# Appendix A: Glossary of Terms

*This page intentionally left blank*

**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. The primary source of race/ethnicity categorization in HSLS:09 was respondent self-identification.

**Analytic weights:** Analytic weights are sometimes called nonresponse-adjusted weights, adjusted (base) weights, or final analytic weights. The analytic weights are constructed by adjusting the base weights for factors such as subsampling of sample units, one or more nonresponse mechanisms (e.g., parent refusal of student participation and student refusal), and calibration (i.e., benchmarked) to population counts. (See also *Base weights* and *Calibration weight adjustment*.)

**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. The primary source of race/ethnicity categorization in HSLS:09 was respondent self-identification.

**Balanced repeated replication (BRR):** BRR weights can be used in HSLS:09 for variance estimation. BRR weights are based on a set of procedures that use a balanced set of pseudo-replicates. The BRR variance estimation process involves modeling the design as if it were a two-primary sampling unit (PSU) per stratum design. Variances are then calculated using a random group type of variance estimation procedure, with a balanced set of replicates as the groups. Balancing is done by creating replicates using an orthogonal matrix. An alternative variance estimation method available from the HSLS:09 data set is the Taylor series linearization. (See also *Taylor series linearization*.)

**Base weights:** Base weights compensate for unequal probabilities of selection into the study sample. A base weight is calculated as the inverse probability of selection and includes all stages of sample design (e.g., two design stages are used for HSLS:09). Base weights are also called raw weights, design weights, unadjusted weights, or sampling weights throughout the survey literature. Estimates using base weights may be contrasted with the corresponding estimates using weights adjusted for nonresponse. Base weights are calculated for all sample members, respondents and nonrespondents alike. However, the base weights do not appear on the HSLS:09 data files, although they are used to generate response rates reported in the Data File Documentation. (See also *Analytic weights, Nonresponse bias,* and *Nonresponse bias analysis*.)

**Bias:** Bias is the difference between the reported value and the true value. An estimate of bias is calculated as the difference between the expected value of a sample estimate (e.g., estimated mean) and the corresponding true value for the population. The true values are generally not known and must also be estimated from the data. *Response bias* is the difference between respondent reports and their true behavior or characteristics. *Nonresponse bias* is defined as the (statistically significant) difference in an estimate calculated from the respondent and nonrespondent subsets of the sample. *Undercoverage bias*, a type of sampling bias, arises because some critical portion of the target population is omitted from the sampling frame. For example, if the set of schools 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 set of schools was identified, school undercoverage may occur. (See also *Nonresponse bias* and *Nonresponse bias analysis*.)

**Black or African American:** A Black or African American person is one having origins in any of the black racial groups of Africa. The primary source of race/ethnicity categorization in HSLS:09 was respondent self-identification.

**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 and complexity of the information being requested.

**Calibration weight adjustment:** This is a weight adjustment that forces survey estimates to match independent population totals for specified characteristics. Poststratification is a specific type of weight calibration that uses the cross-classification of a set of variables to form poststrata (adjustment cells). Calibration adjustments for HSLS:09 were created through a model that included individual variables and a set of interaction terms (Folsom and Singh 2000).

**Codebook:** A codebook is a document that contains a detailed description of each variable measured in HSLS:09 or derived from HSLS:09 variables. The description includes the variable name, values used to define each variable, unweighted frequencies, and unweighted and weighted percentages.

**Coefficient of Variation (CV):** The CV is calculated as the ratio of the estimated population standard deviation over the estimated population quantity (e.g., mean). Both estimates are calculated using the final analysis weights and software that appropriately accounts for the complex, two-stage sample design of HSLS:09. This quantity differs from the *relative standard error* (*relSE*), sometimes referred to as

the (estimated) CV. The *relSE* is calculated as the estimated population standard error divided by the estimated population quantity.

**Cohort:** A cohort is a group of individuals who have a statistical factor in common such as, for example, year of birth, grade in school, year of retirement, or year of high school graduation. The HSLS:09 cohort consists of ninth-grade high school students as of the fall term of the 2009–10 school year. Since no freshening was instituted for 11th grade, the 9th-grade cohort is the sole cohort in HSLS:09, unlike prior multi-cohort studies such as *NELS:88* and *ELS:2002*.

**Common Core of Data (CCD):** The CCD consists of data annually collected from all public schools in the United States by NCES. Study-eligible public schools were identified from the CCD to form the public-school portion of the sampling frame for the HSLS:09 base year.

**Composite variable:** A composite variable is one that is constructed through either the combination of two or more variables (e.g., poverty status combines household size with family income) or through a mathematical function or statistical transformation (e.g., conversion of raw test scores to quintiles). A composite variable is also referred to as a derived, created, or constructed variable.

**Computer-assisted personal interviewing (CAPI):** CAPI is a mode of data collection administered in HSLS:09 where an electronic questionnaire is administered to a sample member through an in-person interview.

**Computer-assisted telephone interviewing (CATI):** CATI is a mode of data collection administered in HSLS:09 where an electronic questionnaire is administered to a sample member through a telephone interview.

**Confidence interval:** A confidence interval is a sample-based estimate expressed as an interval or range of values that is expected to contain the true population value given a specified degree of confidence.

**Confidentiality protections:** NCES is required by law to protect individually identifiable data from unauthorized disclosure. To this end, HSLS:09 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), suppression of variables, and data perturbation techniques (e.g., data swapping) have been used to provide disclosure protection to HSLS:09 data. (See also *Data swapping* and *Disclosure risk analysis*.)

**Construct:** A construct is an abstract image, idea, or theory, formed from a number of simpler observable elements (e.g., socioeconomic status, or science self-

efficacy). Constructs help summarize phenomena that are hypothesized to be in some important way(s) related.

**Contextual data:** In HSLS:09, the primary unit of analysis is the student. Survey information collected from other study participants, referred to as contextual data, should be viewed as extensions of the student data. For example, responses provided in the school administrator, teacher, counselor, and parent questionnaires on the student's school learning environment or home situation are classified as contextual data.

**Critical items:** Critical items are a subset of the questionnaire variables that are deemed to be of special importance. Owing to their importance, they are given a special role, so that their coverage and hence impact can be maximized. For example, critical items are overrepresented in abbreviated questionnaires, and critical item completion is used as a prime criterion for defining completed cases when only a partial interview is obtained. In addition, when a critical item is omitted in the interview, the respondent receives a special prompt, noting the importance of the item and asking the respondent to answer the question if possible.

**Cross-cohort (or intercohort) comparison and analysis:** The HSLS:09 base-year survey is not precisely comparable in timing or grade cohort definition to the prior studies, which involved spring data collections for 8th-, 10th-, or 12th-grade students. HSLS:09 cohort definition is based on a single grade (ninth grade) at a single point in time (fall term of 2009) reflecting also requirements that base-year schools encompass both 9th and 11th grade. Although the high school transcripts capture four years of high school coursetaking, because HSLS:09 has no 12th grade freshening, HSLS:09 high school transcripts cannot be compared to the NELS:88, ELS:2002, and NAEP high school transcript studies, all of which are anchored to high school seniors. Some longitudinal intercohort comparison is possible at a higher level of generality, however—that is, not based on a specific comparison grade—that encompasses modeling the transition from high school to postsecondary education and the workforce that is the subject of all the secondary longitudinal studies.

**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 the beginning of ninth grade. Cross-sectional analysis in HSLS:09 can only be conducted for the base year (either at the student level or the school level). In contrast, a longitudinal study (or repeated measurement of the same sample units) measures the change or growth in educational attainments that occurs over a particular period of schooling. (See also *Longitudinal or panel study* and *Cross-cohort comparison and analysis*.)

**DataLab:** The NCES DataLab is a suite of tools, including PowerStats and QuickStats, which provide users with access to a combination of public-use variables and a limited number of restricted-use variables. The DataLab enables analysts to conduct research on the data files of interest without having to access the actual data files via a statistical analysis program, or acquire a restricted-use license. DataLab tools permit analysis of data without disclosing microdata contents to the user and, as necessary, suppress or flag estimates that fail to meet reporting standards. DataLab tools also enable analysts to properly account for NCES studies' complex sample designs, and correctly calculate standard errors. HSLS:09 data are available for analysis using the PowerStats and QuickStats tools in the DataLab. URL: https://nces.ed.gov/datalab. (See also *PowerStats* and *QuickStats*.)

**Data swapping:** Data swapping is defined in the *NCES Statistical Standards* (Seastrom 2014) as a perturbation disclosure limitation technique that results in a "confidentiality" edit. An example of a need for data swapping would be to assume that a data file has two variables which in combination constitute a disclosure risk, 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*.)

**Design effect:** The design effect (*deff*) is a measure of sample efficiency and is the variance of an estimate accounting for the complex nature of a survey design 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. Historically, the *deff* was used to adjust a variance estimate calculated with software that could not properly account for the sample design. More recently, the *deff* calculated for a set of study characteristics is used to compare the sample efficiency across surveys. 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*.)

**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:** This involves investigation of study data to evaluate and minimize the risk of identification of individual sample units to preserve the confidentiality of the data. HSLS:09 data have been subjected to a disclosure risk analysis to protect confidential information about individual respondents. 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 current NCES Statistical Standards document. (See also *Confidentiality protections, Data swapping,* and *Public-use data file*.)

**Education Data Analysis Tool (eDAT):** HSLS:09 data are available in a public-use version via the web-based eDAT. eDAT users can explore frequency distributions and tag variables to download from the HSLS:09 public-use dataset. After a set of variables has been tagged for download, eDAT will also create a custom syntax file for use with the user's preferred software package (i.e., SAS, SPSS, Stata, R, S-Plus, or SUDAAN). Alternatively, choosing a generic file format (e.g., ASCII or CSV) allows for the data to read into most statistical programming languages to conduct analyses. URL: https://nces.ed.gov/edat/. (See also *Public-use data file*.)

**Education Longitudinal Study of 2002 (ELS:2002):** ELS:2002 is the immediate predecessor study to HSLS:09 within the series of NCES Secondary Longitudinal Studies. It began with spring high school sophomores in 2002, with follow-up studies in 2004 (with freshening to create a senior cohort), 2006, and 2012. In addition to interview data, postsecondary education transcripts were collected (and high school transcripts were collected) for the ELS:2002 cohorts. URL: https://nces.ed.gov/surveys/els2002/.

**Effective sample size:** Effective sample size is defined as the ratio of the (unweighted) sample size divided by the design effect. The effective sample size is the sample size under a simple random sample design that has the same level of precision as obtained from the complex sample design. (See also *Design effect*.)

**Electronic codebook (ECB):** The ECB serves as an electronic version of a fully documented survey codebook. It allows the data user to browse through all variables contained on the data files; search variable and value names for keywords related to particular research questions; review the question and item response wording; examine the definitions and logic used to develop composite and classification variables; and export SAS, SPSS, or Stata syntax programs for statistical analysis. The ECB also provides a 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, export codebooks that display the distributions of the tagged variables, and generate program code (including variable and value labels) that can be used with the analyst's own statistical software. The ECB is designed to run in a Windows environment on the user's computer and is available only to users who have obtained a restricted-use license and are approved to receive the ECB for their research purposes. (See also *Restricted-use data file*.)

**High School and Beyond (HS&B):** HS&B is 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. URL: https://nces.ed.gov/surveys/hsb/.

**Hispanic or Latino:** A Hispanic or Latino/Latina is a person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture, origin, or ethnicity regardless of race. The primary source of race/ethnicity categorization in HSLS:09 was respondent self-identification.

**Imputation:** Imputation involves substituting values for missing or inconsistent data in a data set. Prediction of a missing value is typically based on a procedure that uses a mathematical model in combination with available information. Model covariates are identified from a set of variables known to be statistically and substantively related to the variable requiring imputation and the pattern of item nonresponse.

**Incapable students**: It was determined that, as in past surveys, some students could not be validly assessed or surveyed (even with accommodations) owing to severe physical, mental, or emotional limitations, or because of language barriers. These students were classified as "incapable" or "questionnaire-incapable" students but they were not deemed ineligible for the study. Contextual information was collected for these students including responses from some but not all parents, school administrators, teachers, and counselors, and they were given positive weights as applicable (e.g., student, parent, teacher). These students' status was reviewed in each follow-up and those whose situation had changed (for example, a student had become proficient in English over the ensuing two and a half years) were invited to participate.

**Individually identifiable data:** These are data from any record, response form, completed survey, or aggregation about an individual or individuals from which the identity of an individual (or set of individuals) may be revealed.

**Integrated Postsecondary Education Data System (IPEDS):** IPEDS is a system of interrelated surveys conducted annually that gather information from all postsecondary institutions that participate in Title IV federal student financial aid programs. IPEDS collects data on institution characteristics, enrollments, program completions, graduation rates, faculty and staff, finances, institutional prices, and student financial aid.

**Item nonresponse:** Item nonresponse is defined as a missing response to a particular question item on an instrument when a valid response was expected. For example, a participant did not wish to provide income information and therefore left

the question item unanswered (blank). Item nonresponse is generally limited to the set of sample members who have been classified as respondents by providing, for example, responses to key questionnaire items required for analysis. (See also *Nonresponse bias analysis* and *Unit nonresponse*.)

**Locale codes:** In earlier NCES secondary longitudinal studies, locale codes have been referred to as metropolitan status or urbanicity codes (for example, urbanicity trichotomized into three values—urban, suburban, or rural). The former codes were metro-centric (that is, based on metropolitan statistical areas). The HSLS:09 locale codes, however, use NCES's new urban-centric codes. The new urban-centric locale codes follow the same logic as the older locale codes, but incorporate an approach that prioritizes population size and proximity to an urbanized area in assigning locale. The highest level (four terms) of the new locale code system was used in HSLS:09 school sampling to create substrata (with geography as superstrata). The four major categories are city (large or mid-size city), suburban (urban fringe of large or mid-size city), town (large or small), and rural (outside or inside a Core-Based Statistical Area). Although HSLS:09 uses only the four major or highest categories, each of the four categories is further subdivided in the NCES geocode scheme (for example, "town" comprises three statuses in relation to an urbanized area: fringe, distant, or remote from an urbanized area).

**Longitudinal or panel study:** 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. HSLS:09 employs a longitudinal design that follows the same individuals over time and permits the analysis of individual-level change. (See also *Cross-sectional analysis*.)

**Microdata (microrecords):** These are observations of individual sample members, such as those contained on the HSLS:09 public-use and restricted-use data files.

**Mode effects:** Mode of administration effects can sometimes present difficulties for surveys. Typically, the HSLS:09 questionnaires were administered in two modes: self-administration (via web, including completion on both mobile and nonmobile platforms) and interviewer administration (via web-based computer-assisted telephone interview [CATI] or computer-assisted personal interview [CAPI]). (Although the mode of administration differs, the instruments are identical.) The concern is that sometimes (in particular when perceived social desirability of questionnaire responses is a salient consideration and the item is administered by an interviewer) respondents may respond differently to the different stimuli provided by differing administration modes. However, format differences also can lead to mode effects, as when a question benefits from visual cues that cannot be duplicated in a

telephone interview. For this reason, every effort was made in HSLS:09 to adapt questions so that differences between modes would be minimized.

**National Assessment of Educational Progress (NAEP):** 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. The HSLS:09 assessment differs from but complements those of NAEP by providing a basis for measuring individual-level achievement growth between fall of 9th and spring of 11th grade in mathematics (with a focus on algebraic reasoning) and relating cognitive gains in this subject to the individual, school, and family factors and processes that are measured in the various HSLS:09 questionnaires. URL: https://nces.ed.gov/nationsreportcard/.

**National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education (NCES):** This governmental agency is the sponsor of HSLS:09, and is also the sponsoring agency for (among other studies) the National Assessment of Educational Progress, and the following completed secondary longitudinal studies: the Education Longitudinal Study of 2002 (ELS:2002), the National Education Longitudinal Study of 1988 (NELS:88), the High School and Beyond longitudinal study (HS&B), and the National Longitudinal Study of the High School Class of 1972 (NLS-72).

**National Education Longitudinal Study of 1988 (NELS:88):** NELS:88 was the 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, and 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. URL: https://nces.ed.gov/surveys/nels88/.

**National Longitudinal Study of the High School Class of 1972 (NLS-72):** This project was the first in the series of longitudinal high school cohort studies sponsored by NCES. The study represented the senior class of 1972. The final round of data collection took place in 1986. URL: https://nces.ed.gov/surveys/nls72/.

**National Science Foundation (NSF):** NSF has collaborated with NCES in support of HSLS:09, particularly in matters that reflect state-level samples and records systems.

**Native Hawaiian or Other Pacific Islander:** A Native Hawaiian or Other Pacific Islander is any person having origins in any of the original peoples of Hawaii,

Guam, Samoa, or other Pacific Islands. The primary source of race/ethnicity categorization in HSLS:09 was respondent self-identification.

**Ninth-grade cohort (HSLS:09)**: To be eligible for HSLS:09, a student had to be a fall-term ninth-grader in a U.S. school with both grades 9 and 11. Given this definition, HSLS:09 does not represent all ninth-grade students, since schools with grade spans such as K–9, 6–9, 7–9, 8–9, and so on, were ineligible for the study.

**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 population parameter estimated from the respondent data 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 *Nonresponse bias analysis*.)

**Nonresponse bias analysis:** Nonresponse bias analysis compares the characteristics of respondents and nonrespondents. Both unit nonresponse (school and student) and item nonresponse on questionnaires were subject to bias analyses in HSLS:09. For example, certain key data items were obtained for both responding and nonresponding schools, so that a school nonresponse bias analysis could be conducted, and bias in school-level estimates quantified and tested.

**Nonsampling error:** This is an error in sample estimates that cannot be attributed to sampling fluctuations. Such errors may arise from many sources including unit or item nonresponse across subgroups or errors in the respondent data such as through a student's keying error.

**Occupational Information Network (O*NET):** O*NET is the primary industry and occupation coding scheme used in HSLS:09. 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 structure: 23 general-level categories expand to 96 mid-level categories that can be expanded further to 821 specific-level categories.

**Paradata.** Paradata are data captured during the process of collecting survey data. These data often deal with the administrative details, such as call count number, prior-round response, or the mode of contact.

**Parent/guardian questionnaire:** The HSLS:09 base-year parent component sought to collect information from parents/guardians of all base-year student sample members. The parent or guardian most knowledgeable about his or her student's educational experience was asked to complete the questionnaire. The

first follow-up also included a parent questionnaire component for a randomly selected subsample of eligible student sample members.

**PowerStats:** PowerStats is an NCES DataLab tool that allows users to generate complex averages, percentages, medians, and centiles tables, as well as perform linear and logistic regressions. PowerStats provides access to public-use and restricted-use data; because users only see estimates and standard errors in the results, no restricted-use license is required. PowerStats enables users to access results based on micro-level NCES data without utilizing a statistical analysis program. HSLS:09 data are available for analysis using PowerStats in the NCES DataLab. URL: https://nces.ed.gov/datalab. (See also *DataLab* and *QuickStats*.)

**Precision:** Precision is calculated in terms of the sampling error (or standard error) of an estimate. Theoretically, precision is the deviation among estimates for a set of samples.

**Primary sampling unit (PSU):** The PSU is the unit chosen at the first stage of a sample design and is typically reserved for clusters of units selected at a subsequent stage of sampling in a multistage design. The HSLS:09 PSU is the base-year school that represents a cluster of students used to select the second-stage sample. In other studies, geographical units such as a county or metropolitan statistical area (MSA) may serve as the PSU.

**Private School Universe Survey (PSS):** The PSS is a universe survey used to generate biennial data on the total number of private schools, teachers, and students. Study-eligible private schools were identified from the PSS to form the private school portion of the sampling frame for the HSLS:09 base year.

**Public-use data file:** A public-use file includes data that have been coded, aggregated, or otherwise altered to mask individually identifiable information. This file is available to the public through NCES. Unique identifiers, geographic detail, and other variables that cannot be suitably altered are suppressed in public-use data files. Public-use edits are based on an assumption that the public may 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 extensive. When determining an appropriate masking process, public-use editing 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. (See also *Restricted-use data file*, *eDAT*, and *Disclosure risk analysis*.)

**QuickStats:** QuickStats is an NCES DataLab tool that allows users to easily generate percentages, averages tables, and simple graphs using frequently used

variables. HSLS:09 data are available for analysis using QuickStats in the NCES DataLab. URL: https://nces.ed.gov/datalab. (See also *DataLab* and *PowerStats*.)

**Relative bias:** Relative bias is the bias of the estimate divided by the estimate. This measure identifies the magnitude of the bias relative to the point estimate.

**Reserve code:** Certain codes have been reserved to stand for a number of situations in which missing data occur in response frequencies. For HSLS:09 second follow-up data files, the reserve code conventions are as follows:

- -1 = Item-missing, don't know: Used when a respondent indicated don't know as a response to a question.
- -3 = Carry-through missing: Used when a respondent does not answer a prerequisite survey question and is therefore not administered the item.
- -4 = Item-missing, abbreviated interview: Used for questions that were not administered because an abbreviated version of the questionnaire was administered (see appendix E for the abbreviated survey specifications).
- -5 = Data suppressed (public-use data file only): Used for data that have been suppressed on the public-use file for disclosure reasons.
- -6 = Unit-missing, component not applicable: Used, for example, for first follow-up parent survey data when parents were not included in first follow-up parent subsample.
- -7 = Item-missing, item not applicable: Used for questions that are not administered because the question in not applicable based on information already known from a prior answer or another data source.
- -8 = Unit-missing: Used for all variables across an entire survey when a sample member did not respond to the survey.
- -9 = Item-missing, nonresponse: Used for questions that are not answered within a survey when the respondent was eligible for the question.

**Response rate (weighted):** In general, unit response rates are calculated as the ratio of the weighted number of completed instruments to the weighted number of eligible (in-scope) sample units, using the sample base weight (i.e., the inverse of the selection probability). In multistage samples, such as HSLS:09, overall student-level response is the product of both stages (although, for many purposes, the stages are reported separately). Item response rates are calculated as the weighted 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. More detailed information can be found by consulting NCES Standard 1-3 in the NCES 2002 Statistical Standards document (Seastrom 2003). Bias analyses conducted when response rates are below targets help to assess any possible limitations to the generalizability of survey estimates. (See also *Nonresponse bias analysis*.)

