the NCES 2002 Statistical Standards document (available at <http://nces.ed.gov/statprog/2002/stdtoc.asp>). Bias analyses conducted when response rates are below targets help to assess any possible limitations to the generalizability of survey estimates. (See *Bias analysis*. See also *Coverage rate*, and *Out of scope*.)

**Restricted-use data file:** A restricted-use file includes individually identifiable information that is confidential and protected by law. The restricted file is a superset of all variables: The file contains all public-use variables as well as additional data (for example, it may include a categorical version of a variable from the public file, as well as a continuous version of the variable that is not found on the public file). The restricted file also includes (as the public file does not) what have been called in ELS:2002 documentation either *questionnaire-incapable* or *questionnaire-ineligible* (along with *questionnaire-capable/eligible*) sample members (in other words, the full or “expanded” sample including even those sample members unable to complete survey instruments). Use of the restricted data requires the researcher to obtain a special license from NCES. For the second follow-up of ELS:2002, there is no public-use ECB, only a restricted-use ECB, and a public DAS.

**RTI International (RTI):** A nonprofit university-affiliated research organization with headquarters at Research Triangle Park, North Carolina, that conducted the base year and first follow-up of ELS:2002 and is currently conducting the second follow-up of the study on behalf of NCES. RTI International is a trade name of Research Triangle Institute.

**Sample:** Subgroup selected, by a probability method, from the entire population, in order to represent it.

**Sample updating or refreshing:** Because students can transfer into or out of a school after sampling, the base-year student sample in ELS:2002 (as in *HS&B* and *NELS:88*) was updated to remove students who had transferred out and to give sophomores who had transferred in since sampling a chance of selection. The half-open interval procedure was employed for sample updating prior to survey day, using the school 10th-grade enrollment lists.

**Sampling error:** The part of the difference between a value for an entire population and an estimate of that value derived from a probability sample that results from observing only a sample of values.

**Sampling frame:** See *Frame* or *Frame population*.

**Sampling variance:** A measure of dispersion of values of a statistic that would occur if the survey were repeated a large number of times using the same sample design, instrument, and data collection methodology. The square root of the sampling variance is the standard error.

**Sampling weight:** A multiplicative factor equal to the reciprocal of the probability of a respondent being selected for the study, with adjustment for nonresponse. The sum of the weights provides an estimate of the number of persons in the population represented by a respondent in the sample.

**SAT:** The Scholastic Achievement Test (formerly called the Scholastic Aptitude Test), an examination administered by Educational Testing Service for the College Board and used to predict the facility with which an individual will progress in learning college-level academic subjects. ELS:2002 collected student SAT scores whenever possible.

**Scaling:** Scaling refers to the process of assigning a scale score based on the pattern of responses. (See also *Equated test score* and *IRT*.)

**School administrator questionnaire:** This questionnaire was administered in both the base year and, with changes, the first follow-up. The questionnaires sought basic information about school policies, curriculum and program offerings, and student and teacher characteristics.

**School climate:** The social system and ethos or culture of the school, including the organizational structure of the school and values and expectations within it.

**School coordinator:** A person designated in each school to act as a contact person between the school and RTI. This person assisted with establishing a survey day in the school and preparing for the survey.

**Selection probability:** The chance that a particular sampling unit has of being selected in the sample.

**SRS:** Simple random sampling. SRS uses equal probability sampling with no strata or clusters. The ELS:2002 sample is stratified and clustered. Most statistical analysis software assumes SRS and independently distributed errors. For studies such as ELS:2002, special variance estimation software (such as SUDAAN, WesVar, AM, or Stata) is required to compute the standard error of estimates.

**Standard deviation:** The most widely used measure of dispersion of a frequency distribution. It is equal to the positive square root of the population variance.

**Standard enrollees:** In the ELS:2002 second follow-up (2006), a standard enrollee was a respondent who enrolled in a postsecondary institution “on time,” that is, *within* the first enrollment window following their high school completion or exit date and had some postsecondary enrollment in 2006 prior to the date of their interview. (See also *Delayers*, *Leavers*, and *Nonenrollees*.)