**Responsive design:** Responsive design features have been used in HSLS:09. Responsive design is a concept introduced by Groves and Heeringa (2006) in which survey design features that can affect cost and survey estimates are identified prior to data collection. Indicators of these design features are developed and monitored at multiple points during data collection. Ideally, these indicators demonstrate potential error risks and the survey design is adapted to mitigate those emerging risks. The specific responsive design goals that HSLS:09 sought to realize were sample representativeness and reduction of bias in survey estimates that stemmed from nonresponse to the survey. This was achieved by identifying the nonresponding cases that were most likely to contribute to suboptimal representativeness in the responding sample and to contribute to bias, and working to increase response within this targeted subset of the sample. Multiple phases of data collection were used to change the protocols, in order to maximize response among the targeted sample.

**Restricted-use data file:** A restricted-use file includes individually identifiable information that is confidential and protected by law. The basic strategy for HSLS:09 public- versus restricted-use file construction was to include the variables with limited disclosure treatment on the restricted-use file, and to modify or suppress values for these same variables on the public-use version. Use of the restricted data requires the researcher to obtain a special license from NCES. (See also *Public-use data file*, *Disclosure risk analysis*, and *Electronic codebook*.)

**Round:** A round is a single implementation of the survey within the larger longitudinal survey (e.g., the base year and each successive follow-up are each rounds of data collection).

**RTI International (RTI):** RTI is a nonprofit university-affiliated research organization with headquarters in Research Triangle Park, North Carolina. RTI conducted the HSLS:09 base-year study, the first follow-up, the 2013 Update, and the second follow-up on behalf of NCES. RTI International is a trade name of Research Triangle Institute. URL: http://www.rti.org/.

**Sampling error:** Sampling error is the difference between a value for an entire population and an estimate of that value derived from a probability sample (i.e., subset of the population).

**Sampling frame:** A sampling frame is a list of all the sampling units for the target population associated with a particular stage of the sample design. The Common Core of Data and Private School Universe Survey were the basis of the HSLS:09 school (first-stage) sampling frame. The student sampling frame was equivalent to the ninth-grade enrollment lists (rosters) provided by the HSLS:09 sampled schools. The *sampling frame population* is the set of elements associated with this list. As with every survey, the sampling frame is constructed in an attempt to enumerate every member of the target population. Differences between the sampling frame and target populations are linked to coverage errors. (See also *Bias*.)

**Sampling variance:** Sampling variance is the variation associated with the set of estimates generated from (theoretical) repeated implementation of the essential survey conditions (e.g., sample design, frame, sample size, instrument, data collection, and methodology). The square root of the sampling variance is the standard error. These statistics are estimated using the sample data from a single survey and the final analytic weights.

**School Administrator questionnaire**: This questionnaire was completed by the base-year and first follow-up school administrator (e.g., principal) or someone designated by the administrator. This instrument contains questions on basic information about school policies, number of students in each class, curriculum offered, programs for students with special needs (e.g., disadvantaged students and students with disabilities), and other school characteristics. The school administrator questionnaire was completed primarily in a web-survey self-administered mode.

**School climate:** The school climate is defined as the social system and ethos or culture of the school, including the organizational structure of the school and values and expectations within it.

**School Codes for the Exchange of Data (SCED):** The SCED is part of NCES's Secondary School Course Classification System. Historically (NAEP, ELS:2002, NELS:88, HS&B), high school transcripts were coded using the Classification of Secondary School Courses (CSSC). HSLS:09, however, coded high school courses to the SCED taxonomy. For further information about SCED, see National Forum on Education Statistics (2014*). Forum Guide to School Courses for the Exchange of Data (SCED) Classification System*. (NCES 2014-802): U.S. Department of Education. Washington, DC: National Center for Education Statistics.

**Selection probability:** The selection probability, also referred to as the inclusion probability, is the random chance that a particular sampling unit has of being selected into the sample. These values are greater than zero and, in general, less than or equal to one. Selection probabilities equal to zero are only (theoretically) associated with ineligible sampling frame units.

**Serpentine sorting:** Serpentine sorting is a method of sorting in which records are ordered in an alternating ascending and descending pattern, so that any two consecutive records in the sorted file are more similar with respect to their values on the sort variables than in traditional sorting. This method was used in various HSLS:09 statistical procedures such as with the weighted hot-deck imputation methodology.

**Simple random sampling** (**SRS**)**:** SRS uses equal probability sampling with no strata or clusters. The HSLS:09 sample is stratified and clustered. Standard statistical analysis software assumes SRS and independently distributed errors. For studies such as HSLS:09, special variance estimation software (such as SUDAAN, WesVar, AM, Stata, or R) is required to compute (Taylor series) linearization or replication variance estimates. The HSLS:09 restricted-use data files contain linearization weights and balanced repeated replication weights are available on all files. (See also *Analytic weights, Taylor series linearization,* and *Balanced repeated replication.*)

**Standard error:** This is the square root of the population 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 and are constructed using the final analysis weights and software that accounts for the complex HSLS:09 sample design.

**Statistical significance:** Statistical significance is the finding (based on a derived probability, rather than a certitude) that, for example, two or more estimates are truly different from one another and not a merely apparent difference reflecting chance variation.

**STEM**: The acronym STEM stands for science, technology, engineering and mathematics. STEM coursetaking and employment is a major focus of HSLS:09.

**Stratification:** Stratification is the division of a population into distinct, mutually exclusive and exhaustive subgroups (strata). Strata are generally defined to include relatively homogeneous units on characteristics that are of interest to the study. Stratification is used to reduce sampling error. In HSLS:09, the first-stage strata were formed and schools were selected independently within each stratum. Students were independently selected within strata defined by race/ethnicity.

**Student questionnaire:** This is one of the two parts of the HSLS:09 base-year and first follow-up student survey (the other part is the algebraic reasoning assessment). The student questionnaire contained a locating section for tracing sample members for future waves of HSLS:09 and a series of questions about school and home environments, attitudes, values, expectations and aspirations.

**Study-eligible school:** With a few exclusions, HSLS:09 study-eligible schools are generally defined as U.S. schools (public or private) that provide educational instruction to 9th- and 11th-grade students and distribute high school diplomas based on a pre-set list of criteria. The complete list of exclusions is provided in section 3.2.1 of the *HSLS:09 Base-Year Data File Documentation* (NCES 2011-328). U.S. Department of Education. Washington, DC: National Center for Education Statistics. (See also *Target population*.)

**Study-eligible student:** All 9th-grade students enrolled in study-eligible schools on the Survey Day in the fall semester of the 2009–10 school year were classified as study eligible. This set includes students identified as questionnaire incapable and students who were able to complete all components of the study. All foreign exchange students were excluded from the study.

**Target population:** A target population defines a collection of units (such as student or schools) about which inferences are made. The weighted results tabulated from the HSLS:09 data provide estimates for target populations and population domains. In HSLS:09, the target population at the school level was defined as regular public schools, including public charter schools, and private schools, in the 50 United States and the District of Columbia, providing instruction in both 9th and 11th grade. The target population of students was defined to include all ninth-grade students who attended the study-eligible schools in the fall 2009 term.

**Taylor series linearization:** The Taylor series variance estimation procedure is used to estimate the variance of linear statistics (e.g., estimated totals) and nonlinear statistics (e.g., proportions or ratios). For nonlinear statistics, the procedure takes the first-order Taylor series approximation of the nonlinear statistics and then substitutes the linear representation into the appropriate variance formula based on the sample design. Because HSLS:09 is a stratified multistage survey, the Taylor series procedure requires analytic strata and analytic primary sampling units, defined from the sampling strata and primary sampling units (HSLS:09 schools). (See also *Balanced repeated replication*.)

**Teacher questionnaire:** In the base year, mathematics and science teachers of HSLS:09 sampled students were asked to complete a teacher questionnaire. This instrument was used to collect data on school and teacher characteristics (including teacher qualifications and experience) and some classroom-level information. Unlike the NELS:88 and ELS:2002 teacher surveys, no direct teacher ratings or evaluations of specific sampled students were sought and the names of the sampled students were kept anonymous.

**Technical Review Panel (TRP):** A TRP is a specially appointed, independent group of substantive, methodological, and technical experts who offer

advice to the study contractor on issues of study design and content. TRP members are nominated by RTI and approved by NCES. Typically, TRPs are convened prior to and subsequent to a field test.

**Unit nonresponse:** Unit nonresponse is the 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 HSLS:09, overall nonresponse is the product of school-level nonresponse and student nonresponse. *Total item nonresponse* reflects a combination of the overall unit nonresponse and item nonresponse. (See also *Item nonresponse* and *Nonresponse bias*.)

**Variance estimation:** Variance estimation is the measure of the variability of a statistic and includes the standard error and error variance. Two procedures for estimating variance of survey statistics in HSLS:09 are the BRR (balanced repeated replication) and Taylor series. BRR (available on both the public-use and restricted-use files) is recommended for HSLS:09 data. (See also *Balanced repeated replication* and *Taylor series linearization*.)

**Weighted estimates:** Weighted estimates are survey estimates generated from survey data that have been 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 participated. (See also *Analytic weights*.)

**White:** A White person is one having origins in any of the original peoples of Europe, the Middle East, or North Africa. The primary source of race/ethnicity categorization in HSLS:09 was respondent self-identification.

*This page intentionally left blank*

# Appendix B:
# High School Longitudinal Study of 2009 (HSLS:09) Second Follow-up Field Test Report

*This page intentionally left blank*

# Contents

# List of Tables

# List of Figures

# Section 1. Overview of HSLS:09 Second Follow-up Field Test

The High School Longitudinal Study of 2009 (HSLS:09) is based upon a nationally representative sample of fall-term 9th-grade students who were selected from a nationally representative sample of high schools with 9th and 11th grades. HSLS:09 is designed to serve multiple policy objectives, primarily through longitudinal analysis. The goal of HSLS:09 is to provide data to better understand the impact of earlier educational experiences—starting at 9th-grade entry into high school—on high school performance and the impact of these experiences on the transitions that students make from high school to adult roles. HSLS:09 was designed to help researchers and policy analysts investigate the process of dropping out of high school and possible return to school or pursuit of alternative credentials; the school experience and academic performance of English-language learners; the nature of the paths into and out of science, technology, engineering, and mathematics (STEM) curricula and occupations; and the educational and social experiences that affect these outcomes.

The second follow-up field test was conducted in summer 2015 and collected information for the HSLS:09 cohort approximately 3 years after the modal high school completion date. The second follow-up shifts the focus of the study to emphasize the transition of the cohort to postsecondary education—both baccalaureate and subbaccalaureate—and the work force, with a particular concentration on access to higher education and choice of postsecondary institution type. Given the timing of the second follow-up data collection, some of the activities that sample members may be engaged in at this time point include pursuing a postsecondary credential, working, serving in the military, and starting a family. Some sample members may have only just received, or may still be working toward, a high school credential, while some sample members may be engaging in multiple activities, such as family formation, labor force participation, and postsecondary coursetaking at the same time. The second follow-up survey covers each of these diverse activities in some depth while also advancing the themes addressed in prior rounds of data collection.

The field test incorporated several features to evaluate the survey and data collection processes. Cognitive tests conducted with draft survey questions before the field test helped elucidate the key concepts and ascertain how to create items with minimal response error or ambiguity. Once data collection had begun, a reinterview was

conducted with a small set of respondents to evaluate the reliability of responses. The second follow-up field test featured both experiments to determine the effectiveness of certain data collection interventions, and simulations of responsive design methods that will help contain and control bias in the main study.

This methodology appendix briefly reviews methods and results of the field test. Sections include information on sampling (section 2), instrumentation (section 3), data collection (section 4), evaluation of the survey (section 5), and survey control systems and data processing (section 6). The appendix concludes with recommendations for the main study (section 7) based on the field test results.

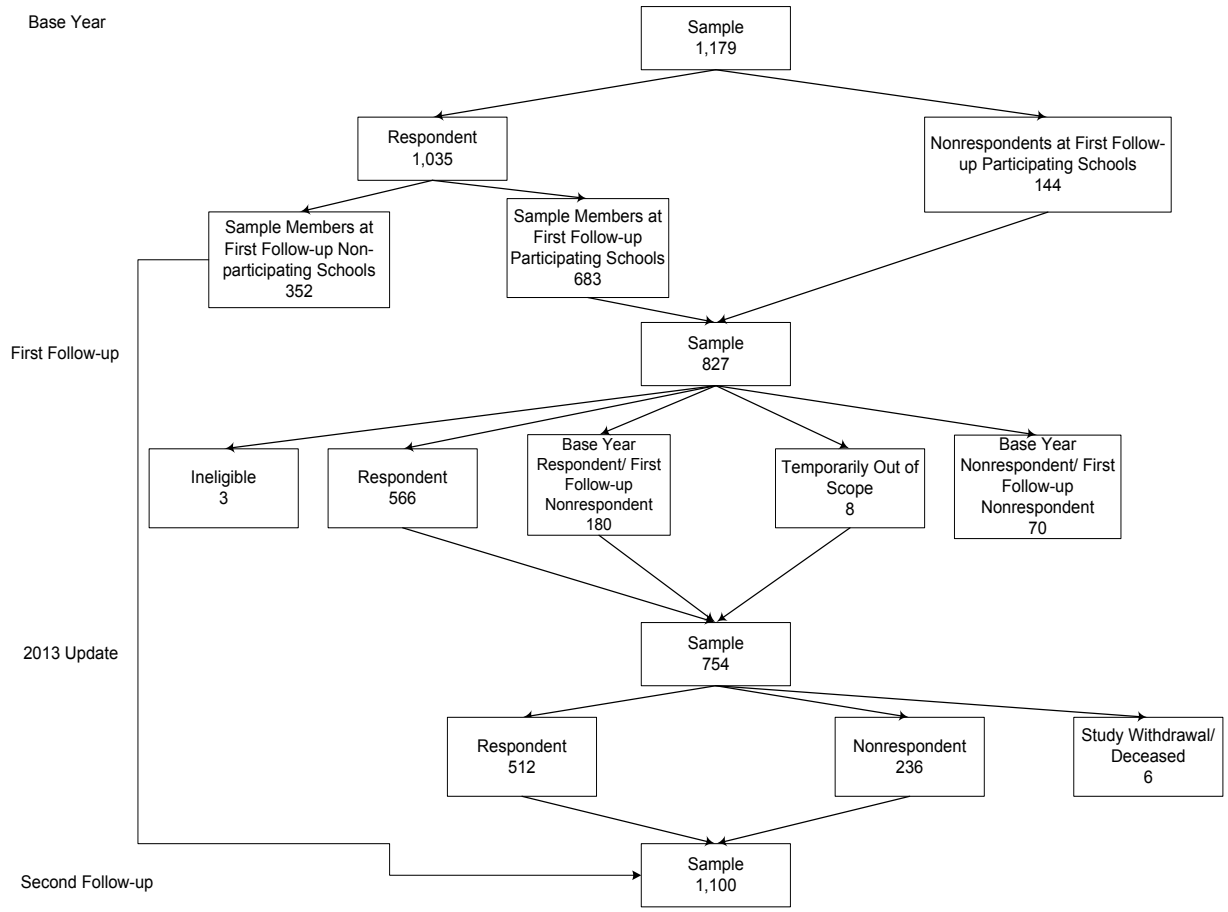
This report is confined to the second follow-up field test. Further information about past field tests and main studies conducted in earlier rounds can be found in the project documentation listed on the National Center for Education Statistics (NCES) website (https://nces.ed.gov/surveys/hsls09/hsls09_data.asp).

Unless otherwise indicated, a criterion probability level of .05 was used for all tests of significance conducted for the HSLS:09 second follow-up field test evaluations.

# Section 2. Sampling

The construction of the second follow-up field test sample is illustrated in the following paragraphs by tracing creation of the HSLS:09 field test samples by study round. Figure 1 shows the distribution of the 1,179 field test sample members sampled from 41 schools in the base year. Twenty-six of the 41 schools agreed to participate in the first follow-up study, with 24 schools conducting the in-school survey and assessment sessions and two schools not participating in the in-school session. Among the 26 participating schools in the first follow-up field test, 566 of the 827 study-eligible students participated.

**Figure 1. HSLS:09 field test student sample disposition from base year through second follow-up**



Students were included in the 2013 Update field test data collection if they were sampled from one of the 26 schools included in the first follow-up field test and if they responded in either or both of the first two rounds of HSLS:09 field tests. Among students sampled from the 26 schools in the first follow-up field test, 754 participated in either or both prior rounds.

While no additional sampling was used to create the second follow-up field test sample from the sample for the 2013 Update, some base-year field test participating sample members who had been excluded from the first follow-up field test and 2013 Update field test were added into the field test sample for the second follow-up. The second follow-up field test sample of 1,100 included 748 of the 2013 Update field test sample members and 352 base-year field test respondents who were not fielded for the first follow-up or 2013 Update field tests. The additional 352 base-year field test respondents attended base-year schools that did not participate in the first follow-up, so these respondents were not pursued in the first follow-up or the 2013 Update. However, these cases were included in the second follow-up to supplement the field test sample size.

# Section 3. Instrumentation

This section describes the HSLS:09 survey instruments that preceded the second follow-up; the content of the second follow-up field test; and the steps taken to develop the full-length, abbreviated, and reinterview field test survey instruments.

## 3.1 Context, Data Elements, and Questionnaire Design

This section first describes the second follow-up survey instrument's context in the series of HSLS:09 surveys. Then it covers the development process for the data elements and survey item wording, the interview sections and topics, and the methodological features of the multimode survey design.

### 3.1.1 HSLS:09 base-year field test and main study

The base-year data collection consisted of a survey and a math assessment of fall-term 9th-grade students, complemented by surveys of students' parents, math and science teachers, school counselors, and school administrators. See section 3.1 of the main report for more information on data collected in the base year surveys.

### 3.1.2 HSLS:09 first follow-up field test and main study

The first follow-up was conducted in the spring term of 2011 when most sample members were completing 11th grade, but others had dropped out or completed high school early. It repeated all components from the base year with the exception of the math and science teacher questionnaires. See section 3.1 of the main report for more information on data collected in the first follow-up surveys.

### 3.1.3 2013 Update field test and main study

The 2013 Update was a brief survey of the sample member or his/her parent conducted in the summer and fall after the normative high school graduation date. See section 3.1 of the main report for more information on data collected in the 2013 Update survey.

Additionally, high school transcripts, high school course catalogues, test taking data from the GED testing service and SAT scores from the College Board were collected at that time.

### 3.1.4 Data elements and questionnaire design

The goal for developing the second follow-up field test instrument was to design a 35-minute web survey to be administered to sample members approximately 3 years after the modal high school graduation date. To develop the field test instrument, key constructs were first selected from the previous rounds of HSLS:09 and potential new data elements were identified by examining existing education surveys, including the following:

National Center for Education Statistics

- Beginning Postsecondary Students Longitudinal Study (BPS)
- Education Longitudinal Study of 2002 (ELS:2002)
- National Household Education Survey (NHES)
- National Postsecondary Student Aid Study (NPSAS)

National Science Foundation

- National Survey of College Graduates (NSCG)
- National Survey of Recent College Graduates (NSRCG)

Other organizations or government entities

- Cooperative Institutional Research Program (CIRP) surveys
- Bureau of Labor Statistics, National Longitudinal Survey of Youth (NLSY79, NLSY97)
- National Survey of Student Engagement (NSSE)

Relevant data elements were assembled and prioritized based on the research goals of HSLS:09 and what HSLS:09 uniquely offers to the NCES suite of studies. The Technical Review Panel (TRP), a panel of experts in education research at the secondary and postsecondary levels, was convened to provide feedback to the survey contractor, RTI International, on the superset of data elements and the suggested prioritization. NCES then worked closely with RTI to select the final set of data elements for inclusion in the field test instrument.[1]

The second follow-up field test survey contained four substantive sections, grouped by broad topics:

1. High school education. Generally, this section collected data on high school completion and experiences for those for whom these data were not available from previous collections due to unit or item nonresponse or lack of a transcript. The section ascertained whether high school had been completed, the type of credential earned, and the date that credential was received.

[1] To obtain a copy of the second follow-up field test instrument facsimile, please email hsls09@ed.gov.

Respondents were also asked if they had ever dropped out of high school or transferred high schools. Students who had dropped out of high school were asked when and where they last attended high school; the grade they were in at the time they dropped out; whether they had participated in a high school completion program; and how many times they had taken the GED test, if any. GED recipients were also asked for the state in which they earned their GED. Transcript-related data collected from respondents in this section included the grade they were in when they took algebra I, their highest math course, and their high school grade point average.

2. Postsecondary education. This section began by collecting information about college applications from 2013 Update nonrespondents and sample members who had not applied to college at that time. A complete enrollment history was collected from all respondents, including names of institutions attended, month-by-month enrollment dates, enrollment intensity (e.g., full time or part time), degrees or certificates pursued, completion or expected completion dates, and enrollment in online programs and classes. Additionally, those in associate's degree programs were asked if they planned to transfer to a bachelor's degree program, and those taking classes outside of a degree or certificate program were asked their reasons for doing so. Respondents with common but nonstandard enrollment patterns were asked for their reasons for not attending, delaying entry, transferring, and dropping out. All respondents were asked about their plans for future enrollment. Respondents currently working on a degree or certificate were asked about their confidence in their ability to complete the program and the perceived value of the credential.

   Another series of questions in the postsecondary education section related to fields of study. Respondents who had declared or decided upon a major/field of study were asked to indicate what it was and why they chose it. Those who had changed their major from what they had intended upon entry into postsecondary education (as reported in the 2013 Update field test or in an earlier question in the second follow-up field test survey) were asked for their reasons for doing so as well. Another series of questions asked about self-perceptions (e.g., growth mindset, identity) as related to STEM and experiences in STEM courses.

   The section also collected information related to the student's use of college services and participation in enrichment activities (e.g., study abroad, research project). Students were also asked whether they lived on or off campus, the

distance of their residence from campus, and how they allocated their time to different activities.

3. Employment section. The third instrument section collected a complete employment history from the date the respondent last attended high school through the interview month. Information gathered for each job included job title and employer name, month-by-month employment dates, hours worked per week while enrolled and not enrolled, and the main purpose of the job (e.g., a career position, a way to pay the bills). All respondents who had gaps in their employment were asked for a month-by-month unemployment history and about their receipt of unemployment compensation. Respondents were also asked about their participation in internships, co-ops, and apprenticeships.

   Additionally, a detailed set of questions about the current or most recent job was asked of respondents who were not enrolled as of the survey date and those enrolled but working more than 20 hours per week. They were asked to code their occupation, identify the employment sector (e.g., for-profit company, government), indicate if the job was an apprenticeship or required a license, and report their earnings and benefits. Those working more than 40 hours per week or fewer than 20 hours per week were asked for their reasons for doing so. Those in the latter group were also asked if they preferred to work more. Finally, this subset of respondents was asked to evaluate the support system at the job and their enjoyment and overall satisfaction with it.

   The last series of questions in the employment section related to future employment expectations. Respondents were asked to identify the job they expect to hold when they are 30 years old, how closely related the expected job would be to their current or most recent job, and their expected earnings at that time. Finally, respondents were asked to evaluate the importance of various nonsalary job characteristics, such as work-life balance, relative to the importance of salary.

4. Family and community section. This section covered a range of topics including family and home life (e.g., marital and parental status, household composition), financial issues (e.g., home ownership and expenses, dependents, financial assistance to and from others, income, parents' income, worries and behaviors related to money, private loans and scholarships for education), community (e.g., citizenship, voting registration, volunteering), military service (e.g., branches, active duty), personal characteristics and

values (e.g., disabilities, sex and gender identity, discrimination, life values), and significant life events (e.g., job loss, death of a parent, serious injury or illness).

In addition to the substantive sections, the survey included a brief section for informed consent and another to collect locating information for the next follow-up with this cohort.

**Figure 2. HSLS:09 second follow-up field test topics: 2015**

### High School Education

- High school completion status
- High school completion programs and General Educational Development (GED)
- High school enrollment patterns
- Academic experiences in high school

### Postsecondary Education

- College applications
- Postsecondary enrollment patterns and reasons
- Colleges attended, enrollment dates and intensity (e.g., full time, part time)
- Degree/certificate programs enrolled in, completion status
- Confidence about and perceived value of degree/certificate
- Near-term and long-term plans for future enrollment
- Influences of family and friends on enrollment
- Science, technology, engineering, and mathematics (STEM) identity and growth mindset
- Experiences in STEM postsecondary courses
- Major field of study, reasons chose major and changed major
- Postsecondary experiences and use of services

### Employment

- Work experience programs (e.g., internships, co-ops), professional certifications and licenses
- Employment history including job titles, dates, hours
- Current or most recent job detail including job duties, type of employer, reasons for working nonstandard hours, earnings and benefits, satisfaction and support system
- Unemployment dates and unemployment compensation
- Work on/off campus, school-assisted job search, identify as primarily student or employee, work's interference with academics
- Importance of nonsalary characteristics when choosing a job
- Expected job at age 30, relation to current/most recent job, and expected earnings

### Family and Community

- Annual income, spouse's annual income
- Marital status, family formation, and household composition
- Home ownership, zip code, and housing costs
- Income, dependents, and receipt of federal benefits (e.g., Supplemental Security Income [SSI], Special Supplemental Nutrition Program for Women, Infants, and Children [WIC])
- Parents' income and financial support of respondent and other dependents
- Scholarships, grants, and private loans
- Financial worries and management, belief that college is a good investment
- Citizenship and civic engagement
- Military service
- Disabilities and accommodations received
- Sex, gender identity, and sexual orientation
- Experience of discrimination
- Life values
- Traumatic experiences (e.g., job loss, death)

## 3.2 Abbreviated Interview and Reinterview Development

An abbreviated instrument was developed for use in a field test experiment that compared two different methods of encouraging participation among the most reluctant sample members. The abbreviated version included the items most critical for the primary research questions of HSLS:09, including but not limited to the following:

- High school completion and credential
- Postsecondary enrollment
  - College applications
  - College enrollment
  - Plans for future enrollment
  - Major/field of study and reasons for selection and change
- Employment
  - Job history
  - Incidence of unemployment
  - Expected job at age 30
- Family formation
  - Marital and parental status
  - Dependents
- Financial information
  - Income
  - Private loans and scholarships

Additionally, a short reinterview was developed to be administered to a small sample of web and computer-assisted telephone interviewing (CATI) respondents approximately 4 weeks after their initial survey date. The purpose of the reinterview was to evaluate the test–retest reliability of selected items. The following criteria were used to select items for the reliability reinterview:

1. The true response was likely to be stable over a short period of time so that change could be attributed, with a high level of confidence, to lack of reliability rather than real change, or
2. The item was one for which reliability was less certain due to concerns related to respondents' ability to recall, respondents' certainty of future expectations, or question clarity.

Questions that performed poorly were omitted from or revised for the main study instrument. The methodology and results of the reinterview are presented in section 5.4

## 3.3 Cognitive Testing

A subset of the questions selected for inclusion on the field test survey was presented on a paper form and cognitively tested with young adults the same age as the HSLS:09 sample members (see section 3.2 in the main report for a description of cognitive interviews). Survey questions were chosen for cognitive testing either because they were drafted specifically for the second follow-up field test of HSLS:09 and had not been used in a national survey previously or because they included key terms for which consistent and accurate interpretation was of paramount importance for data quality. The cognitive tests were conducted after the first TRP meeting, concurrent with instrument programming and testing. Based on the results of the tests, revisions to the survey questions were implemented in the programmed instrument before data collection began.

Thirty young adults recruited from the greater Chicago metropolitan area were chosen to participate. They were diversified by high school completion status, postsecondary enrollment status and program level, employment status, race/ethnicity, sex and gender minority status. Twenty-two respondents were high school graduates and one had earned a GED. Twenty-one had at least some postsecondary education. In order to comprehensively test questions pertaining to birth sex, gender identity, and sexual orientation, special efforts were made to recruit lesbian, gay, bisexual, transgender, and queer (LGBTQ) individuals, because of their gender minority status. One-third of the participants identified as a gender minority.

The results of the cognitive interviews are summarized in appendix C.

# Section 4. Data Collection

This section provides an overview of data collection design, procedures, outcomes, and evaluations.

## 4.1 Data Collection Design and Procedures

The HSLS:09 second follow-up field test data collection design included tracing activities to locate sample members before data collection, followed first by an early web-only data collection period and then by a period of outbound prompting and interviewing by data collection staff. Throughout the outbound prompting period, sample members could still complete the interview independently online using a computer or mobile device. A study website and help desk were available to provide information and support to sample members throughout data collection. Data collection procedures also included intensive tracing for those sample members who were not located during outbound telephone interviewing.

Methods for maximizing response to the study survey included panel maintenance and tracing of sample members, thorough training for all data collection staff, a case management system, and incentives for sample members.

**Panel maintenance.** Retention of the sample over time is required for longitudinal studies. Approximately 6 months before the start of second follow-up data collection, sample members and their parents were contacted by mail and e-mail and asked to confirm or update their contact information. Sample members were offered a $10 incentive if either they or their parent completed the panel maintenance request.

**Tracing field test sample members.** The HSLS:09 tracing approach was designed to yield the maximum number of located cases with the least expense. During the field test, the effectiveness of these procedures was evaluated to inform whether any changes were needed for the main study effort. Immediately prior to and throughout data collection, batch database searches were conducted to update sample members' contact information. These included the Department of Education's Central Processing System (CPS); National Change of Address (NCOA) database; LexisNexis Premium Address; Phone Append; e-mail search services; and other databases to update sample member contact information for data collection announcement mailings. Throughout data collection, letters, postcards, and e-mails

were sent reminding sample members to complete the survey. Data on sample members without contact information were sent to the intensive tracing system for additional locating effort. When new contact information was obtained from tracing or returned mail, the information was moved into the CATI Case Management System (CATI-CMS) so that the new information could be used immediately for telephone locating and interviewing.

**Training for data collection staff.** Telephone data collection was conducted at RTI's Research Operations Center. HSLS:09 staff at the Research Operations Center included quality control supervisors (QCSs) and data collection interviewers (DCIs). The DCI training included an overview of the study, background, and objectives, and a thorough review of the data collection instrument. At the conclusion of training, all staff were required to meet certification criteria by successfully completing a certification interview, in which project staff watched the trainee conduct a full-length interview. Trainees were also required to pass a quiz on the study's frequently asked questions (FAQs).

In addition to the DCI training, QCSs were required to attend project-specific supervisory training. QCSs received additional training in

- specific project procedures and protocols;
- providing direct supervision during data collection;
- problem resolution and handling refusals;
- monitoring interviews and maintaining records of monitoring results; and
- reviewing cases and CATI reports.

**Case Management System (CMS).** Data collection activities for the field test were managed using the CATI-CMS, which provides access to locating information, call history, appointments, and survey status. The CATI-CMS scheduled telephone calls to be made by telephone interviewers and tracked call outcomes. QCSs and project managers used the CATI-CMS to manage and prioritize cases based on factors such as the frequency and outcome of prior calls. Managers could transfer cases between telephone interviewers or put cases on hold and review them as necessary. Within the CATI-CMS, telephone interviewers had the ability to send reminder e-mails to callers who wished to use the web survey and to create short message service (SMS) text reminders for those who requested them. For more details on the CATI-CMS, see section 6.2.

**Incentives.** A variety of incentive options to encourage participation in the survey were tested in the field test. Prior studies with young adult cohorts have

demonstrated the potential for incentive boosts, prepaid incentives, and abbreviated surveys to increase sample member cooperation. Determining the proper incentive structure for the HSLS:09 cohort posed unique challenges, in part because the circumstances of data collection differed across the various rounds. The first follow-up interview occurred in 2010, when most sample members were high school juniors. The 2012 update occurred after most sample members had completed high school; however, that interview was completed by either the sample member or their parent, whereas the second follow-up was completed by sample members only. While prior rounds of data collection occurred when sample members were high school students or were just beginning work or postsecondary education, the second follow-up occurred 3 years after high school for most students. It is possible that sample members' perception of the incentive offered and time burden required to complete the survey may change as they move from adolescence into adulthood. For these reasons, it could not be assumed that the incentives offered in prior rounds of the survey would be sufficient to gain sample members' cooperation for the second follow-up. To test the effectiveness of potential incentive structures on the HSLS:09 cohort, a set of experiments conducted in the second follow-up field test compared several incentive conditions:

1. Timing of prepaid incentives (early vs. late). This experiment was intended to test whether the timing of a prepaid incentive had a significant effect on cooperation rates.
2. Baseline incentive offer amount. Prior studies have demonstrated the effectiveness of promised incentives among postsecondary cohorts. This experiment was intended to test whether a modest incentive offer could be effective for the HSLS:09 cohort.
3. Incentive "boost" offer amount. This experiment was intended to test the effectiveness of an incentive boost.
4. Additional "boost" vs. abbreviated interview. The final intervention consisted of an offer of either an additional incentive boost or an abbreviated interview.

A detailed description of the incentive experiment and its results are discussed in section 4.3.

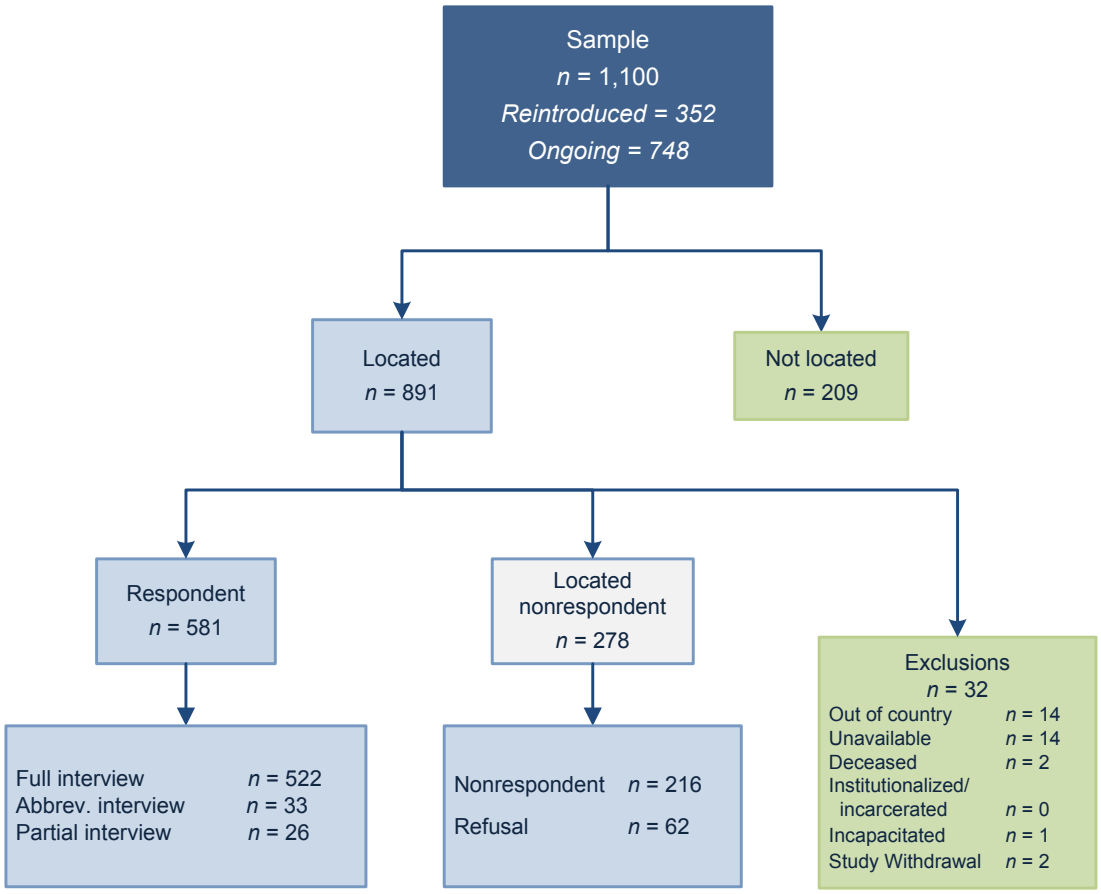
## 4.2 Data Collection Results

HSLS:09 second follow-up field test staff assessed data collection outcomes by reviewing the number of field test sample members located and interviewed. Data collection locating and interviewing results are summarized in figure 3. As described in section 2, the field test sample consisted of 1,100 sample members who had participated in either the base-year or first follow-up field test. Among these, 748

were cases that had been selected for the 2013 Update field test and first follow-up field test samples; these are referred to as "ongoing" cases. To increase the size of the field test sample, an additional 352 cases that participated in the base-year but were not included in the 2013 Update field test or first follow-up collections were reintroduced.

Of the 1,100 sample members, 891 were located. Of these, 522 completed the full interview, and approximately 33 cases completed the abbreviated interview. An additional 26 partial interviews, defined as completing at least the enrollment section, were included in the final response count. Additionally, 32 cases were included in the sample but did not receive full data collection efforts because they withdrew from the study, were deceased, were out of the country, or were otherwise unable to participate. Out-of-the-country cases were not contacted by mail or telephone but were still prompted by e-mail to complete the self-administered web survey.

**Figure 3. Locating and interviewing outcomes: 2015**




NOTE: Interviewed count includes eligible sample members who met the criteria for qualification as an interview respondent, which required completing at least a partial interview.
SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 Second Follow-up Field Test.

Table 1 includes locating and interviewing outcomes by panel maintenance response status, prior data collection response status, and high school completion status. Approximately 21 percent of sample members (224 cases), responded to the panel maintenance request that preceded data collection. Among sample members who responded to the pre-data collection panel maintenance request, approximately 98 percent were subsequently located during second follow-up data collection, and approximately 92 percent of those located completed the second follow-up interview.

Overall, the second follow-up interview was completed by 581 cases, approximately 53 percent of the sample. Among cases that responded to the 2013 Update field test collection, approximately 92 percent were located and 78 percent of those located completed the second follow-up interview. Among 2013 Update field test nonrespondents, 69 percent were located, and 36 percent of those located completed the interview. For first follow-up respondents, approximately 92 percent were located, and 73 percent of those located completed the interview. For first follow-up nonrespondents, 64 percent were located, and 41 percent of those located completed the interview. Among reintroduced cases (those who were not selected for the 2013 Update field test and first follow-up interview and who therefore had not been contacted since the base year), 73 percent were located, and 60 percent of those located completed the second follow-up interview.

Table 1 also summarizes locating and interviewing outcomes by high school completion status. Among sample members known to have a high school diploma, 93 percent were located, and 80 percent of those located were interviewed. For sample members known to have an alternative high school credential, 71 percent were located, and 70 percent of those located were interviewed. For sample members known to be high school noncompleters as of the second follow-up interview, 66 percent were located, and 40 percent of those located were interviewed. Among sample members with unknown high school completion status, 52 percent were located, and 2 percent of those located were interviewed.

**Table 1. Located and interviewed status, by prior response and high school completion status: 2015**

| Prior response status and student type | Total sample | Located | | Interviewed | | |
|---|---|---|---|---|---|---|
| | | Number | Percent of total | Number | Percent of located | Percent of total |
| **Total** | **1,100** | **891** | **81.0** | **581** | **65.2** | **52.8** |
| Panel maintenance response status (2014) | | | | | | |
| Panel maintenance respondent | 224 | 220 | 98.2 | 203 | 92.3 | 90.6 |
| Panel maintenance nonrespondent | 876 | 671 | 76.6 | 378 | 56.3 | 43.2 |
| 2013 Update field test response status | | | | | | |
| Respondent | 512 | 473 | 92.4 | 369 | 78.0 | 72.1 |
| Nonrespondent | 236 | 162 | 68.6 | 58 | 35.8 | 24.6 |
| Not selected | 352 | 256 | 72.7 | 154 | 60.2 | 43.8 |
| First follow-up response status | | | | | | |
| Respondent | 563 | 516 | 91.7 | 378 | 73.3 | 67.1 |
| Nonrespondent | 185 | 119 | 64.3 | 49 | 41.2 | 26.5 |
| Not selected | 352 | 256 | 72.7 | 154 | 60.2 | 43.8 |
| High school completion status[1] | | | | | | |
| High school diploma | 754 | 702 | 93.1 | 561 | 79.9 | 74.4 |
| Alternative credential[2] | 14 | 10 | 71.4 | 7 | 70.0 | 50.0 |
| High school noncompleter[3] | 38 | 25 | 65.8 | 10 | 40.0 | 26.3 |
| Unknown status | 294 | 154 | 52.4 | 3 | 1.9 | 1.0 |

NOTE: Detail may not sum to totals because of rounding. Sample members are counted as located if they were ever located during data collection. Interviewed count includes sample members who met the criteria for qualification as an interview respondent, which required completing at least a partial interview.
[1] High school completion status from any source as of the end of the HSLS:09 second follow-up field test data collection.
[2] Includes cases that received a General Educational Development (GED) or other alternative high school credential.
[3] Includes all cases that did not have a high school credential as of the second follow-up data collection (including those that were still enrolled in a high school completion program).
SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 Second Follow-up Field Test.

Sample members were offered two modes to complete the second follow-up survey: over the phone with a telephone interviewer or through self-administration using either a desktop or mobile device. Data collection was conducted in 5 phases, as described below:

- Phase 1. During the first 3 weeks of data collection, beginning in April 2015, sample members were asked to complete the self-administered web survey. During this phase, sample members were offered either a $15 baseline incentive or no baseline incentive, as well as a $5 prepaid incentive or no prepaid incentive.
- Phase 2. Outbound telephone prompting began 3 weeks after the start of data collection for sample members who had not yet completed the survey. Interviewers attempted to complete the interview with sample members over the phone. If sample members would not complete a telephone interview, interviewers prompted them to complete the self-administered web survey. Outbound telephone interviewing began in May 2015 and continued throughout the rest of data collection.

- Phase 3. A $5 prepaid incentive was offered to sample members who were not offered a prepaid incentive in phase 1.
- Phase 4. Sample members were offered an incentive boost of $15, $30, or no incentive boost.
- Phase 5. Sample members were offered an incentive boost of $25 or an abbreviated interview.

Table 2 summarizes the distribution of respondents by mode and phase of data collection. Section 4.3 includes more detailed description of the experimental design and results.

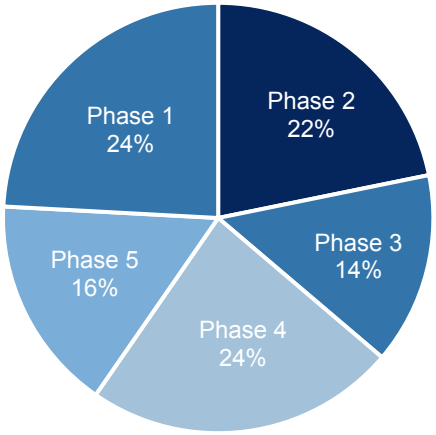
Approximately 89 percent of respondents completed the self-administered web survey. Of these, 22 percent completed it on a mobile device (including smartphones and tablet devices), and 78 percent completed it on a personal computer (nonmobile device). Overall, 19 percent of all respondents completed the self-administered interview on a mobile device, and 70 percent of all respondents completed the self-administered interview on a nonmobile device. The remaining 11 percent of respondents completed the interview over the phone with a telephone interviewer. Approximately 23 percent of all respondents completed interviews during the first phase. Figures 4 and 5 illustrate the distribution of respondents by data collection phase and mode of administration, respectively.

**Table 2. Distribution of interview respondents, by phase and mode of administration: 2015**

| | Total | | Phase 1 | | Phases 2 - 5 | |
|---|---|---|---|---|---|---|
| | Number | Percent of all respondents | Number | Percent of all respondents | Number | Percent of all respondents |
| All survey respondents | 581 | 100.0 | 134 | 23.1 | 447 | 76.9 |
| All web interviews | 516 | 88.8 | 133 | 22.9 | 383 | 65.9 |
| Web (mobile) | 111 | 19.1 | 19 | 3.3 | 92 | 15.8 |
| Web (nonmobile) | 405 | 69.7 | 114 | 19.6 | 291 | 50.1 |
| Telephone | 65 | 11.2 | 1 | 0.2 | 64 | 11.0 |

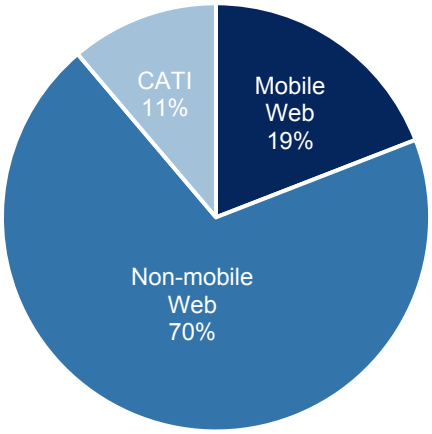
NOTE: Detail may not sum to totals because of rounding. Interviewed count includes sample members who met the criteria for qualification as an interview respondent, which required completing at least a partial interview.
SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 Second Follow-up Field Test.

**Figure 4. Distribution of interview responses by phase of data collection, 2015**




SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 Second Follow-up Field Test.