**Standard error:** The positive square root of the sampling variance. It is a measure of the dispersion of the sampling distribution of a statistic. Standard errors are used to establish confidence intervals for the statistics being analyzed.

**Statistical significance:** The finding (based on a derived probability, rather than a certitude) that two or more estimates are truly different from one another and not a merely apparent difference reflecting chance variation.

**Stratification:** The division of a population into parts, or strata. In a stratified sample, the total population is divided into strata or subgroups. Strata are created by partitioning the frame and are generally defined to include relatively homogeneous units within strata. Stratification is used to reduce sampling error. In ELS:2002, the sampling frame was sorted to create strata or subgroups of schools, and schools were selected independently within each stratum. Schools were stratified by superstrata (combinations of school type or sector and geographic region) and substrata (urban, suburban, rural). Further, in the ELS:2002 ECBs, to properly reflect the original design for variance estimation based on Taylor Series linearization, the *sampling strata* were used as the basis for *analysis strata*. The base year sampling design employed 96 sampling strata and 752 primary sampling units; 361 analysis strata (normally containing two PSUs per stratum) were formed by grouping together the 752 sampling PSUs. The responding schools (PSUs) were sorted within sampling strata in the same order as was originally used for sampling, and then adjacent analysis PSUs were paired to form analysis strata.

**Student questionnaire:** One of the two parts of the ELS:2002 base-year and first follow-up student survey (the other part being the assessment). In both rounds, this instrument contained a locator section for tracing sample members for future waves of ELS:2002 and a series of questions about school and home environments, time use, attitudes, values, and aspirations. In the first follow-up, this questionnaire was administered only to participating base-year students who remained in the same school 2 years later. In some instances, an abbreviated version of the student questionnaire was administered (usually in *CATI*, but sometimes in a hardcopy version).

**Survey administrator:** A member of RTI's field staff in charge of conducting in-school data collection sessions (see *Survey day*). The individual in this role was called a team leader in *NELS:88* and a survey representative in *HS&B*.

**Survey day:** A day chosen by the school during the data collection period when an RTI survey administrator and assistant administered the survey to the school's sample of students. The survey day session lasted about 2 hours in the base year and 90 minutes in the first follow-up. Two make-up days were normally offered for students who missed the survey day.

**Target population:** The finite set of observable or measurable elements that will be studied, or the conceptual population of analytic units for which data are collected and estimates are made. In the ELS:2002 base year, the target population was spring-term 2002 sophomores in all regular public and private schools with 10th grades in the 50 states and the District of Columbia.

**Teacher questionnaire:** In the base year, mathematics and English teachers of ELS:2002 sophomore participants were asked to complete a teacher questionnaire, which collected data on school and teacher characteristics (including teacher qualifications and experience) and evaluations of student performance.

**Teacher sample:** In the ELS:2002 base year, two teacher reports were sought for each student: one from the student's mathematics teacher and one from the student's English teacher.

**Transcript:** A student's high school or postsecondary school record. For high school transcripts, such archival data as courses taken, grades, and graduation status are part of the transcript record, as well as assessment results such as PSAT, SAT, and ACT scores.

**Transfer student questionnaire (TSQ):** This first follow-up questionnaire was administered to students who moved from their base-year school to a new school between spring 2002 and spring



2004. It collected data both on students' school experience and their reason for transferring to a new school.

**Trimming:** A process by which extreme weights are reduced (trimmed) to diminish the effect of extreme values on estimates and estimated variances.

**TRP:** Technical Review Panel. A TRP is a specially appointed, independent group of substantive, methodological, and technical experts who offer advice to the study's contractor on issues of study design and content. TRP members are nominated by the contractor and approved by *NCES*. Typically, TRPs are convened at least once a year within the life of a contract.