**Figure 5. Distribution of interview responses by administration mode, 2015**




NOTE: CATI = computer-assisted telephone interviewing.
SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 Second Follow-up Field Test.

## 4.3 Field Test Experiment Design and Results

**Overview.** The HSLS:09 2013 Update demonstrated the success of the models used to identify sample members who are underrepresented with regard to the key survey variables. Likewise, although they were not evaluated experimentally, the interventions used among the cases targeted based on the model results in the 2013 Update (e.g., prepaid incentives, increasing incentive offers) also were judged to be effective in encouraging cooperation among targeted cases.

In order to adequately assess the effectiveness of specific interventions at increasing response rates, a randomized design was proposed for the HSLS:09 second follow-up field test to allow for experimental evaluation of interventions. Because of the small size of the field test sample and because some of the interventions were being considered for all main study cases (not just cases targeted by responsive design methods), the interventions were implemented based on random assignment to treatment conditions rather than from a predetermined threshold from a responsive design model.

**Design of experiments.** To determine the most effective and cost-efficient treatments for use in the main study, different interventions were assessed in a full factorial experimental design. In the second follow-up field test, four interventions were tested experimentally:

1. Timing of prepaid incentive (early vs. late)—A prepaid incentive of $5 with the start of data collection mailings vs. a prepaid incentive of $5 after 6 weeks of data collection (after 3 weeks of web-only data collection and 3 weeks of outbound telephone calls);

2. Baseline incentive offer amount ($0 vs. $15)—A $15 promised incentive vs. no promised incentive;

3. Incentive "boost" offer amount ($0 vs. $15 vs. $30)—An additional incentive offer to supplement the initial offer in one of two values (or no boost) approximately 8 weeks into data collection; and

4. Additional "boost" vs. abbreviated interview—All remaining nonrespondents received either an additional $25 incentive offer or an abbreviated interview offer (approximately 12 days before the end of data collection).

The schedule of interventions is outlined in table 3. For ease of presentation, the first two interventions are presented as four distinct groups. A full factorial experimental design (2*2*3*2) was implemented because some interventions could interact; for example, the $15 baseline incentive offer could have been most effective when coupled with a prepaid incentive. The 1,100 sample cases were allocated equally across the treatment conditions.

**Table 3. Schedule of interventions in the HSLS:09 second follow-up field test**

| Group assignment | Group A | | | Group B | | | Group C | | | Group D | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Baseline incentive and timing of $5 prepaid incentive | No baseline incentive | | | Baseline incentive amount: $15 | | | No baseline incentive | | | Baseline incentive amount: $15 | | |
| | Timing of $5 prepaid incentive: week 6 | | | Timing of $5 prepaid incentive: week 6 | | | Timing of $5 prepaid incentive: with start of data collection mailing | | | Timing of $5 prepaid incentive: with start of data collection mailing | | |
| Incentive boost (in addition to baseline promised incentive: week 9 | No boost | $15 | $30 | No boost | $15 | $30 | No boost | $15 | $30 | No boost | $15 | $30 |
| **Final treatment—all remaining nonrespondents** | | | | | | | | | | | | |
| (Weeks 13 and 14) | Random assignment of nonrespondents to either $25 additional incentive or an abbreviated interview | | | | | | | | | | | |

NOTE: A main effect of 5 percentage points (e.g., 45% vs. 50%) was assumed in response rates because offering a baseline incentive or the timing of the prepaid incentive could be detected at alpha = .05 with power = .84 (one-tailed test). For the incentive boost, it should be possible to detect a difference of 5 percentage points (e.g., 59% vs. 64%) at alpha = .05 with power = .47 between two of the three conditions (one-tailed test).

### 4.3.1 Field Test Experiment Results

**Summary.** Table 4 presents the response rates by experimental conditions and phase of data collection. The results suggest (1) a substantial effect of baseline promised incentive that carries through the end of data collection; (2) no effect of timing of the prepaid incentive (potentially making the prepaid incentive unnecessary if a promised incentive is offered at the outset); and (3) greater response with the offer of an additional incentive at the end of data collection than with the offer of an abbreviated interview.

**Table 4. Response rates by experimental condition and phase of data collection**

| Group assignment | Total | Group A | | | | Group B | | | | Group C | | | | Group D | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Baseline contingent incentive and timing of $5 prepaid incentive | | No baseline contingent incentive | | | | Baseline contingent incentive amount: $15 | | | | No baseline contingent incentive | | | | Baseline contingent incentive amount: $15 | | | |
| | | Timing of $5 prepaid incentive: week 6 | | | | Timing of $5 prepaid incentive: week 6 | | | | Timing of $5 prepaid incentive: with start of data collection mailing | | | | Timing of $5 prepaid incentive: with start of data collection mailing | | | |
| Overall response rate | 50.5 (*n* = 1,100) | 45.5 (*n* = 275) | | | | 52.4 (*n* = 275) | | | | 47.6 (*n* = 275) | | | | 56.4 (*n* = 275) | | | |
| **Within-phase response rates (within-phase completions / remaining sample)** | | | | | | | | | | | | | | | | | |
| 4/15/2015–5/3/2015 (Phase 1) | 12.2 (*n* = 1,100) | 6.9 (*n* = 275) | | | | 15.6 (*n* = 275) | | | | 8.7 (*n* = 275) | | | | 17.8 (*n* = 275) | | | |
| 5/4/2015–5/25/2015 (Phase 2) | 12.5 (*n* = 966) | 9.4 (*n* = 256) | | | | 14.2 (*n* = 232) | | | | 12.0 (*n* = 251) | | | | 15.0 (*n* = 227) | | | |
| 5/26/2015–6/7/2015 (Phase 3) | 9.5 (*n* = 845) | 9.5 (*n* = 232 ) | | | | 10.1 (*n* = 199 ) | | | | 7.7 (*n* = 221 ) | | | | 10.9 (*n* = 193 ) | | | |
| 6/8/2015–7/5/2015 (Phase 4) | 17.0 (*n* = 765) | 17.6 (*n* = 210 ) | | | | 16.8 (*n* = 179) | | | | 12.7 (*n* = 204 ) | | | | 21.5 (*n* = 172 ) | | | |
| 7/6/2015–7/17/2015 (Phase 5) | 14.2 (*n* = 635) | 13.3 (*n* = 173 ) | | | | 12.1 (*n* = 149 ) | | | | 19.1 (*n* = 178 ) | | | | 11.1 (*n* = 135) | | | |
| **Phase 4 response rates by treatment** | | | | | | | | | | | | | | | | | |
| Contingent Incentive boost (in addition to baseline promised incentive) (Phase 4—by boost amount) | 17.0 (765) | *Cum. resp. rate before phase 4* | No boost | $15 | $30 | *Cum. resp. rate before phase 4* | No boost | $15 | $30 | *Cum. resp. rate before phase 4* | No boost | $15 | $30 | *Cum. resp. rate before phase 4* | No boost | $15 | $30 |
| | | *23.6 (n = 275)* | 11.4 (*n* = 70) | 23.2 (*n* = 69) | 18.3 (*n* = 71 ) | *34.9 (n = 275)* | 11.9 (*n* = 59) | 23.7 (*n* = 59) | 14.8 (*n* = 61) | *25.8 (n = 275)* | 4.5 (*n* = 67) | 14.7 (*n* = 68) | 18.8 (*n* = 69) | *37.5 (n = 275)* | 21.4 (*n* = 56) | 27.6 (*n* = 58) | 15.5 (*n* = 58) |
| **Phase 5 response rates by treatment** | | | | | | | | | | | | | | | | | |
| (Phase 5—abbreviated vs. additional $25) | 14.2 (635) | *Cum. resp. rate before phase 5* | | Abbrev question | Add $25 | *Cum. resp. rate before phase 5* | | Abbrev question | Add $25 | *Cum. resp. rate before phase 5* | | Abbrev question | Add $25 | *Cum. resp. rate before phase 5* | | Abbrev question | Add $25 |
| | | *37.1 (n = 275)* | | 10.3 (*n* = 87) | 16.3 (*n* = 86) | *45.8 (n = 275)* | | 8.0 (*n* = 75) | 16.2 (*n* = 74) | *35.3 (n = 275)* | | 17.0 (*n* = 88) | 21.1 (*n* = 90) | *50.9 (n = 275)* | | 4.5 (*n* = 67) | 17.6 (*n* = 68) |

NOTE: Results do not include partial interview respondents.
SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 Second Follow-up Field Test.

**Significance testing.** Formal significance tests confirmed the above results. A significant effect of the $15 promised incentive was found overall (groups AC vs. BD; Chi-square = 6.72, $p$ = 0.009). A significant effect of the $15 promised incentive was also found when comparing the no incentive/early prepaid group to the $15 promised/early prepaid group (C vs. D; Chi-square = 4.20, $p$ = 0.04). However, there was no significant difference between the no incentive/late prepaid group to the $15 promised/late prepaid group (A vs. B; Chi-square = 2.63, $p$ = 0.11).

No effect was found for the early vs. late prepaid incentive when comparing the no incentive/late prepaid vs. no incentive/early prepaid groups (A vs. C) and $15 promised/late prepaid vs. $15 promised/early prepaid (B vs. D) (Chi-square = 0.26, $p$ = 0.61 and Chi-square = 0.89, $p$ = 0.35 respectively). Prepaid incentive timing made little difference when cases were pooled across $15 promised vs. no baseline promised incentive cases (groups AB vs. CD; Chi-square = 1.05, $p$ = 0.31).

For the incentive boost experiment, a significant effect was found for any boost incentive compared with no incentive boost (Chi-square = 6.90, $p$ = 0.009) and a $15 incentive boost compared with no incentive boost (Chi-square = 9.22, $p$ = 0.002). The difference between $15 vs. $30 incentive boost was not significant, nor was the difference between $0 vs. $30 were not significant (Chi-square = 2.09, $p$ = 0.15 and Chi-square = 2.67, $p$ = 0.10 respectively). To identify cases for targeted treatments, the model that was developed and evaluated in the 2013 Update was refined by using data obtained as part of the field test 2013 Update and high school transcript collection. The model for the second follow-up simulation used the field test versions of variables used in the 2013 Update responsive design modeling as augmented by a subset of variables from the 2013 Update field test survey responses.

In order to determine whether prioritizing cases in a responsive design framework is worth the effort, two questions must be addressed:

1. Can the population of interest (i.e., fall 2009 9th graders as of 2016) be better represented by including in the respondent pool cases that project staff may otherwise have been unsuccessful in pursuing (sample representativeness)?
2. Are the interventions tested in the field test effective for increasing response rates when targeting cases (intervention effectiveness)?

**Sample representativeness.** The field test sample size does not allow for definitive answers, but the simulations do permit procedures to be tested and the results analyzed as if the responsive design model was used. To address the first question, estimates were produced of sample allocation versus respondent allocation for certain variables that were part of the responsive design model. Table 5 shows a small number of example sample-representativeness measures. Among all field test

respondents, the respondent percentages were closer to the overall sample percentages than respondents prior to phase 4, as represented by the values shown in table 5. For example, Hispanics made up 3.7 percent of the field test sample. Before phase 4, Hispanics represented only 2.8 percent of the responding sample, but the percentage grew to 3.5 by the end of data collection. As another example, students from high schools in the Midwest made up 19.0 percent of the field test sample. The responding sample percentage was 22.9 percent prior to phase 4, 21.8 percent prior to phase 5, and 20.8 percent at the end of field test data collection.

The simulation included a handful of 2013 Update field test variables; however, those variables had considerable missingness due to 2013 Update field test unit nonresponse (imputation was not performed for the simulation). For each of the 2013 Update field test variables in the model, though, the final set of second follow-up field test respondents included more cases with unknown values for the 2013 Update field test variables than was the case prior to the start of phase 4. This meant that phases 4 and 5 brought in more cases that would otherwise have an adverse impact on potential nonresponse bias.

**Table 5. Simulated impact of responsive design interventions on sample representativeness**

| Student/school indicator | Percent among respondents before phase 4 | Percent among respondents before phase 5 | Percent among all field test respondents | Percent among overall field test sample |
|---|---|---|---|---|
| Male | 51.8 | 48.7 | 49.6 | 48.1 |
| Asian | 5.1 | 4.6 | 4.0 | 4.1 |
| Hispanic | 2.8 | 3.2 | 3.5 | 3.7 |
| Suburban base-year school | 43.9 | 44.1 | 42.9 | 38.5 |
| Town base-year school | 4.0 | 5.2 | 5.2 | 6.4 |
| Rural base-year school | 15.4 | 16.1 | 17.1 | 19.7 |
| Northeast base-year school | 15.4 | 17.8 | 18.3 | 20.7 |
| Midwest base-year school | 22.9 | 21.8 | 20.8 | 19.0 |

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 Second Follow-up Field Test.

**Intervention effectiveness.** In order to gauge a potential answer to the second question, the following analyses were conducted:

1. Bias likelihood was estimated for the sample before the beginning of each of two interventions (phase 4: incentive boost amount comparison, and phase 5: comparison between abbreviated interview and added incentive boost).
2. The bias likelihood scores (model-derived predicted probabilities) for the nonrespondents at the end of each of the pre-intervention phases were ordered, and the median was used to divide them into high and low priority cases.

3. Within the high-priority cases (those above the median), experimental conditions were compared to see if the suggested interventions would be effective at encouraging response.

**Responsive design simulation results.** Table 6 shows the results of the phase 4 incentive boost amount experiment simulation with the targeted half-sample based on responsive design modeling immediately prior to phase 4 initiation. The results for the responsive design cases hint at the possible effectiveness of the incentive boost for increasing response rate, although the numbers of cases in each condition are too small for significance testing. Table 7 shows the results of the phase 5 abbreviated interview vs. added incentive boost experiment simulation, with the newly identified targeted half-sample based on responsive design modeling immediately prior to phase 5 initiation. The results for the responsive design cases again hint at the greater effectiveness of the additional incentive boost as compared with the abbreviated interview offer, although the numbers are too small for significance testing. This simulation allowed staff to test procedures in the field test and demonstrate that the field-tested interventions might be effective for targeted cases in the main study.

**Table 6. Simulated effectiveness of responsive design interventions: incentive boost**

| Intervention | Within-phase response rate for all cases | Within-phase response rate for targeted half-sample of nonrespondents |
|---|---|---|
| Total | 17.0 | 9.4 |
| No incentive boost | 11.9 | 6.1 |
| $15 incentive boost | 22.0 | 10.0 |
| $30 incentive boost | 17.0 | 11.8 |

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 Second Follow-up Field Test.

**Table 7. Simulated effectiveness of responsive design interventions: abbreviated interview versus additional incentive boost**

| Intervention | Within-phase response rate for all cases | Within-phase response rate for targeted half-sample of nonrespondents |
|---|---|---|
| Total | 14.2 | 7.1 |
| Abbreviated interview | 10.4 | 4.1 |
| $25 incentive boost | 17.9 | 10.2 |

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 Second Follow-up Field Test.

# Section 5. Evaluation of the Survey

This section provides an evaluation of the HSLS:09 second follow-up field test survey items.

## 5.1 Help Text

This section presents information about the use of help text. Items with high rates of help text usage will be shown and compared by interview administration mode.

In order to improve data quality of the HSLS:09 interview, a help button was provided on each interview screen to view question- or term-specific help text. Where appropriate, questions that included term-specific help text were hyperlinked directly from the question wording itself. This approach using in-line hyperlinked help text was shown in the Baccalaureate and Beyond Longitudinal Study (B&B):08/12 field test to significantly increase help text access rates in self-administered interviews (Cominole, Shepherd, and Siegel 2015). Whether accessed through the help button or the hyperlink, help text provided definitions of key terms or phrases used in question wording or response options and provided explanations to help clarify and standardize meaning for respondents.

The rate of help text access is determined by the number of times that respondents or interviewers accessed the help text relative to the number of respondents who were administered the question. Table 8 shows the interview questions for which help text was accessed at a rate of at least 3 percent. The analysis excluded partial interviews and those forms administered to fewer than 10 respondents.

**Table 8. Interview questions with highest rates of help text access: 2015**

| | | | | Mode of administration | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | All modes | | Web | | Mobile | | CATI | |
| Screen name | Screen description | Number administered to | Percent of help text access | Number administered to | Percent of help text access | Number administered to | Percent of help text access | Number administered to | Percent of help text access |
| H4CLASSDG02 | Taking classes for degree/transfer credit/other | 21 | 23.8 | 16 | 25.0 | 3 | 33.3 | 2 | 0.0 |
| H4COMPLETEDG01 | Completed degree or certificate | 487 | 10.9 | 354 | 13.6 | 87 | 4.6 | 46 | 2.2 |
| H4GEDEXAMNUM | Number of times took GED/HiSET/TASC exam | 13 | 7.7 | 8 | 12.5 | 2 | 0.0 | 3 | 0.0 |
| H4CLASSDG01 | Taking classes for degree/transfer credit/other | 96 | 7.3 | 64 | 4.7 | 17 | 0.0 | 15 | 26.7 |
| H4EVRPRVLN | Ever taken out a private loan for college education | 236 | 5.9 | 170 | 6.5 | 39 | 5.1 | 27 | 3.7 |
| H4LASTHSDATE | Date last attended high school | 20 | 5.0 | 9 | 0.0 | 5 | 0.0 | 6 | 16.7 |
| H4FAMLFTPSED | Number of family/friends dropped out of college | 549 | 3.1 | 387 | 3.6 | 103 | 0.0 | 59 | 5.1 |
| H4FUTRWGES | Expected earnings in job at age 30 | 525 | 3.0 | 373 | 2.9 | 97 | 3.1 | 55 | 3.6 |
| H4PGMSTLATND02 | Still enrolled in this program | 37 | 2.7 | 29 | 0 | 5 | 0 | 3 | 33.3 |
| H4BRKAFTRHS | Reason took a break between high school and college | 42 | 2.4 | 28 | 3.6 | 11 | 0 | 3 | 0.0 |

NOTE: CATI = computer-assisted telephone interviewing.
SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 Second Follow-up Field Test.

Help text usage was examined to identify survey questions that may have been unclear or confusing. The rate of help text usage is examined at the screen level and by mode. These results inform the main study by allowing instrumentation staff to target revisions on difficult or confusing screens.

The screen-level rate of help text access was analyzed by mode of interview administration to identify screens that may have been confusing for users. The 10 interview questions with the highest help text access rate were assessed. They were all administered to at least 10 respondents and had an access rate of 2 percent or greater. The interview question that asked respondents the reason why they were taking classes outside of a degree or certificate program after the first degree or certificate reported (H4CLASSDG02) had the highest overall rate of help text access, at 24 percent. There were three forms for which help text access rates differed significantly across modes. For the question that asked the reasons why respondents were taking classes outside of a degree or certificate program (H4CLASSDG01), CATI accessed help text more often than web respondents ($t(93) = 3.07, p = .008$*) and mobile respondents ($t(93) = -3.02, p = .009$*). Additionally, for the question that asked respondents if they had completed all of the requirements needed for the degree or certificate program (H4COMPLETEDG01), web participants accessed help text significantly more than mobile participants ($t(484) = -2.42, p = .04$*) and telephone participants ($t(484) = -2.35, p = .05$*).

For the question that asked respondents if they were still enrolled in the second degree or certificate program they had reported (H4PGMSTLATND02), telephone participants accessed help text significantly more than mobile participants ($t(34) = -3.26, p = .007$*) and web participants ($t(34) = 3.93, p = .0004$*).

## 5.2 Item Nonresponse

The rate of item nonresponse is a data quality measure that can be used to identify problematic interview items and better understand the experiences of sample members in completing the interview. Item nonresponse rates were calculated for items with missing data (including "don't know" responses) that were administered to at least 20 respondents. Overall, the item-level nonresponse analysis showed that, out of 715 interview items, 10 items had more than 10 percent missing data.

The interview item with the overall highest observed nonresponse rate was *found job with assistance from college* (H4JOBASSISTPS): approximately 24 percent of respondents who received the item did not respond. Most of the other items with relatively high rates of nonresponse requested sensitive financial information such as

income, expected future income, or loan amounts. The highest rate of item nonresponse for these financial questions was *parents' income - continuous datum* (H4PARINCOME), with approximately 22 percent of those receiving the question not providing a value. The two other questions among these ten asked the respondents to provide a specific numeric response (H4OTDEPNUM and H4FAMLFTPSED). In general, questions that ask respondents to provide a quantity tend to have higher rates of nonresponse. It may be that respondents are uncertain of the exact number so they leave the question unanswered.

Item nonresponse was significantly different by mode for two forms. For the question that asked respondents for their parents' income (H4PARINCOME), item nonresponse was significantly higher for CATI than for both web ($t(537) = 4.47$, $p < .005$*) and mobile ($t(537) = 3.21$, $p < .005$*). For the question asking about number of family and close friends who had dropped out of college (H4FAMLFTPSED), nonresponse was significantly higher for mobile than web ($t(551) = 2.64$, $p < .05$*). Traditionally, occupation and major coders have a high nonresponse rate; however, coding of occupations and majors was discontinued during data collection due to the length of the telephone interviews, so these items were not included in the analysis.

Table 9 summarizes the item-level nonresponse for items administered to at least 20 respondents with a rate of at least 10 percent missing. Table 10 presents nonresponse rates for the same items by mode of administration.

**Table 9. Item-level nonresponse rates: 2015**

| Item name | Item description | Number administered to | Percent missing |
|---|---|---|---|
| H4JOBASSISTPS | Found job with assistance from college | 160 | 23.8 |
| H4PARINCOME | Parents' income - continuous datum | 540 | 22.0 |
| H4OTDEPNUM | Number of other dependents | 26 | 15.4 |
| H4PRVAMT | Total amount of private loans for 2014-2015 | 28 | 14.3 |
| H4FAMLFTPSED | Number dropped out of college | 549 | 12.6 |
| H4INCOMECAT | Respondent's income - categorical datum | 65 | 12.3 |
| H4HIWAGE | Highest expected yearly salary at age 30 | 525 | 12.0 |
| H4INCOME | Respondent's income - continuous datum | 562 | 11.9 |
| H4LOWAGE | Lowest expected yearly salary at age 30 | 525 | 11.8 |
| H4EXPWAGE | Expected yearly salary at age 30 | 525 | 10.0 |

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 Second Follow-up Field Test.

**Table 10. Item nonresponse rates in descending order, by mode of administration: 2015**

| | | All modes | | Mode of administration: Web | | Mode of administration: Mobile | | Mode of administration: CATI | |
|---|---|---|---|---|---|---|---|---|---|
| Screen name | Screen description | Number administered to | Percent missing | Number administered to | Percent missing | Number administered to | Percent missing | Number administered to | Percent missing |
| H4JOBASSISTPS | Got job with assistance from college | 160 | 23.8 | 107 | 21.5 | 31 | 19.4 | 22 | 40.9 |
| H4PARINCOME | Parents' income - continuous form | 540 | 22.0 | 383 | 18.5 | 98 | 22.4 | 59 | 44.1 |
| H4OTDEPNUM | Number of other dependents | 26 | 15.4 | 14 | 14.3 | 9 | 22.2 | 3 | 0.0 |
| H4PRVAMT | Total amount of private loans for 2014-2015 | 28 | 14.3 | 20 | 15.0 | 4 | 25.0 | 4 | 0.0 |
| H4FAMLFTPSED | Number dropped out of college | 549 | 12.6 | 390 | 10.8 | 103 | 20.4 | 61 | 9.8 |
| H4INCOMECAT | Respondent's income - categorical form | 65 | 12.3 | 45 | 15.6 | 15 | 6.7 | 5 | 0.0 |
| H4HIWAGE | Highest expected yearly salary at age 30 | 525 | 12.0 | 373 | 12.3 | 97 | 13.4 | 55 | 7.3 |
| H4INCOME | Respondent's income - continuous form | 562 | 11.9 | 395 | 11.6 | 105 | 14.3 | 62 | 9.7 |
| H4LOWAGE | Lowest expected yearly salary at age 30 | 525 | 11.8 | 373 | 12.3 | 97 | 13.4 | 55 | 5.5 |
| H4EXPWAGE | Expected yearly salary at age 30 | 525 | 10.0 | 373 | 9.7 | 97 | 13.4 | 55 | 5.5 |

NOTE: CATI = computer-assisted telephone interviewing.
SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 Second Follow-up Field Test.

## 5.3 Interview Timing Burden

To promote an efficient main-study interview, the time required to complete the field test interview was analyzed. Special attention was paid to differences in burden by interview administration mode, as well as to the time required to navigate particular interview paths by respondent type. Interview forms (individual web screens) that consistently took respondents longer to answer were also assessed.

To calculate individual form times and overall interview times, a time stamp was embedded on each form in the interview. A start timer recorded the clock time on a

respondent's or interviewer's computer when a form was first loaded, and an end timer recorded the clock time when the "Next" button on the form was clicked. The time for each form was calculated by subtracting the start time from the end time. The total instrument time was calculated by summing across the times recorded for each form. The timing analysis excluded partially completed interviews. Additionally, outliers were calculated using the interquartile range (IQR) and defined as Q3 + 5*IQR at the form level. A lower bound was not defined for outliers. Outliers were recoded to the median value at the form level to allow for aggregation of form times in order to create section times and full survey times for all respondents.

Across modes, the HSLS:09 interview averaged 43.8 minutes to complete. Web interviews, averaging 41.3 minutes, took significantly less time than CATI interviews, which averaged 62.8 minutes ($t(418) = 13.57$, $p < .0001$). Mobile interviews, averaging 42.3 minutes, also took significantly less time than telephone interviews ($t(156) = -10.02$, $p < .0001$). There was no statistically significant difference between web and mobile interview modes overall.

Average section completion times were 1.6 minutes for the High School section, 16.2 minutes for Postsecondary Education, 11.4 minutes for Employment, 9.4 minutes for Family and Community, and 5.3 minutes for the Locating section. Given the time required to read questions and other text aloud to respondents, telephone interviews required more time than web interviews for all sections, and all differences were significant: High School[2] ($t(63.44) = 6.40$, $p < .0001$); Postsecondary Education ($t(63.97) = 5.97$, $p < .0001$); Employment ($t(418) = 7.76$, $p < .0001$); Family and Community ($t(418) = 14.57$, $p < .0001$); and Locating ($t(64.83) = 8.85$, $p < .0001$). The same was true for mobile interviews (High School ($t(93.13) = -4.65$, $p < .0001$); Postsecondary Education ($t(156) = -5.34$, $p < .0001$); Employment ($t(156) = -6.09$, $p < .0001$); Family and Community ($t(156) = -10.58$, $p < .0001$); and Locating ($t(156) = -6.96$, $p < .0001$). Additionally, the High School section took significantly longer for mobile interviews than for web ($t(464) = 2.08$, $p = .038$). Table 11 shows the average interview time overall and for each section, by mode of administration.

[2] Due to unequal variances, Satterthwaite approximation was used in this analysis.

**Table 11. Average time in minutes to complete the full-length interview, by interview section and mode of administration: 2015**

| | | | Mode of administration | | | | | |
|---|---|---|---|---|---|---|---|---|
| | All modes | | Web | | Mobile | | CATI | |
| Interview section | Number of cases | Average time | Number of cases | Average time | Number of cases | Average time | Number of cases | Average time |
| All sections | 522 | 43.8 | 364 | 41.3 | 102 | 42.3 | 56 | 62.8 |
| High School | 522 | 1.6 | 364 | 1.5 | 102 | 1.7 | 56 | 2.4 |
| Postsecondary Education | 522 | 16.2 | 364 | 15.4 | 102 | 15.6 | 56 | 22.3 |
| Employment | 522 | 11.4 | 364 | 10.8 | 102 | 10.9 | 56 | 16.3 |
| Family and Community | 522 | 9.4 | 364 | 8.8 | 102 | 9.0 | 56 | 14.0 |
| Locating | 522 | 5.3 | 364 | 4.9 | 102 | 5.2 | 56 | 7.8 |

NOTE: CATI = computer-assisted telephone interviewing. The timing analysis included only cases that completed the interview in one session; partial interviews and outliers were also excluded. Detail may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 Second Follow-up Field Test.

The abbreviated version of the HSLS:09 interview included all of the same sections with fewer questions in each. On average, the abbreviated interview took 23.4 minutes. Abbreviated telephone interviews took 31.3 minutes and were significantly longer than abbreviated interviews completed by web mode at an average of 20.9 minutes ($t(24) = 2.58, p = .016$). While not significant, abbreviated interviews completed via mobile were also shorter than the telephone interview, taking an average of 21.9 minutes. The following sections of the abbreviated interview were significantly longer by telephone than by web: High School ($t(24) = 3.17, p = .004$); Employment ($t(24) = 2.32, p = .029$); and Locating ($t(24) = 2.29, p = .031$). The same trends were present by mobile, with abbreviated interviews completed by phone taking longer. Table 12 shows the average abbreviated interview time overall and for each section, by mode of administration.

**Table 12. Average time in minutes to complete the abbreviated interview, by interview section and mode: 2015**

| | All modes | | Mode of administration | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Web | | Mobile | | CATI | |
| Interview Section | Number of cases | Average time | Number of cases | Average time | Number of cases | Average time | Number of cases | Average time |
| All sections | 33 | 23.4 | 19 | 20.9 | 7 | 21.9 | 7 | 31.3 |
| High School | 33 | 1.2 | 19 | 1.0 | 7 | 0.9 | 7 | 1.9 |
| Postsecondary Education | 33 | 6.6 | 19 | 5.9 | 7 | 6.0 | 7 | 9.1 |
| Employment | 33 | 6.8 | 19 | 5.9 | 7 | 6.5 | 7 | 9.7 |
| Family and Community | 33 | 2.6 | 19 | 2.5 | 7 | 2.3 | 7 | 3.2 |
| Locating | 33 | 6.1 | 19 | 5.6 | 7 | 6.2 | 7 | 7.4 |

NOTE: CATI = computer-assisted telephone interviewing. The timing analysis included only cases that completed the interview in one session; partial interviews and outliers were also excluded. Detail may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 Second Follow-up Field Test.

## 5.4 Reliability Reinterview: Design and Results

A subsample of approximately 110 survey respondents was randomly selected to complete a reinterview designed to assess the temporal consistency of selected items. Reinterviews were conducted in the same mode (CATI or web) as the original interview at least 3 weeks after completion of the first interview. By the end of data collection, about 50 participants had completed a reinterview. To ensure that an adequate number of high school noncompleters were selected, selection rates were set by student type and by administration mode at the beginning of data collection and monitored throughout data collection. Adjustments to selection rates were made as needed to account for respondents' reinterview participation rates. Upon selection, respondents were asked if they were willing to participate. If so, they were recontacted about 4 weeks later to complete the reinterview.

To be included in the analysis, a response must have been provided in both interviews. Values of 85 percent agreement or above are seen as exhibiting high reliability, between 55 percent and 85 percent as moderate reliability, and below 55 percent as low reliability.

**Categorical items.** Table 13a presents percentage agreement rates for categorical items administered to more than 10 respondents, including questions with response options of yes or no or Likert agreement-disagreement scales. For these categorical variables, the percentage agreement ranged from 50 percent to 100 percent, with 13 of the 22 items having matched responses in at least 85 percent of the cases (table 13a). Eight items had percentage agreement between 55 percent and 84 percent.

**Table 13a. Reliability estimates for items included in the reinterview**

| Item | Item description | Number of cases | Percentage agreement |
|---|---|---|---|
| H4APPCLGINHS | Applied to college in high school | 21 | 100.0 |
| H4GUARDIAN | Has child(ren) | 52 | 100.0 |
| H4RCVDVETBEN | Received veteran's education benefits | 42 | 100.0 |
| H4EVERDO | Ever dropped out of high school | 49 | 98.0 |
| H4OTDEP | Has other dependents | 52 | 96.2 |
| H4JOBNOW | Currently working for pay | 46 | 93.5 |
| H4EVRRCVLN | Ever taken out loan for college education | 42 | 92.9 |
| H4JOB302 | 2-digit code for job at age 30 | 22 | 90.9 |
| H4ANYOTHPGM01 | Any other program at this college- more than one program | 42 | 90.5 |
| H4HSGPES | Average grades in high school | 50 | 66.0 |
| H4RCVDPRVGRT | Received scholarships from a private organization such as church, PTA, fraternity or sorority | 42 | 88.1 |
| H4PARST | Parents' marital status | 51 | 86.3 |
| H4NOTWORKING | Any months not working in this job | 43 | 86.0 |
| H4PROGRAM01 | Type of degree or certificate, just classes taking class for first program | 42 | 85.7 |
| H4EVRPROCERT | Ever had a professional certification or industry license | 52 | 82.7 |
| H4RCVDEMPGRT | Received scholarships or tuition reimbursement from employer or parent's employer | 42 | 81.0 |
| H4EVRPRVLN | Ever taken out a private loan for college education | 15 | 80.0 |
| H4ENTRMAJGEN | General area major falls under | 16 | 75.0 |
| H4PARINCCAT | Parents' income - categorical form | 38 | 73.7 |
| H4EXPECTED | Highest level of education expected | 47 | 72.3 |
| H4LOOKINGWRK | Looking for work none, some, all months not working | 46 | 65.2 |

NOTE: This table only includes those items that were administered to at least 10 respondents.
SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 Second Follow-up Field Test.

The analysis was rerun for the questions that asked for an income range for the parents of students (H4PARINCCAT), the respondents' average high school grades (H4HSGPES), and the highest level of education the respondent expects to earn (H4EXPECTED) such that, if the respondent's reinterview answer was within one category or range of the original answer, it was considered a (close) match. Table 13b shows the adjusted percentage agreement for those three items. H4PARINCCAT went from being classified as moderately reliable at 74 percent agreement to highly reliable at 92 percent agreement. H4HSGPES also moved from moderate reliability at 66 percent agreement to high reliability at 92 percent agreement. The percentage agreement for H4EXPECTED changed from 72 percent to 75 percent agreement and remained moderately reliable. With the relaxed match criteria, 15 of the 22 items had matched responses in at least 85 percent of the cases. Six items had agreement rates between 55 and 84 percent, and one item remained with low reliability (H4DEPS).

**Table 13b. Adjusted interview-reinterview agreement for categorical items**

| Item | Item description | Number of cases | Percentage agreement |
|---|---|---|---|
| H4PARINCCAT | Parents' income - categorical form | 38 | 92.1 |
| H4HSGPES | Average grades in high school | 50 | 92.0 |
| H4EXPECTED | Highest level of education expected | 47 | 74.5 |

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 Second Follow-up Field Test.

**Continuous items.** Table 14 presents a measure of association (Pearson's correlation coefficient *r*, which ranges from −1.0 to 1.0) between the original and reinterview responses for continuous items. Agreement rates ranged from 30 to 90 percent. The item with the lowest agreement rate (30 percent) between interview and reinterview asked the participants to provide a precise number for their parents' income (H4PARINCOME). Both H4CLGAPPNUM and H4NUMBERJOBS had moderate agreement at 64 percent and 65 percent, respectively. H4CLGAPPNUM (64 percent) asked that respondents report the number of colleges to which they had applied or registered. H4NUMBERJOBS (65 percent) asked respondents to recall the number of paid jobs they have had since high school (i.e., going back about 3 years). H4PRHSD, which also had a moderate rate of agreement (72 percent agreement), asked the number of other dependents that received more than half of their financial support from participants' parents. The question that asked the number of parents' dependents who were in college (H4DPNUM) had high reliability (90 percent agreement).

**Table 14. Reliability estimates for continuous variables included in the reinterview**

| Item | Item description | Number of cases | Percentage agreement | Pearson's correlation coefficient ( *r* ) | Statistical significance |
|---|---|---|---|---|---|
| H4DPNUM | Number of parents' dependents attended college | 20 | 90.0 | 0.82 | $p < 0.0001$ |
| H4PRHSD | Number of others received more than half of financial support from parents' | 29 | 72.4 | 0.92 | $p < 0.0001$ |
| H4NUMBERJOBS | Number of jobs for pay since high school | 51 | 64.7 | 0.55 | $p < 0.0001$ |
| H4CLGAPPNUM | Number of colleges applied to in high school | 14 | 64.3 | 0.84 | $p = 0.0002$ |
| H4PARINCOME | Parents' income | 30 | 30.0 | 0.55 | $p = 0.0016$ |

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 Second Follow-up Field Test.

# Section 6. Survey Control Systems and Data Processing

This section describes the various data collection systems and system components used for the HSLS:09 second follow-up field test data collection, including the Integrated Management System, Survey Control System, and Hatteras Survey Engine and Survey Editor. Data processing and post-collection editing are also detailed.

## 6.1 Integrated Management System

The Integrated Management System (IMS) is a comprehensive set of tools designed to provide NCES and project staff access to a centralized, easily accessible repository for project data and documents.

The IMS includes tools and information to help project staff and the NCES project officer monitor and manage data collection. All management information pertinent to the study was located within the IMS, accessible via the Web, and protected by Secure Sockets Layer (SSL) encryption and a password-protected login. The IMS contained the current project schedule, monthly progress reports, daily data collection reports and status reports (generated by the Survey Control System described below), project plans and specifications, project deliverables, instrument specifications, staff contacts, the project bibliography, and a document archive.

## 6.2 Survey Control System

The Survey Control System (SCS) is an integrated set of systems used to control and monitor all activities related to data collection. Through the SCS, project staff were able to perform tracing and data management operations; track case statuses; and monitor data flow from contact update activities, mail return processing, bounced e-mail processing, tracing activities, and the survey response database. The locator data stored in the SCS were used for a number of daily tasks related to sample maintenance. Specifically, mail-out systems generated communications to sample members; the query system enabled administrators to review case-level locator information and status (in the form of paper mail and e-mail); and the mail return system provided information needed to update the database as new information was received. The SCS produced various data collection monitoring reports that were made available to project staff and to NCES on the IMS.

The **computer-assisted telephone interviewing Case Management System (CATI-CMS)** is fully integrated with the SCS so that all systems needing sample member data access a single database. Case status changes in the CATI-CMS automatically trigger updates to the SCS during overnight processes, providing integration between the data collection systems.

The CATI-CMS managed all aspects of telephone interviewing. The main components of the CATI-CMS are a call scheduler, case delivery tracking system, and front-end screens to navigate various scenarios of the phone call before administration of the survey. All connections to the NCES web interview were secured with SSL encryption. The CATI-CMS scheduled telephone calls to be made by interviewers and tracked call outcomes and interviewer notes about case disposition.

## 6.3 Hatteras Survey Engine and Survey Editor

The HSLS:09 survey instrument was created with Hatteras, a web-based system in which project staff developed, reviewed, tested, modified, and communicated changes to specifications and code for the instrument. All information relating to the instrument was stored in an SQL Server database and was made accessible through web browser interfaces.

RTI instrument designers, testers, and programmers and NCES staff were able to provide comments about the survey specifications and functionality. Once a course of action had been outlined, the comment thread was given a status that indicated the need for the change to be implemented. Instrument designers and programmers then implemented the changes. Staff involved in testing the various instruments used these programmed comments to begin the process of verifying the changes. Once changes were verified as working properly, the changes were deployed to the production version of the instrument.

Hatteras provided specifications, programming, testing interfaces, and execution for the HSLS:09 instrument as follows:

**Specifications**
Hatteras provided the tools and user interface for developing interview specifications. Specification content included wording at the form, question, item, and response option levels; help text content; item-level documentation (e.g., labels, format); and form-level question administration documentation (e.g., administered to, applies to). Specific capabilities of the Hatteras system allowed

instrument designers to import relevant specifications used in prior studies, create skip logic and item documentation, and search a library of survey items.

**Programming code**
For simple instrument questions and items, Hatteras automatically translated specifications into web page scripts when the web page was accessed. For questions involving complex routing, multiple question wording or response option conditions, or nonstandard page layout or behavior, programmers entered custom programming code—HTML, JavaScript, and C# .NET script—into the Hatteras custom code interface. This code was stored in the SQL database server, together with the instrument specifications for compilation by the survey execution engine.

**Instrument testing and execution**
The survey execution engine in Hatteras took the specifications defined in the database and processed them to produce the survey instrument. Specification and code content could then be tested immediately as it was developed and updated by displaying the survey screen as respondents would see it.

**Survey sites and data transfer—web/telephone**
Web respondents accessed the survey hosted on the NCES server directly by web browser after logging in with a user ID and password. Telephone interviewers accessed the NCES web survey from the CATI-CMS. Automated processes transferred data between RTI's local database and the NCES database daily via a secure, encrypted connection. The survey instrument and data were stored on a server at NCES.

## 6.4 Data Processing

All survey data were stored in a secure SQL database. Programs were developed to pull the data from the SQL database and output to raw SAS data sets within an enhanced security network location. Early in the data collection cycle, SAS data sets containing response data were developed, and variable/value labels accompanied the data to help with frequency reviews. Data were cleaned in order to distinguish items with no response as either missing or not administered. A codebook containing labeled frequencies, question text, response time, and questionnaire ordering was

developed to facilitate review of the field test data. In addition to frequency review, programs were developed to check for consistencies across items, verifying that questionnaire logic was correct and that item validation was being implemented successfully.

Methodological data containing case-level information about survey completion date, mode, incentives offered, prior-round response information, and item response times were collected to support field test analyses. Final response data and methodological information were stored as SAS data sets on the project share and were available to help analyze response patterns for the full-scale component.

# Section 7. Recommendations for the Main Study

The HSLS:09 second follow-up field test was conducted to test and evaluate study methods and procedures prior to implementation of the main study. The following recommendations for the main study are based on the field test experience.

The main study will continue to use previously proven tracing and locating methods. Sample members will continue to receive postcards, e-mails, and text messages to remind them that they have been selected for the study, to provide easy access to the web survey, and to encourage their participation.

Based on the field test results, plans for the main study data collection have been revised. The main study instrument has been modified to reduce the length of the interview, to make improvements based on field test results and cognitive testing, and to incorporate feedback received from the government and the TRP.

Responsive design plans for the HSLS:09 second follow-up main study are based upon (1) results of incentive experiments and responsive design modeling simulations from the HSLS:09 second follow-up field test, (2) results from related longitudinal studies, and (3) prior experience with the HSLS:09 cohort.

## 7.1 Sample Subgroup Classification

In the HSLS:09 second follow-up main study, there will be three subgroups of special interest.

1. Subgroup 1 (high school late/alternative/noncompleters) will be the subset of sample members who, as of the 2013 Update, had not completed high school, were still enrolled in high school, received an alternative credential, completed high school late, or experienced a dropout episode with unknown completion status.
2. Subgroup 2 (ultra-cooperative respondents) includes sample members who participated in the base year, first follow-up, and 2013 Update without an incentive offer. These cases were also early web respondents in the 2013 Update and, by definition, are high school completers.
3. Subgroup 3 (high school completers and unknown high school completion status) will include cases that, as of the 2013 Update, were known on-time or

early regular diploma completers (and not identified as ultra-cooperative) and cases with unknown high school completion status who were not previously identified as ever having a dropout episode.

## 7.2 Calibration Subsamples

To determine optimal incentive amounts, a calibration subsample will be selected from each of the aforementioned subgroups to begin data collection ahead of the main sample. A similar approach was used successfully in BPS:12/14, where approximately 10 percent of that sample (3,700 cases) was selected and fielded 7 weeks before the rest of the BPS:12/14 sample. The experimental subsample was treated before the remaining cases; and, after analysis of the results for the experimental sample and consultation with the Office of Management and Budget (OMB), the successful treatment was implemented with the remaining sample. In the HSLS:09 second follow-up main study, a similar approach is planned with the HSLS:09 calibration subsamples to be fielded 6 weeks before the rest of the HSLS:09 sample. Table 15 shows the estimated size of each subgroup, the percentage of cases to be selected for the calibration subsample, and the estimated number of cases in the calibration sample.