**Unit nonresponse:** Failure of a survey unit (e.g., at the institutional level, a school, or at the individual level, a respondent, such as a student or a teacher) to cooperate or complete a survey instrument. *Overall unit nonresponse* reflects a combination of unit nonresponse across two or more levels of data collection, where participation at the second stage of data collection is conditional upon participation in the first stage of data collection. In ELS:2002, overall nonresponse is the product of school-level nonresponse times student nonresponse. *Total nonresponse* reflects a combination of the overall unit nonresponse and item nonresponse. (See also *Item nonresponse* and *Nonresponse bias*.)

**Urbanicity (or metropolitan status):** The ELS:2002 school sample was stratified by metropolitan status or urbanicity, in accordance with the following three locale codes: (1) Urban: the school is in a large or mid-size central city; (2) Suburban: the school is in a large or small town or is on the urban fringe of a large or mid-size city; and (3) Rural: the school is in a rural area. Locale indicators were taken from the Common Core of Data (*CCD*) for public schools and the Private School Survey (*PSS*) for private schools. More recently (2006) *NCES* changed its locale code system. The new codes draw on a four-part classification: city, suburban, town, and rural. Cities and suburbs are further divided into small, mid-size and large, and towns and rural areas can be related (via measures of proximity) to urbanized areas (urban fringe, distant, remote). While the older tripartite classification was used in ELS:2002 sampling, analysts who wants to employ the new locale codes with the ELS:2002 base-year and transfer schools can use the ELS:2002 linkages to the *CCD* and *PSS* databases to do so.

**Validity:** The capacity of an item or instrument to measure what it was designed to measure, stated most often in terms of the correlation between scores in the instrument and measures of performance on some external criterion. It is the extent to which a test or set of operations measures what it is supposed to measure. Reliability, on the other hand, refers to consistency of measurement over time. (See *Reliability*.)

**Variance:** The average of the squared deviations of a random variable from the expected value of the variable. The variance of an estimate is the squared standard error of the estimate. (See also *Population variance* and *Sampling variance*.)

**Vocational course:** A school course that provides students with the academic and technical knowledge and skills needed for further education and/or careers requiring less than a bachelor's degree. At the high school level, vocational courses include courses in consumer and homemaking education, general labor market preparation, and specific labor market preparation.

**Wave:** A wave is a round of data collection in a longitudinal survey (e.g., the base year and each successive follow-up are waves of data collection).

**Weighted estimates:** Weighted estimates (as in the ELS:2002 codebook) are survey estimates in which the sample data are statistically weighted (multiplied) by factors reflecting the sample design. The general purpose of weighting is to compensate for unequal probabilities of selection into the sample and to adjust for the fact that not all schools or individuals selected into the sample actually participated. The design weights (also known as base weights, and typically equal to the reciprocals of the overall selection probabilities) are multiplied by a nonresponse or poststratification adjustment for a final weight. For example, in ELS:2002, the 752 participating schools in the base year represent a national population of 24,795 schools. Individual schools may “represent” anywhere from a minimum of 1 school to a maximum of 96 schools. To take an ELS:2002 base-year student-level example, 7,613 base-year questionnaire respondents reported themselves to be male, and 7,688 reported themselves to be female. When these cases are multiplied by the nonresponse-adjusted student weights to yield a weighted percentage that reflects the national population of high school sophomores, the estimate for males is 50.5 percent of the 2002 10th-grade cohort, while females are estimated to comprise 49.5 percent of the nation’s 2002 10th-graders.

**Weighted response rates:** Unit response rates are calculated as the ratio of the weighted number of completed interviews to the weighted number of in-scope sample cases. Unit response rates are calculated using the sample base weights (inverse of the probability of selection).

**White:** A person having origins in any of the original peoples of Europe, the Middle East, or North Africa.

## Appendix O Reference

Seastrom, M. (2003). *NCES Statistical Standards* (NCES 2003-601). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office. Available at: <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2003601>.