**Table 15. Calibration sample sizes, by subgroup**

| Subgroup number | Subgroup description | Main sample | Calibration sample | Calibration percent |
|---|---|---|---|---|
| 1 | **High school late/alternative/ noncompleters**<br>*Noncompleters, late completers, still enrolled, and alternative credential as of the 2013 Update, as well as ever dropouts with no completion status* | 2,545 | 509 | 20% |
| 2 | **Ultra-cooperative respondents**<br>*High school completers who participated in base year and the first follow-up and completed the 2013 Update in the early web period with no incentive* | 1,027 | 154 | 15% |
| 3 | **All other high school completers and unknown cases**<br>*High school diploma completed early/on-time unknown or unknown completion status with no known dropout episode* | 19,747 | 1,975 | 10% |

## 7.3 Data Collection Phases, Treatments, and Evaluations

For the second follow-up main study, the data collection plan includes a phased responsive design strategy specifically aimed at improving sample representativeness in the final set of survey participants. Figure 6 presents the schedule for the planned phases of data collection for both the calibration samples and the main samples. Table 16 summarizes the baseline and boost incentives to be tested for each subgroup. The phases will proceed as follows:

**Table 16. Main study baseline and incentive boost experiments**

| | Incentive phase | Amount | Total cumulative incentives offered | Estimated number of cases to be worked |
|---|---|---|---|---|
| High school late/alternative/ noncompleters | Base incentive (all calibration sample cases) | $30 | $30 to $50 | 170 |
| | | $40 | | 170 |
| | | $50 | | 169 |
| | Boost 1 (all remaining calibration sample nonrespondents) | $15 | $45 to $75 | 158 |
| | | $25 | | 158 |
| | Boost 2 (all remaining calibration sample nonrespondents) | $10 | $55 to $95 | 102 |
| | | $20 | | 102 |
| Ultra-cooperative respondents | Base incentive (all calibration sample cases) | $0 | $0 | 154 |
| | Boost 1 (for targeted cases only: combined with subsample 3) | $10<br>$20 | $10 to $20 targeted; $0 otherwise | (very few if any cases expected to be selected) |
| | Boost 2 (for targeted cases only: combined with subsample 3) | $10<br>$20 | $10 to $40 targeted; $0 to $20 otherwise | (very few if any cases expected to be selected) |
| High school completers and unknowns | Base incentive (all calibration sample cases) | $15 | $15 to $40 | 330 |
| | | $20 | | 329 |
| | | $25 | | 329 |
| | | $30 | | 329 |
| | | $35 | | 329 |
| | | $40 | | 329 |
| | Boost 1 (for targeted cases: 1/2 of nonrespondents) | $10<br>$20 | $25 to $60 targeted; $15 to $40 otherwise | 250<br>250 |
| | Boost 2 (for targeted cases: 1/2 of nonrespondents) | $10<br>$20 | $25 to $80 targeted; $15 to $60 otherwise | 175<br>175 |

### 7.3.1 *Baseline incentive (phase 1)*

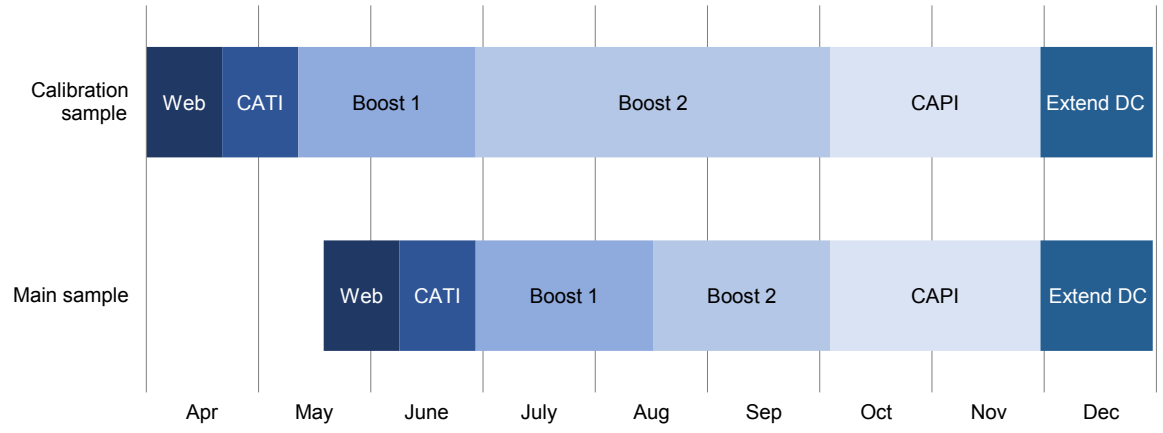
During this beginning phase of data collection, the survey will be open exclusively for self-administered interviews via the Web. Web response will remain open throughout the entire data collection. As described above, the calibration samples will allow for testing of incentive amounts on a subset of cases, and the results will inform the implementation plan for the main samples. Prior to the start of the main sample data collection for phase 1, calibration sample response rates will be evaluated. An analysis of variance (ANOVA)-based model will be used to perform pairwise contrasts between the different incentive amounts offered to the treatment and control groups in each phase. NCES and OMB will meet to review the results of the calibration experiment and determine the optimal incentive amount for each of the subgroups.

- Subgroup 1 (high school late/alternative/noncompleters) will be offered three different baseline incentive amounts ($30, $40, or $50). The optimal

amount (to be determined in consultation with OMB) will be offered to all cases in the subgroup 1 main sample.

- Subgroup 2 (ultra-cooperative respondents) will not be offered a baseline incentive. The subgroup 2 calibration sample response rate will be evaluated against early response rates for other cohorts (such as BPS:12/14 and ELS:2002 third follow-up) to estimate a "successful" response benchmark for HSLS:09. If it is determined that the subgroup 2 calibration sample response rate is not successful, the possibility of offering a baseline incentive to the subgroup 2 main sample will be discussed with OMB.
- Subgroup 3 (high school completers and unknowns) will be offered six different incentive amounts ($15, $20, $25, $30, $35, or $40). The $15 starting point for this baseline incentive calibration experiment is based on the results of the HSLS:09 second follow-up field test experiment. The optimal amount (to be determined in consultation with OMB) will be offered to all cases in the subgroup 3 main sample.

**Figure 6. Data collection schedule and phases**




NOTE: CATI = computer-assisted telephone interviewing; CAPI = computer-assisted personal interviewing; DC = data collection.

## 7.3.2 Outbound CATI prompting (phase 2)

After phase 1 data collection, which is self-administered via the Web (except for instances when sample members call in to the help desk), phase 2 will start another mode of data collection. Telephone interviewers will begin making outbound calls to prompt for self-administration or to conduct telephone interviews. No additional incentives will be offered during phase 2.

- Subgroup 1 will begin outbound CATI earlier than the other subgroups to allow additional time for telephone interviewers to work these high-priority cases.

### 7.3.3 Incentive boosts (phases 3 and 4)

Phases 3 and 4 introduce the use of responsive design with the bias likelihood model. Targeted cases will be offered an incentive boost in addition to the baseline incentive offer. The calibration samples will allow for testing of incentive boost amounts on a subset of the remaining nonrespondents in phases 3 and 4, and the results will inform the incentive boost implementation plan for the main samples. Before the main sample data collection for phases 3 and 4, calibration sample response rates will be evaluated. An ANOVA-based model will be used to perform pairwise contrasts between the different incentive boost amounts offered to the treatment and control groups in each phase. NCES and OMB will meet to review the results of the calibration experiment and determine the optimal incentive boost amount for each of the subgroups.

- Subgroup 1 (high school late/alternative/noncompleters) will be offered an incentive boost of either $15 or $25 on top of the baseline incentive they were offered in phase 1. The optimal amount (to be determined in consultation with OMB), based on the calibration sample results, will be offered to all remaining nonrespondents in subgroup 1.
- The subset of subgroup 2 (ultra-cooperative respondents) cases that are targeted for intervention based on bias likelihood modeling will be offered an incentive boost of either $10 or $20, and the optimal amount (to be determined in consultation with OMB) will be offered only to targeted cases among the remaining subgroup 2 nonrespondents.
- The subset of subgroup 3 (high school completers and unknowns) cases that are targeted for intervention based on bias likelihood modeling will be offered an incentive boost of either $10 or $20, and the optimal amount (to be determined in consultation with OMB) will be offered only to targeted cases among the remaining subgroup 3 nonrespondents.

### 7.3.4 Additional treatments for targeted cases

In addition to the monetary interventions described above, the HSLS:09 second follow-up main study design includes nonmonetary treatments to be used with targeted cases.

### 7.3.5 Field interviewing (phase 5)

Field interviewing will be conducted for all targeted nonrespondents at the same time; there will be no time lag between the calibration and main samples. Cases identified for targeted treatment (all high school late/alternative/noncompleters and sample members with high bias likelihood scores) will be considered for field

interviewing. The decision to conduct field interviewing for a case may also be determined by other factors, such as the location of a case and its proximity to other likely field cases. Nontargeted cases may potentially be included in field interviewing if it is cost effective to do so. Conversely, given the expense of field interviewing, cases with a very low response likelihood may not be pursued.

### 7.3.6 Extended data collection (phase 6)

Cases identified for targeted treatment (all high school late/alternative/noncompleters and sample members with high bias likelihood scores) will be part of an extended data collection period. During this period (the last month of data collection), only targeted cases will be actively prompted to participate. Data collection will remain open for all other cases if they choose to participate, but effort to pursue those cases will be suspended.

## 7.4 Model Development

A critical element of any responsive design is the method used to identify cases that will receive special treatment. As described above, the primary goal of this approach is to improve sample representativeness. The bias likelihood model will help determine which cases are most needed to balance the responding sample, and the response likelihood model will help determine which cases may not be optimal for pursuing with targeted interventions so that project resources can be most effectively allocated. This section discusses the modeling approach that will be used and the variables to be considered for use as predictor variables for both the bias likelihood and the response likelihood models. Variables will be drawn from data obtained in prior rounds of data collection with this cohort (base-year, first follow-up, and 2013 Update survey data; high school transcripts; school characteristics; sampling frame information; and paradata).

### 7.4.1 Response likelihood model

The response likelihood model will be run only once, before data collection begins. Using data obtained in prior rounds that are correlated with response outcome (primarily paradata variables), a model will be fit predicting response outcome in the 2013 Update. The coefficients associated with the significant predictors to estimate the likelihood of response in the second follow-up main study will be used, and each sample member will be assigned a likelihood score prior to the start of data collection. Table 17 lists the universe of predictor variables that will be considered for the response likelihood model.

**Table 17. Candidate variables for the main study response likelihood model**

| Data collection round | Variable |
|---|---|
| Base year | Response outcome<br>Response mode<br>Early-phase response status |
| First follow-up | Response outcome<br>Response mode<br>Early-phase response status |
| Panel maintenance and address updates | Panel maintenance response status<br>Address update response status |
| 2013 Update survey | 2013 Update response by student (not parent)<br>Early-phase response status<br>Response mode<br>Incentive amount (to control for the effect of incentives on response outcomes)<br>Ever called in to the help desk<br>Ever refused (sample member)<br>Ever refused (other contact)<br>Ever agreed to complete web interview<br>Dual language speaker<br>High school completion status indicator<br>Gender<br>Count of e-mail addresses<br>Count of phone numbers<br>Count of addresses |

During data collection, the response likelihood scores will be used as a filter to help determine allocation of intervention resources. For example, cases that have a very high likelihood of participation may not be offered an incentive boost because they are likely to participate without it. The response likelihood score can also be used to exclude cases with very low likelihood from the field interviewing intervention. The response likelihood score will also be considered for use to adjust the classification of cases in the subgroups. For example, cases with very high response likelihood scores could potentially be treated as ultra-cooperative cases. The primary objective of the response likelihood model is to provide information that will inform decisions about inclusion or exclusion of targeted cases for interventions, thereby controlling costs.

### 7.4.2 Bias likelihood model

The bias likelihood model will be used to identify cases that are most unlike the set of sample members that have responded. As was done in the responsive design approach for the 2013 Update, the bias likelihood model will use only key survey and frame variables as predictors to identify nonrespondents most likely to reduce bias in key survey variables if converted to respondents. To calculate bias likelihood, a logistic regression will be run with the second follow-up response outcome as the dependent variable. The bias likelihood model will be run at the beginning of phases 3, 4, 5, and 6 for the calibration samples and at the beginning of phases 3, 4, 5, and 6

for the rest of the cases. (Modeling will be done on the combined sample [calibration cases and rest of cases] prior to phases 5 and 6.) The coefficients associated with the significant predictors will then be used to assign a bias likelihood score for each case. Because the set of respondents and nonrespondents is dynamic, the bias likelihood score for an individual case may change across the phases. The universe of candidate predictor variables has been selected due to the analytic importance of those variables for the study, and they are presented in table 18.

**Table 18. Candidate variables for the main study bias likelihood model**

| Data collection round | Variable |
|---|---|
| Sampling frame | Race<br>Gender<br>School type<br>Metropolitan area<br>Geographic region |
| Base year | Student's educational expectations<br>Parent's educational expectations<br>Taking a Fall 09 math course<br>Taking a Fall 09 science course<br>Base-year math assessment score |
| First follow-up | When algebra 1 was taken<br>Grade in algebra 1<br>Student's educational expectations<br>Parent's educational expectations<br>Grade in 2011–12<br>Location<br>Dual language indicator<br>Socioeconomic status indicator<br>Repeated a grade<br>F1 math assessment score<br>Attended a job fair<br>Toured a college<br>Taken a college class<br>Completed an internship<br>Performed work in job related to career goals<br>Searched internet/college guides for college options<br>Talked to high school counselor about after-high-school options<br>Talked with college admission counselor<br>Taken a college entrance exam prep course<br>Taking math classes in spring 2012 |
| 2013 Update survey and high school transcript collection | Sample member has high school credential<br>Date of high school credential<br>School characteristics of last-attended high school<br>Dual-enrollment status/information<br>Taking postsecondary classes as of November 1, 2013<br>Sector of postsecondary institution as of November 1, 2013<br>Apprenticing as of November 1, 2013<br>Working for pay as of November 1, 2013<br>Serving in the military as of November 1, 2013<br>Starting family/taking care of children as of November 1, 2013<br>Attending high school or homeschool as of November 1, 2013<br>In a course to prepare for GED as of November 1, 2013<br>Number of postsecondary institutions applied to<br>Completed a FAFSA for teenager's education<br>Did not complete FAFSA because did not want to go into debt |

(Continued)

**Table 18. Candidate variables for the main study bias likelihood model—Continued**

| Data collection round | Variable |
|---|---|
| | Did not complete FAFSA because can afford college without financial aid |
| | Did not complete FAFSA because thought ineligible or unqualified |
| | Did not complete FAFSA because did not know how |
| | Did not complete FAFSA because forms were too time-consuming/too much work |
| | Did not complete FAFSA because did not know could |
| | Did not complete FAFSA because teen does not plan to continue education |
| | Currently working for pay |
| | Number of high schools attended |
| | Attended CTE center (flag) |
| | English language learner status |
| | GPA: overall |
| | GPA: English |
| | GPA: mathematics |
| | GPA: science |
| | Total credits earned |
| | Credits earned in academic courses |
| | Ever had a dropout episode |

The goal of the bias likelihood model is not to accurately predict response but to classify sample members' current response rates along the dimensions represented by the predictor variables. Therefore, statistical significance should not be a determining factor in which variables are included in the model; rather, the criterion should be that variable's importance for HSLS:09. The threshold for identifying cases for targeted treatment will be based on an assessment of the bias likelihood score, the response likelihood score, and available project resources.

# References

Cominole, M., Shepherd, B., and Siegel, P. (2015). *2008/12 Baccalaureate and Beyond Longitudinal Study (B&B:08/12) Data File Documentation* (NCES 2015-141). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Ingels, S.J., Pratt, D.J., Herget, D.R., Burns, L.J., Dever, J.A., Ottem, R., Rogers, J.E., Jin, Y., and Leinwand, S. (2011). High School Longitudinal Study of 2009 (HSLS:09). Base-Year Data File Documentation (NCES 2011-328). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

# Appendix C: Cognitive Testing Results

*This page intentionally left blank*

# Cognitive Test 1

This report summarizes findings of the cognitive testing conducted by Research Support Services Inc. for the High School Longitudinal Study of 2009 (HSLS:09) Second Follow-up field test survey instrument. Thirty cognitive interviews were conducted in Illinois, in the Chicago Standard Metropolitan Statistical Area from December 6, 2014 through February 3, 2015.

The following table displays the respondents' characteristics:

| ID | High School Credential | Enrollment and Employment Status | Postsecondary Program/Status | Sex | LGBTQ* | Race/ Ethnicity |
|---|---|---|---|---|---|---|
| 004 | Diploma | Working/Enrolled | Currently in 4-year program | Male | Yes | White |
| 007 | None | Not working | Never enrolled | Male | Yes | African American |
| 008 | None | Not working | Never enrolled | Female | No | African American |
| 009 | None | Not working | Never enrolled | Male | No | African American |
| 012 | Diploma | Working/Enrolled | Currently in 2-year program | Female | No | Hispanic |
| 100 | Diploma | Working/Not Enrolled | Never enrolled | Male | No | African American |
| 101 | Diploma | Working/Enrolled | Currently enrolled in 4-year program/ Completed 2-year program | Male | No | Asian |
| 104 | Diploma | Working/Enrolled | Currently in 2-year program | Male | No | Hispanic |
| 105 | Diploma | Not working | Currently in 2-year program | Female | No | Hispanic |
| 109 | Diploma | Not working | Currently in 4-year program | Male | No | Biracial |
| 111 | Diploma | Not working | Left 2-year program | Female | No | African American |
| 112 | Diploma | Not working | Left 2-year program | Male | No | African American |
| 114 | Diploma | Working/Not Enrolled | Left 2-year program | Male | No | African American |
| 122 | Diploma | Working/Not enrolled | Completed 4-year program | Male | No | White |
| 123 | Diploma | Working/Not enrolled | Completed 4-year program | Female | No | Hispanic/ White |
| 125 | None | Not working | Never enrolled | Male | No | African American |
| 127 | None | Not working | Never enrolled | Female | Yes | African American |

See notes at end of table.

| ID | High School Credential | Enrollment and Employment Status | Postsecondary Program/Status | Sex | LGBTQ* | Race/ Ethnicity |
|---|---|---|---|---|---|---|
| 129 | Diploma | Working/enrolled | Currently in 4-year program | Female | No | Biracial |
| 133 | Diploma | Working/not enrolled | Left vocational program | Female | Yes | African American |
| 148 | Diploma | Working/not enrolled | Completed 4-year program | Male | No | White |
| 151 | Diploma | Not working | Left vocational program | Male | No | African American |
| 160 | Diploma | Not working | Currently in 4-year program | Male | Yes | White |
| 166 | None | Not working | Never enrolled | Female | Yes | African American |
| 169 | Diploma | Working/enrolled | Currently in 4-year program | Male | Yes | Asian |
| 173 | Diploma | Not working | Currently in 4-year program | Male | Yes | Asian |
| 301 | None | Not working | Never enrolled | Female | Yes | Hispanic/ Native American |
| 403 | GED | Not working | Never enrolled | Male | Yes | African American |
| 406 | Diploma | Working/enrolled | Currently in 4-year program/ Completed vocational program | Female | No | African American |
| 508 | Diploma | Working/enrolled | Currently in 2-year program/ Completed vocational program | Male | No | Hispanic |
| 509 | Diploma | Working/enrolled | Currently in vocational program/ Completed 2-year program | Female | No | Asian |

*LGBTQ: Lesbian, Gay, Bisexual, Transgender, Questioning/Queer.

Participants were recruited through online postings and flyers targeted at various postsecondary institutions and organizations. Flyers were handed out to students on five college campuses (including Chicago community colleges), and were posted in a variety of community venues, including job search centers, and community organizations serving youth—including those specifically serving lesbian, gay, bisexual, transgender, and LGBTQ youth.

Interested candidates responded to a telephone screener. Of the thirty total participants, ten identified as LGBTQ and twenty as straight or heterosexual. Twenty-one respondents were currently or previously enrolled in a postsecondary program, while nine had never enrolled in a postsecondary program. Twenty-two respondents had received their high school diploma, seven had no high school credentials, and one had received a GED. Fifteen respondents were not working as of their interview date, nine were working while enrolled in a postsecondary program and six were working and not enrolled in any program. Eighteen of the thirty

respondents were male, twelve female and twenty-six belong to racial/ethnic minority groups.

Interviews were conducted in an interview room in a Chicago area hotel. For some of the interviews, RTI or NCES project staff listened in real time by telephone. Each interview began with an introduction and administration of a consent. Then the respondent was asked the questions verbally just as a CATI interviewer would, but with concurrent probing, that is, after each question was asked, follow-up cognitive probes were administered to shed light on the mental process the respondent followed to provide an answer. The Interview Protocol were used to have the respondent select one or multiple answers from a list.

A paper questionnaire was used for the cognitive tests because the instrument had not been programmed yet. For field test administration, the questions will be in a programmed instrument that can be either self-administered online or interviewer-administered on CATI (by phone).

## Findings from Cognitive Testing

1) In what month and year did you last attend a traditional high school or an alternative high school for teenage students?

   *Do not include any high school completion programs for adults that you may have attended. If you are enrolled in high school, but are out for a break, illness, injury, or vacation, please consider yourself as currently attending high school.*

This question was administered to all 30 respondents. The full question including the respondent instructions felt too long to read. Some respondents forgot that the question was asking for month and year by the time they had to answer.

Most respondents were able to easily recall last month and year attending high school and had a clear understanding of traditional high school, alternative high school and high school completion programs for adults. Three respondents had attended an alternative high school; all others attended traditional high schools. Traditional high school was generally perceived as "regular" four-year school, with extra-curricular activities.

> *101: "Normal school where you go from 9th grade to 12 grade…normal classes, English, math…"*

> *105: "A regular high school for teenagers."*

*111: "It's a regular four year high school where you accumulate hours and graduate."*

*125: "Your regular four years, prom, graduation, homecoming, high school reunions and stuff like that."*

Several respondents associated 'high school completion programs for adults' with the GED and distinguished from alternative high school based on student age.

*301: "I think of the alternative as for (students) that still could go back to high school but doesn't choose to or can't. And then the high school completion program is for the ones that's over age who can't go back to high school."*

*112: "You dropped out of high school, you're an adult and now you want to get your GED." This respondent suggested replacing "high school completion program for adults" with "GED program" to be more clear and further distinguish from "alternative high school."*

Some respondents thought of alternative high school and high school completion programs for adults as the same.

Various interpretations of 'alternative high school' were elicited. For some it is a separate building or school within the same high school where problem students are sent. For others it was a completely separate, unrelated school for problem students. Others were not sure of meaning. Some respondents thought of 'alternative high school' as non-traditional in terms of curriculum or administration. One respondent (104) thought of vocational, technical and disciplinary schools as examples of alternative high school.

*109: Alternative high school: "Maybe a school that doesn't use a grade system…or a program for troubled kids"*

2) Have you ever taken an exam for the GED or another high school equivalency credential such as HiSET or TASC?

a) Yes ---> ASK 2A

b) No ---> GO TO PROBES

2A) How many times have you taken one of these tests?

# OF TIMES: _____

Only one respondent (148) was familiar with all three tests, while most respondents were familiar with the GED but not the HiSET or TASC. Three students had not heard of any, not even the GED.

Of all 30, just one respondent had taken the GED. He did not consider the test he took as separate tests (i.e., one per subject). Another one (151) was required to take both HiSET and TASC while attending an alternative high school. No other respondents had taken either test, or any other high school equivalency credential.

The concept of High School equivalency credentials was not entirely familiar to several of the respondents. They gave the ACT/SAT as examples of other high school equivalency credentials.

3) For the rest of the interview, the general term "college" refers to 2-year colleges or 4-year colleges. Specifically, the term "2-year college" will refer to community colleges or junior colleges. The term "4-year college" refers to colleges and universities.

Questions in this interview also use the phrase "schools that provide occupational training" to refer to other types of schools after high school, sometimes called technical institutes or trade schools. These schools usually offer programs that take less than 2-years to complete. Examples include culinary institutes and cosmetology schools.

Have you ever…

| | | |
|---|---|---|
| a) Applied to or registered at a 2-year community or junior college? | Yes | No |
| b) Applied to a public 4-year college? | Yes | No |
| c) Applied to a private nonprofit 4-year college? | Yes | No |
| d) Applied to or registered at a for-profit college or school? | Yes | No |

As with Q1, this item proved too long to read. Some respondents had a glazed look while the interviewer read it.

Only three respondents understood well the distinction between for-profit and non-profit colleges or schools. For any state college/university they applied to, they clearly defined those as public 4-year colleges, but they generally thought that private universities are for-profit.

Respondents were generally more familiar with the terms "private" and "public" to distinguish different types of colleges or schools.

> *007: For profit college or school: "That sounds like a business. That's pretty much what it sounds like. It's not really geared so much like toward the personal investment of the students more so about getting as much profit as they can from however many students get enrolled. That's what that sounds like a business."*

*012: For profit college or school: "I have no idea! I just heard public, private, 4-years, two years…I'm not sure about the nonprofit or for-profit so… I don't know if private means nonprofit or something like that."*

*104: "You work for them, something like that…where you can make money for that school."*

*105: "I think it's confusing when it says for profit...I think one would be…for-profit would be more expensive than the non for profit. So it's kind of confusing on what kind of college it's talking about...I think a for-profit school probably more a private school."*

*109: "I haven't really thought about it…because I haven't heard about non-profit schools."*

*114: "For-profit? You have to pay."*

*111: "I know there's public and private... All I know is more expensive, private and smaller classes sometimes, all depends what private school. And a public school is more bigger, more for your money I think…I've never heard of for-profit."*

*123: "I don't know what for-profit means …I mean, I went to a private school but I don't know if this was for-profit or not ...I know that because state colleges are public but I don't know what is …for-profit and nonprofit."*

*125: "Profit meaning get money." The respondent gave Harvard as an example of "for-profit" because it is expensive to attend.*

About twice as many respondents thought of Community and Junior College as the same, than as different. Several others thought of community colleges as "local" or "for the community."

*007: "I guess when I hear community college I think they are probably more local, probably easier to get into… with the city colleges pretty much if you are local, then it's easier to get in. Junior college, I don't know too much about it what I think about it is like if you are still in high school and you are trying to branch into college, maybe it's a place where you can obtain certain college courses and credits while you are still doing high school…"*

*008: "Community (colleges) they are more open to the community for different people just to come in and like work and do different type of work towards maybe a certain type of degree, and maybe a junior college means more like for younger kids… like around the age for college…"*

*012: "I think they are different, I don't know much about Junior College but I feel like they are… a little bit less intensive that the community colleges…like the community colleges…can provide grades, junior college I think is more…technical."*

*122: "I think (Junior College) is possibly more a steppingstone … than the community college necessarily has to be… I believe community college is where you can just go and get your Bachelor's degree."*

*123: "Community college…offers all types of degrees for people who don't want to go too far away. Or…probably have a job around here and want to stay for the job…and would be easy for them versus going to school in a different state. Junior college is more like a private…"*

*403: "Community college…is for the community …and junior college is like a private school."*

Respondents did not offer other terms to refer to the institutions.

| 4) Have you ever… | | |
|---|---|---|
| a) Applied to or registered for a certificate or diploma program at a school that provides occupational training. Certificates or diplomas usually take 2-years or less to complete, often leading to a license, such as cosmetology | Yes | No |
| b) Applied to an associate's degree (usually a 2-year degree) program | Yes | No |
| c) Applied to a private nonprofit 4-year college? | Yes | No |

Overall, Q4 seemed to be more clearly understood by the majority of respondents than Q3, perhaps needing some simplification of option 4a for clarity. Most preferred Q4 to Q3, primarily because of uncertainty about the different types of schools as listed in Q3 and described above.

The remaining respondents indicated that 4a) was too long, "wordy" or "complicated" and chose Q3 as easier despite the fact that they did not understand the distinction between for-profit and non-profit. This may have been due to Q3 appearing more abbreviated on the provided show card.

Some respondents noted that neither Q3 nor Q4 had a good option for attending a vocational, technical school or trade school, or for those who had taken courses not towards a specific degree. One respondent who takes classes in a 2-year college intending to transfer the credits is not enrolled in a 2-year program because he is not intending to get an Associate's degree; he had a hard time saying yes to option b because of the word "program." Another respondent was confused by 'applied to or registered' in Q4. This person had received a vocational education certification but did not find Q4a to be a clear response option for his situation.

Ten respondents found Q3 easier than Q4. Several had never enrolled in any postsecondary program.

*007: "I think question 3. Because it's not…I think it's pretty basic. It's more basic than question 4. I think question 3 pretty much gets to the point about have you applied to this type of college or that type of college."*

*112: "I think these are much easier to understand [Q3]…because there's less wording, less words and gets right to the point instead of all these extra words (reads 1st sentence of Q4a)…you're throwing a bunch of big words at me, it's gonna take a while for me to process in my brain what exactly you're asking as opposed to this one (reads Q3a) you know, much more simpler and right to the point." [Note: This respondent chose Q3 as easier even though had "no idea" about for- profit/nonprofit.]*

*122: Because I knew the distinction (between for-profit and nonprofit), Q3 was easy to understand but if I were unsure about that, then Q4 would be easier.*

*509: "I want to say question 3 was easier… I think it's just because I can easily tell you, like a two year community or junior college, but this one gives you more, question 4 has more options. I think it's just because it's shorter too (Q3)."*

Eighteen respondents found Q4 easier than Q3. In particular, respondents who have applied to colleges generally had an easy time with this item.

*012: "Question 3 was harder for the nonprofit and the for-profit questions."*

*101: "Question 3 harder to answer because…I'm not 100% sure about on the public or private... profit… non-profit…"*

*105: Question 4 easier: "It's less words and tells you what the Associate degree is and Bachelor's degree is and then it tells you what a usually two-year degree program and then a four-year degree program ...I think the answer 4a goes more into depth on what the cosmetology or what a certificate can be than Q3."*

*109: (Q4 easier): "Because it is something that you are more exposed to day by day. I was kind of thrown off by the profit and non-profit, I never heard that."*

*123: "Question 4 is the better way of presenting different types of colleges and schools... makes more sense, people usually know what they are applying for."*

*160: "Q3 would be better if it can include some examples, for me was easy…but may be confusing for other people, I think a lot of people don't know the differences between private nonprofit, private for-profit. Q4 is more clear but a little wordy."*

5) *For the rest of this interview, the term "postsecondary education" means any schooling after high school. Postsecondary education is offered at 4-year colleges, 2-year community colleges or junior colleges, and schools that provide occupational training.*

How many of your close friends or family members permanently left a postsecondary education program before completing their degree, certificate or diploma?

|_____|_____| # OF FRIENDS OR FAMILY

In general, respondents were not familiar with the term 'postsecondary education' and needed Q5 to be repeated. When clarified, most respondents had no difficulty in providing an appropriate response. It appeared that the definition of postsecondary was useful. The difficulties observed may be due to the length or dense phrasing of the question when administered verbally, and perhaps less of an issue in the self-administered mode.

Some respondents were unsure who to include as 'close friends' or if they should include more extended family members (i.e.: cousins). Probing showed uncertainty as to who might go back to school or not. This was particularly true when thinking of peers. With family it was easier. With friends or schoolmates, it was hard for them to tell if someone that is no longer going has really left the program for good.

Some respondents, particularly those who estimated, were vague about how they figured their answer. If someone focused more on family members than friends, they seemed to answer with more precision. For friends, while some thought of up to a handful, others included more than 20 people in their thinking to provide a response.

**FILTER**: As things stand now, what is the job or occupation that you expect or plan to have at age 30? _____

**OR CIRCLE DK----------> DK**
**CONTINUE ANYWAY.**

Would you have answered this question the same way when you were in high school?

**YES ---> SKIP TO Q7**
**NO ----> How would you have answered it then?**

6) Why did you change your mind about your plans for a job or occupation?

RECORD VERBATIM: _____
_____
_____

6A) Now tell me if you changed your mind about your plans for a job or occupation for any of the following reasons.

| | | |
|---|---|---|
| a) Change of interests | Yes | No |
| b) For better earning potential | Yes | No |
| c) For better work lifestyle | Yes | No |
| d) For better employment opportunities | Yes | No |
| e) For the opportunity to help people or society | Yes | No |
| f) For greater prestige | Yes | No |
| g) An adviser or faculty member encouraged it | Yes | No |
| h) Your parents encouraged it | Yes | No |
| i) Another family member, friend, or employer encouraged it | Yes | No |

No particular difficulties were observed in the administration of Q6 and Q6a. Even though the verbatim responses did not seem to interviewers to fit exactly in the choices in Q.6A, respondents indicated they could choose one main reason from the list.

Most respondents indicated that they would have responded differently if asked the same question in high school and were able to clearly articulate reasons for the change. Some respondents mentioned that their future plans while in high school were "unrealistic" or they have since set another short-term career goal with hopes of achieving their original goal later in life.

*123: [Plans to become a music teacher.] In high school, "I would have said singing at the Met but now that I'm graduated I realized that...is not very realistic dream…I need a real job."*

*151: "I've had a lot of growing up to do and I have to think more realistically. Sometimes being an entertainer is not the route to take because sometimes it takes money to make money."*

Several respondents suggested adding an additional option for "a change in life situation/circumstance" or simply "life experience" as a reason for changing their mind about a job or occupation. Another one suggested adding "skills compatibility."

*009: Mother suffered an illness which influenced his change in plans.*

*112: Was in an accident and had to change his plans as a result.*

*111: Changed plans due to difficulty in passing entrance exams for nursing.*

*122: Indicated that his "experiences in college opened up other passions."*

*101: Indicated that attending conferences and career fairs influenced his decision.*

Two respondents (112 & 509) did not understand the meaning of 'prestige' in option f).

| |
|---|
| 7A) Salary may be only one part of why people choose a job. Compared to salary, how important is the ability to have work-life balance to you: less important, as important, or more important? |

| |
|---|
| 7B) Salary may be only one part of why people choose a job. Compared to salary, how important is the ability to work or collaborate with others to you: less important, as important, or more important? |

Some respondents were confused as to whether the questions asked if salary is more important than work-life balance/ability to work or collaborate with others, or if work-life balance/ability to work or collaborate with others is more important than salary. It may be useful to offer response options that are clear and unambiguous such as:

a) Work-life balance is *more important* than salary
b) Work-life balance is as important as salary
c) Work-life balance is *less important* than salary

Some respondents had trouble seeing a difference between the two questions. This was less pronounced in the students who have been to college.

In Q.7a, the vast majority of respondents found the added definition of "work-life balance" helpful to clarify the meaning of the question. Several respondents did not have a clear idea of the meaning of "work-life balance" and were able to provide a thoughtful response after the definition was provided. Some had initially interpreted 'work-life balance' as "worklife balance."

Most respondents who had an initial understanding of 'work-life balance' felt that the definition would be useful and add clarification for others. Only three respondents did not find the added definition to be helpful.

> *122: "I think this (definition) is only one version for what work-life balance could be. I think depending on what you do for work , you can work all the time and also be balanced because you are doing something that fits in the activities that you really love …that can be a different kind of balance"*

In one case alone, (105) the respondent misunderstood the question to mean "if you prefer getting paid salary or hourly," even after hearing the definition. *"I think the definition is too long. Maybe a different word... I think the term itself is confusing."*

In Q.7b, all respondents were clear on the meaning of 'to work or collaborate with others.'

In both questions, respondents gave thoughtful answers about why they would consider salary more, less or as important as work-life balance or team work.

8) How much do you agree or disagree with the following statements?

(IF R HAS ATTENDED A POSTSECONDARY INSTITUTION, ASK: Regardless of your major or field of study…)

a) You see yourself as a math person. Would you say you strongly agree, agree, disagree, or strongly disagree?

b) You see yourself as a science person. Would you say you strongly agree, agree, disagree, or strongly disagree?

c) You see yourself as a computer or technology person. Would you say you strongly agree, agree, disagree, or strongly disagree?

d) You see yourself as an engineering person. Would you say you strongly agree, agree, disagree, or strongly disagree?

1=Strongly agree 2=Agree

3=Disagree 4=Strongly disagree

Respondents understood Q8 overall as intended and considered personal strengths and interests in answering and describing each "type of person." Several tended to justify their answers in terms of how well they had done in high school or college in the different subjects (math and science, especially).

Nearly half of the respondents were unsure about the meaning of the term 'engineering' or misunderstood it.

> *009:* Thought of engineering as *"just being able to work with your hands."*
>
> *105: "Someone that has to do with fixing engines, different types of things that need to be fixed."*
>
> *125: "Something like a mechanic?"*
>
> *151: "It could be different types of things. I think of automobiles first, but you can also be wood shop in engineering, anything. As long as you are using your hands."*
>
> *166: "Do it have to do with like janitorial and stuff? I don't like that."*
>
> *301: "For me an engineering person is people that work on the buildings…clean stuff up, fix things."*
>
> *508: "People that get dirty...get their hands dirty…building stuff, make car parts."*

For some respondents, the distinction between engineering and computers/technology was not clear. For a few others, being a computer person was defined as knowing how to use a computer well.

Questions 9, 10 and 11 ask about sexual orientation and gender and were answered without discomfort by all respondents. A few did a bit of a double-take when they first heard question 9 simply because of the change in topic, but no one appeared to have other issues.

Ten of the 30 respondents self-identified in screening as gay, lesbian, bisexual or transgender. The only one respondent screened as transgender changed his self-definition at the interview and explained he considers himself "demiheterosexual." This reflected more of a political view about the non-binary nature of sexuality and gender than anything else.

**Now let me ask you about yourself.**

9) Do you think of yourself as...

1=Lesbian or gay
2=Straight, that is, not gay
3=Bisexual
4=Something else (please specify)
5=Don't Know

Now look at this other way of asking the question. SHOWCARD. How would you answer if it was phrased like this?

2nd showcard:

1=Homosexual
2=Heterosexual
3=Bisexual
4=Something else (please specify)
5=Don't Know

No respondents had difficulty selecting a response to Q9. However, there was a broad range of opinions among LGBTQ and non-LGBTQ respondents alike, about which list of response options was preferred, or easier to understand.

Some respondents thought 'straight' and 'not gay' were the same, so the 'not gay' is unnecessary.

> *122: "I do not need synonyms…when someone is asking me about my sexuality I wouldn't say I'm not gay, I would say I'm straight."*

Others noted that 'not gay' is different than 'straight' and could include other categories such as bisexual—someone identifying as bisexual is not gay and not straight.

Among LGBTQ respondents, these reactions included:

> *004:* [Respondent identifies as "demiheterosexual."] *"Straight… not gay excludes…bisexuality or pansexuality or (the) possibly infinite number of sexual orientations."*

> *007: "Straight and not gay don't really mean the same to me, and that's just because in my personal experience I know that some people don't really conform to labels as far as straight, gay, bisexual, different things of that nature. I think that just by stating straight or heterosexual, I think that that just by itself is pretty flat out, okay, that is what it is. Straight is pretty self-explanatory."*

*169: "You can be bisexual and not gay, you can be other sexualities that people identify with…not straight but also not gay."*

Heterosexual respondents' comments included:

*105: "If it says straight, that is not gay, and then there is a gay option at the top, it would be kind of confusing. I don't think gay and straight are the same. It could be... gay that is not straight I think that would be more towards like bisexual."*

*111: [Referring to "straight, that is, not gay" option]: "doesn't say "not lesbian" either, someone could think being "not gay" would just refer to a man." (Someone could identify as "not gay" and "lesbian").*

One LGBTQ respondent found the 'straight, that is, not gay' option to be offensive as emphasizing '*not gay*':

*133: "I don't like straight, that is, not gay… I don't like that …just put straight because it is… like…kind of homophobic."*

Some respondents did not have a clear understanding of the terms 'homosexual' and 'heterosexual' or considered 'straight/gay' to be more commonly understood terms. These were heterosexual respondents:

*008:* Not sure of meaning of homosexual/heterosexual: *"I mean I would just put…I'm straight but…I'd just put I'm "something else" which I'm straight."*

*112: "A lot of people don't know what heterosexual is, a lot of people don't know the definition of that."*

Some LGBTQ respondents worried that others may not be familiar with the terms homo- and heterosexual:

*173: "For me they mean the same thing but, the word lesbian and gay I think has more connotations, whether it's positive or negative...Whereas these, homosexual, heterosexual it's just very, like more scientific terms I think that people wouldn't use on a daily basis...these words (lesbian/gay, straight) are more commonly used, to identify themselves. I think these are better."*

*301: "For me I know what all this means, I know what homosexual is or heterosexual, bisexual, I know what those terms mean, but if it was for somebody else who don't know what those terms mean, I think this would be more descriptive for them ….A lot of people don't know what homosexual or heterosexual is."*

Some respondents, all heterosexual, felt that "homosexual/heterosexual" are presumably more proper, less offensive terms than "straight/gay" to those who identify as LGBTQ.

*012: "Heterosexual…I think it is… Less offensive."*

*125: "These are better ways to ask, homosexual, heterosexual, it's (more) proper than saying gay…heterosexual saying straight…These are the more appropriate terms to use….if you don't know what heterosexual mean or homosexual then I don't know what to tell you. It's common sense though.*

*151: "I feel that some people might get offended, but I don't know how sensitive people are, but heterosexual seems more appropriate than just say straight."*

10) What sex were you assigned at birth, that is, what did the doctor put on your birth certificate?

1=Male
2=Female

All respondents understood clearly what is meant by 'sex assigned at birth.' Perhaps thanks to the clarifying second part of the question 'that is, what did the doctor put on your birth certificate,' none had difficulty selecting a response between the two options. They explained that based on anatomy (using words as genitals, organs, genitalia, penis/vagina) the doctor indicates at birth the baby's sex.

Some respondents recognized the distinction this question suggests between biological sex and gender, while others thought of biological sex and gender as the same. Some respondents considered intersex individuals when asked what was meant by 'sex assigned at birth.'

*112: "A lot of people are assigned a sex at birth but then get a little older and identify themselves as the opposite of what they are, so that phrase is being very sensitive, hyper-sensitive to how they may feel."*

*008: "I guess they want to know like at birth what were you, cause you could have been born a guy and then transform yourself…as you got older into a woman."*

*100: "What is your sexuality, what are your preferences, what are you particularly like, what are you attracted to…(question is) asking about your gender."*

*169:* (Question is asking about) *"Biological sex. Sex assigned versus...gender. So gender identity is something that you develop on your own. Whereas, biological sex is... assigned according to your physiology."*

*173: "It's what doctor determines after seeing your genitalia but I know that for some people with ambiguous genitalia, just like intersex, doctors used to just assign one or the other or do some surgery to make it one or the other whereas these days has been ongoing opinions that doctors shouldn't do that and let intersex people grow …the way they are"*

11) What is your gender? Your gender is how you feel inside and can be the same or different than your biological or birth sex. When a person's sex and gender do not match, they might think of themselves as transgender. Choose all that apply. HAND SHOWCARD.

a. Female
b. Male
c. Transgender, male-to-female
d. Transgender, female-to-male
e. Transgender, do not identify as exclusively female or male
f. You are not sure
g. You don't know what this question is asking

No respondents had difficulty selecting a response to Q11. Only one respondent self-defined as transgender, and it was someone who expressed uncertainty about his sex and gender, and was inconsistent between screening and interview.

Most were familiar with the definition of gender and found it helpful to include.

*007: "I know the way society is set up now transgenders are really just now coming out and speaking about what it means to be transgender so I think for those who aren't really accustomed to what that might be that's a pretty good definition because some people think, "well you're a man, you should stay a man, if you're a woman you should stay a woman" but that kind of helps people to see it's not an outward thing, it's an internal thing, so I think that definition definitely suits that."* [an LGBTQ respondent]

*105: "I think that's new because mostly when they ask gender they ask whether if its female or male...Yeah, it's useful for the question. It's telling you how you feel inside not what you are, so I guess if he was a male and he's more like a transgender he know that he can, transgender would be an option."*

*406: "Originally, before I took a course of sexual identity, I thought that transgender means to literally get a sex change, but it was not. That is, it is basically what you said, Someone who identifies different than they were physically born."*

*151: "When I was first talking about it, I did say gender, which now I think I should have said sex instead of gender. Like you said gender could be a different feeling than what you really are. And some people are not quite sure of what their gender is. If you add that definition with the rest of the question, it would help out a lot."*

*173: "It's something I'm very familiar with. I know a lot of transgender people and it's not a myth, it's real and especially these days, trans people are gaining more voice and they're getting more exposure so it's just something that I knew." [an LGBTQ respondent]*

Some respondents understood the gender definition but disagreed. They thought of gender as the same as biological sex (male/female).

> *008: "I don't believe in that, but…everybody has their own opinion…I mean cause I look at it like…sex and gender is…the same…I don't like that definition…it doesn't make sense…to me."*

> *111: "I don't believe in that. I believe what you are born with, that's who you are, and everything is learned...I think whatever the doctor say you are when you come out, that's who you are."*

> *112: "I feel like your gender is your gender, if you were born with a penis then your gender is male of course, but how you feel inside is totally different from your gender. I feel like your gender is biological... I don't want to change the definition that's on there or like the scientific definition but that's just my opinion…that your identity is how you feel inside, you know which could be transgender, but your gender is biological."*

Only one respondent (004) considered more than one response option. He chose 'male' but considered selecting 'transgender, do not identify as exclusively male or female.' This respondent identifies as "demi-heterosexual" and would have selected "gender non-conforming" if this were an available response option.

Several respondents took issue with response option e ("Transgender, do not identify as exclusively as male or female.') Perhaps this response option should be replaced with a "gender non-conforming" or "something else" option.

> *007: "I think for this one though (option e), they should have one called gender non-conforming… But I think the other ones are legit to show that they are different technical terms for male-to-female, female-to-male."*

> *122: "I would maybe not put the word transgender there, I would maybe just have do not identify as exclusively female or male, because you might identify as something else but you don't identify as transgender."*

> *123: "The one that doesn't really make sense here is 'transgender, do not identify as exclusively female or male,' well you just can say androgynous. I see that transgenders identify as the opposite that they were born as, but androgynous would not necessarily need to be transgender."*

> *169: "Not everyone identifies as transgender…add "something else" in the list as one more option."*

12) Did your parents or guardians contribute to or pay for any of the following expenses for you in the last 12 months? Choose all that apply.

| | | | |
|---|---|---|---|
| a) | Car insurance | Yes | No |
| b) | Health insurance | Yes | No |
| c) | Cell or land line phone bill | Yes | No |
| d) | Utilities such as electricity or heat | Yes | No |
| e) | Rent or mortgage payment | Yes | No |
| f) | Down payment on a house | Yes | No |
| g) | Education tuition and fees | Yes | No |
| h) | Credit card bill payments | Yes | No |
| i) | Cash, allowance, or spending money | Yes | No |
| j) | Food | Yes | No |

Respondents still living at the parental home generally answered yes to d., e., and j. since the parents take care of room and board, but some were not sure:

> *012:* Unsure if should include options f) & j) *"the house and the food because I live with them (parents)."*
>
> *109:* Option j) *"I was confused because they didn't gave me the money for food, just gave me the food."*
>
> *508:* Unsure about e) & f) *Lives with parents who own home.*

Some respondents were unsure about certain response options. For instance, 009 wondered if sport fees would be included under 'fees' in option g. Respondents had a number of suggestions for additional response options to include: medical/dental expenses, travel expenses, help with debt, cable/internet, clothing, car payment or gas, renters insurance, storage, and help supporting (respondent's) children.

Option g functioned as double barreled to one respondent who made a distinction between tuition on one hand and fees on the other.

Some respondents tried to think back to the last 12 months and were not completely sure if something fell within that period or not.

***Have you held a paid position since you last attended high school?***

**IF YES:** ***Please answer the following questions about your current or most recent job.***

**IF NOT: INTERVIEWER, SKIP TO INSTRUCTION BEFORE Q16.**

13) Which of the following options 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

Respondents had no difficulty responding to Q13 and choosing more than one response option as applicable. Generally, respondents had a clear understanding of the distinction between 'a career position' (long-term, more commitment) and 'a way to explore a career option' (short-term, "trying it out," internship).

*012:* Career position: *"Something that you find to make your career in the long term and it is in the field that you wanted "explore career option" is something that someone does based on an interest they have"*

*009:* Career position: *"Something that you do in the long term. Explore career option: Maybe like… internship… probably something that you are deciding if you want to do or not."*

*105: "A career position would be something more permanent, something that you're sure of doing and exploring would be something that you're still unsure and trying to experience other careers."*

*111: "I think explore doesn't sound like it has too much of a commitment to it, so that's why I said just learn. Maybe a career it has a commitment."*

*112: "A career position is sort of like me saying I want to be a doctor, that's the position that's title I have that is doctor, but a career option is you know, the hospital. The career option is the hospital, the position is the doctor. That's how they're different to me."*

Some respondents had difficulty understanding the difference between response choices 1 and 2. This appeared more common among respondents without work experience.

*301: Thought of 'career position' and 'way to explore career option' as the same, just different words.*

Some respondents had suggestions for additional response options:

*112: "Maybe a hobby or something you love to do."*

*114: "Forced to work because someone, like a family member tells you you have to."*

*122: "Doing the job because it offers good learning experiences."*

*151: "…a way to save money for a new house" (or to save money for something other than school as in option 3).*

IS R. CURRENTLY WORKING?

YES --- ASK Q14
NO ---- SKIP TO NEXT Q.

14) Please indicate the extent to which you agree or disagree with each of the following statements about your **current job**.

a) I plan to remain in my current job over the next year. Would you say you strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree?

b) I think about leaving my current job. Would you say you strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree?

c) I am committed to keeping my current job. Would you say you strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree?

1=Strongly agree
2=Agree
3=Neither agree nor disagree
4=Disagree
5=Strongly disagree

These 3 items were only asked of respondents who were currently working. The questions worked well. Respondents gave thoughtful explanations as to why they answered as they did.

15) Please indicate the extent to which you agree or disagree with each of the following statements about your **current line of work**.

a) I plan to remain in my current line of work over the next year. Would you say you strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree?

b) I think about leaving my current line of work. Would you say you strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree?

c) I am committed to staying in my current line of work. Would you say you strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree?

1=Strongly agree
2=Agree
3=Neither agree nor disagree
4=Disagree
5=Strongly disagree

We asked this question of those working now but also of those not working now. Those not currently working in some cases had difficulty with the concept of current line of work, whereas when the respondent had a current job these questions worked very well.

Most respondents answered 1, 2, 4, or 5. Of the 23 respondents who were asked Q15, 13 did not see a difference between 'current job' and 'current line of work.' Overall, this distinction was not clear.

Some respondents did not understand the meaning of 'current line of work:'

> *166:* Thought of 'current line of work' as work history: *"I think it's like every job I worked before. That's all I could think."*

16) Earlier you said that your expected job or occupation at age 30 is _____.
Is your current or most recent job related to that job or occupation? Would you say it is...

1=Closely related
2=Somewhat related
3=Not at all related

All respondents were clear on the meaning of 'related' in the context of this question. No difficulties in interpretation were observed although some were not articulate in defining the meaning. They often gave circular answers to what 'related' means, yet they clearly understood the concept based on their explanation as to why they chose the answer they chose.

Respondents reported being sure of their answers.

> ***Have you ever been enrolled in a 4-year college, 2-year community college or junior college, or a school that provides occupational training?***
>
> **IF YES: CONTINUE WITH Q17.**
>
> **IF NOT: GO TO END OF INTERVIEW BOX ON LAST PAGE.**
>
> 17) Have you ever sought help for a postsecondary course?
>
> a) Yes
> b) No

A couple of respondents who had taken postsecondary courses did not think of themselves as having been 'enrolled' in a program. This interpretation issue resulted in answering No to the filter preceding Q17. These respondents, following the skip pattern, ended the survey prematurely. This was the case with one respondent (105) who did not consider having been enrolled: "They were just classes for my Associate's degree." Another (133) had taken postsecondary courses but did not consider herself as having been 'enrolled.'

As the question was first read to the respondents, some looked at the interviewer as though expecting further clarification. Probing to establish what respondents understood as 'help' revealed that many thought of tutoring as an example, but had not considered other options such as office hours, study groups or other types of help.

> *104:* Was thinking of "financial help" and would add "financial" as another type of help.
>
> *114:* Thought of help as learning about the college application process, loans and scholarships.
>
> *122:* Suggested including *"Mentor sessions, writing correspondence, emails to the professors because sometimes you can't sit-down with them face to face."*
>
> *509:* Considered "advising" as another type of help: *"I am part of (an advising) group…and they have helped me decide what schools I want to go to after a two-year and they have helped me with financial aid and getting scholarships."*

After the definition was offered ("Help could include participating in a study group, going to office hours, or receiving tutoring"), one respondent changed "No" to "Yes," because he had not considered office hours. Another changed because he had not considered study groups. No one was able to come up with additional types of help beyond those in the definition.

Have you ever been enrolled in an Associate's degree program?

a) Yes --> ASK Q18
b) No --> SKIP TO Q19

18) When you began the program did you…

1=Plan to earn an Associate's degree,
2=Plan to transfer to a Bachelor's degree program,
3=Plan to do both, or
4=Just want to take courses or earn credits?

Eight respondents answered "Yes" to having ever been enrolled in an Associate's degree program. Some did not realize that the question intended to capture a single response, and they chose options 2 and 4.

*105:* Was not sure if he could select more than one response option.

*104:* Chose response option 4 only but indicated that he plans to transfer to a four-year program (Both options 2 & 4 applied to this respondent).

*111:* Combined options 2 & 4: *"Maybe take the classes you need to transfer?"* Ultimately selected option 3.

19) Have you ever transferred from one postsecondary institution to another?

a) Yes
b) No

19A) IF NO AT Q19, SKIP TO Q20

ASK ONLY IF YES AT Q19
Why did you transfer the most recent time?

19B) Now tell me if you transferred for any of the following reasons.

| | | | |
|---|---|---|---|
| a) | To pursue a different degree or field of study not offered by your original institution | Yes | No |
| b) | Because of academic problems | Yes | No |
| c) | Due to classes not being available or scheduling not being convenient | Yes | No |
| d) | Due to dissatisfaction with the school such as the program, campus, faculty, or social life | Yes | No |
| e) | Because of location | Yes | No |
| f) | Because of financial reasons | Yes | No |
| g) | Because of personal or family reasons | Yes | No |

Only six respondents answered "Yes" to Q19. Most respondents were clear on the meaning of 'transfer' but some were not sure whether transferring necessitates transfer of credits or simply changing institutions. The list of reasons on Q19B appeared comprehensive. Respondents were able to choose one main reason.

Some respondents were again confused by the term 'postsecondary.' It may be helpful to remind respondents of the definition several times throughout the survey as the term is used.

> *112:* Responded "No" to 19a: *"That's the thing, I don't know if I transferred. I stopped going to one and then I started going to—I didn't get my credits transferred though. So, that's what I think transfer means, getting your credits transferred to the new school you go to."*
>
> *508:* Responded "No" to 19a, then changed response to "Yes." Needed clarification on meaning of "postsecondary" First responded that transfer means transferring all credits then changed to transfer can be "just going from one school to another." The respondent did not actually transfer--completed a vocational program, completed an associates program and is now taking classes... has been enrolled in different programs but did not transfer.
>
> *111:* Suggested adding additional option of "general change in life" as reason for transferring. (Perceived as different than option h) *"Someone's living situation can change too, so just change in life in general I think."*

What (is your current/was your) major or field of study?

RECORD VERBATIM: _____

Why did you choose it?

RECORD VERBATIM: _____

20) Now, tell me if you chose your major or field of study for any of the following reasons.

| | | | |
|---|---|---|---|
| a) | You enjoy the subject | Yes | No |
| b) | You do well in the subject | Yes | No |
| c) | You thought you would fit in with people in this major | Yes | No |
| d) | For earning potential after graduation | Yes | No |
| e) | For the work lifestyle after graduation | Yes | No |
| f) | For the employment opportunities after graduation | Yes | No |
| g) | For the opportunity to help people or society | Yes | No |
| h) | For the prestigious occupations associated with this major | Yes | No |
| i) | An adviser or faculty member encouraged it | Yes | No |
| j) | Your parents encouraged it | Yes | No |
| k) | Another family member, friend, or employer encouraged it | Yes | No |

No significant interpretation problems were observed in Q20. Two respondents did not understand the meaning of "prestigious occupations" in option h. The definitions respondents offered for 'work lifestyle' were reasonable.

The list of reasons appeared comprehensive. Respondents were able to choose one main reason. Only one respondent had difficulty selecting one main reason, and felt he would need to select more than one option.

Ten respondents preferred the term "major," three preferred "field of study" and five expressed no preference between the two. The majority of respondents preferring the term "major" had been enrolled in four-year, Bachelor's degree programs, while those preferring the term "field of study" had been enrolled in two-year programs.

*173:* Mentioned "concentration" as an alternative to "major or "field of study"

In general, respondents had varied interpretations of the term 'work lifestyle.' Some thought of lifestyle *at* work or lifestyle in general. Others thought of 'work lifestyle' as very similar to, if not the same as 'work-life balance' as asked in Q7a:

*114: "The way your work and what you do outside of work, how it blends."*

*105:* Thought of "work lifestyle" as *"Something that I would…enjoy to do for the rest of my life."*

*111: "I think about lifestyle, I think about I guess money, that's about it."*

*112: "I guess the lifestyle you'll be living that's associated with that job or that work."*

*160: "Being able to have personal time but also being able to do something that you enjoy, I think that is an important thing…like I said not necessarily live to work but if I have a job that I enjoy that just makes life that much better."*

Before you entered postsecondary education, what major or field of study were you considering.

RECORD VERBATIM: _____

IF SAME AS MAJOR IN Q20, SKIP TO Q22

IF DIFFERENT FROM MAJOR IN Q20: Why did you change your major or field of study?

RECORD VERBATIM: _____

21) Now tell me if you changed your major or field of study for any of the following reasons. **SHOWCARD**

a) Change of interests
b) You were not doing well in your original field of study
c) The courses in your original field of study required too much study time
d) Faculty in your original field of study did not treat you well
e) You did not fit in with your classmates in your original field of study
f) Classes in your field of study were not available or scheduling was not convenient
g) For better earning potential after graduation
h) For better work lifestyle after graduation
i) For better employment opportunities after graduation
j) For the opportunity to help people or society
k) For the prestigious occupations associated with your new major
l) An adviser or faculty member encouraged it
m) Your parents encouraged it
n) Another family member, friend, or employer encouraged it

The filter for Q21 is very similar to the filter preceding Q6. Several respondents remarked that this question was repetitive or that they felt they had responded to this question already.

No respondents had difficulty providing a response to Q21. Option a) 'Change of interests' was most commonly selected as respondents' main reason for changing major or field of study. Two respondents were not able to choose one main reason.

*101:* Suggested adding "attending conferences or job fairs" as in Q6.

*111:* Suggested adding "change in life" as in Q6.

The question was tested with a very small number of respondents due to the skip instruction preceding it. For students who are not far along in school, they often have not yet declared a major, much less changed majors.

> What is the highest undergraduate degree, certificate or diploma you expect to ever complete?
>
> 1=None -- SKIP TO Q23
>
> 2=Certificate or diploma from a school that provides occupational training
> 3=Associate's degree
> 4=Bachelor's degree
>
> 22) (When you complete that degree,) what is your best estimate of the total amount you will have borrowed for your undergraduate education?
>
> $_____

Respondents were not too confident about their answers. Most respondents provided an estimate for total amount borrowed, calculating expected amount to be borrowed per year. Figuring the answer followed various strategies. The answers appeared to be estimates. In some cases they seemed to be somewhat wild estimates and in others more grounded in information the respondent had about cost of a year of tuition or tuition plus room and board.

Those who had completed school were more confident in the total amount. If students had not taken out loans, or had received financial aid or scholarships, they mentioned this as well.

*004: "$20,000 is the amount of the loan that I take out each year, multiplied by four years."*

*123:* Completed Bachelor's degree and knew exact amount to the dollar based on her federal loan statement.

*173:* Estimated the amount his parents borrowed for his education, *"My parents would owe it on my behalf."*

*509: "Right now I have financial aid, so I don't have to pay for anything and right now I am not sure what four-year college I am going to go to and depending on*

*how much financial aid I am going to get for those schools, I am not really sure. I know I will have to get loans, I don't know how much."*

Several respondents were unsure of the meaning of the term 'undergraduate,' including some who have attended college:

*105:* Undergraduate: *"Something that I haven't graduated school from. So if I'm an undergraduate from college I'd probably be in high school."*

*112: "Like in my lifetime? Masters." When asked, "What does "undergraduate" mean to you?," the respondent answered, "No idea."*

*151: "I actually never understood what that mean. I feel that is somebody that is in college...but, I never really knew what that was."*

In some cases, upon hearing 'highest' the respondents answered with the highest degree they would like to complete, without attention to "undergraduate." For example, one answered MBA and another said PhD.

*100:* First responded "PhD" then changed answer to "Bachelor's" after question repeated.

*101:* First responded "MBA" then "Bachelor's" after question repeated.

23) Since you started your postsecondary education, have you taken...

a) a basic or developmental algebra course?

Yes
No

b) Since you started your postsecondary education, have you taken a basic or developmental mathematics course?

Yes
No

PROBE: Would the following definition have been unhelpful or helpful?

"Basic or developmental courses are used to strengthen your basic math skills. Students are usually assigned to these courses on the basis of a placement test taken before the school year begins."

'Basic or developmental' was interpreted as introductory. All respondents found the supplemental definition of 'basic or developmental' to be helpful.

Most respondents had a clear understanding of Q23a & Q23b without the added definition, but still felt it would be useful to include. In the definition, what appeared most useful in conveying the idea of a course to bring someone to college level was the mention of the placement test.

*004:* Definition *"very helpful…would clarify precisely what you are getting at."*

*105: "It tells you in depth of what it means in the question and they probably would get confused on what it means…it tells you there that it would be something you took before the school year."*

*111: "I think basic would sound better, I know developmental but not really with that question, developmental math, never heard that… I took one in college but when I was in college they called it remedial, so I guess that's the same thing."*

Some respondents did not distinguish between math and algebra and answered yes to both but referring to the same course. Thus, there is a risk of over reporting.

24) Since you started your postsecondary education, have you taken any of the following courses? Please select the closest course titles: SHOWCARD

a. Arithmetic or Basic Mathematics
b. Fundamentals of Algebra and/or Fundamentals of Mathematics
c. Beginning/Intermediate Algebra or Beginning/Intermediate Mathematics
d. Introduction to Algebra
e. College Algebra
f. Pre-calculus
g. Calculus or Calculus-based course
h. Other (Please specify)
i. None

Most respondents were able to select from the list of course titles, even when titles of courses taken did not match exactly. However, we cannot establish whether or not they matched them correctly at all.

Some respondents who have taken more advanced math courses were not clear as to whether they should select 'other' or 'none.'

*004:* Selected 'other' option for 'Elementary Statistics.'

*012:* Selected 'none.' *"I took Medical math, and Chemistry does have some math in it with Stoichiometry…"*

*123:* Mentioned she had taken "higher up math courses.*" Selected g) "I mean Calc, but Calc 2, not just Calc 1."* Thought "stats" might fall under Calculus option, or should be added.

*129:* Selected 'other' option for Business Statistics course.

*173: "I took g) and h) Linear Algebra and Statistics. ... Multi-variable Calculus is more advanced, but it's still Calculus-based course, so I put under g). Linear Algebra doesn't belong in any... Linear Algebra and Calculus, I don't consider them basic math, but these from a) to e) at least would be considered basic. So if*

*the question concerns only basic math then I think this list is fine, but if it's a question about just math in college in general then it's not comprehensive."*

Several respondents felt that there should be additional options added to the list.

*105: "I think they should add more options…Trig and geometry is not on there, Stats, I think they should have more math options." Respondent would have selected "other" for geometry, trigonometry and statistics.*

*112:* Selected 'other' for "Computer Science technology" and felt that "trigonometry and geometry" should be added.

*160:* Did not take any math courses but felt that "logic" should be added to the list.

*508:* Respondent did not know meaning of 'arithmetic' thought there should be an "Intro to Math" option.

25) Does the course that you took fulfill a general education requirement or a degree requirement?

1=Yes
2=No
3=Don't know

Please look at this definition. **SHOWCARD**

"Universities generally have major non-specific requirements for degree attainment known as 'General Education' (or 'Gen Ed') or 'Core' requirements. Additionally, specific majors generally publish their requirements for completion. If this math course would appear on either of these lists, you should answer 'Yes.'"

This question appeared to work well. Everyone picked Yes or No and justified their answers reasonably. Most respondents interpreted Q25 as asking if the course was a general education requirement *OR* a degree requirement, not as a Yes/No question. This may not be an issue when the survey is self-administered.

The supplemental definition was generally helpful. Most respondents understood the meaning of and distinction between 'General Education' and 'Core' requirements. Definition helped to clarify for respondents who were unsure. Some respondents found the definition to be too "wordy."

*105: "I think that helps you know the difference between the general classes and what is required for your degree….It tells you general education and Core, or Gen Eds, which is a common word used, it says that specific majors require certain things for completion…I think it goes more in depth about what certain things are."*

*112: "It (definition) doesn't change my understanding…I still think this description is too wordy but if someone had a big enough vocabulary I think they could understand it…I think it's not necessary, too wordy, if this was much simpler I think I would say yes it's necessary."*

*122: "I think it's a little wordy... but, could be helpful, I think the more clear definition you have the better it helps people to understand."*

*160: Felt definition would be helpful for others who may be "not familiar with the terminology."*

*173 & 169: Both students mentioned that the University they attend uses the term "Distribution Requirements" rather than "General Education" or "Core" requirements.*

*509: Found definition confusing: "I think it was the second part that confused me more. The "Additionally, specific majors generally publish their requirements for completion." It was just because I already knew what general education meant."*

Generally respondents could distinguish between requirements of their major and requirements of the program aside from those specific to the major.

26) Since you started your postsecondary education, have you taken any of the following courses? Please select the closest course titles: **SHOWCARD**

a. English as a second language or ESL
b. Basic Writing Skills or Basic Composition Skills
c. College Reading
d. Foundations of Writing, Foundations of English, or Foundations of Reading
e. Introduction to Writing or Composition
f. College Composition
g. Introduction to Literature
h. Other (Please specify)

Most respondents were able to select from the available options. Generally, course titles taken were more varied and specific than those listed. Some respondents were able to find an appropriate option on the list, while others had more difficulty.

As in Q24, some respondents who have taken more advanced courses were not sure if they should select 'other' or "none"—not actually offered as a choice—as the list consists of more basic English and Language Arts courses.

*004: Course titles do not match well. "I did not take these courses …There are several different courses that can be taken, but they are different from what I can find in this list… this is not very broad."*

*148: Selected 'other' for Writing for Copywriting and Screenwriting.*

*104: Selected option f) College Composition as closest option for "Rhetoric 101"*

*109: Course titles match "except ESL has nothing to do with it."*

*111: Confused by option d) Foundations of Writing, Foundations of English, or Foundations of Reading. "I'm kind of clear but I've never seen…Foundations of Writing, Foundations of English, never saw that before…"*

*160: Was not sure if should include "Intro to European Literature."*

*406: "I feel like sometimes Philosophy might get thrown into this category so I was unsure whether or not to fit in under Introduction to Literature. In my school, English and Philosophy are closely related."*

*This page intentionally left blank*

# Cognitive Test 2

This report summarizes findings of the cognitive testing conducted by Research Support Services Inc. for the High School Longitudinal Study of 2009 (HSLS:09) Second Follow-up field test survey instrument. Forty cognitive interviews were conducted in Illinois, in the Chicago Standard Metropolitan Statistical Area from June 15, 2015 through July 30, 2015.

The following table displays the respondents' characteristics:

| Case ID | Sex | Sexual orientation | Ethnic. | Race | Educ. | Post HS | Type | Job | HSLS Case ID | Device type used |
|---|---|---|---|---|---|---|---|---|---|---|
| 208 | Female | Straight | Not Hispanic | White | HS Diploma | Currently Enrolled | 4 Year | Part Time | 69990301 | iPhone 6 |
| 217 | Male | Straight | Not Hispanic | White | HS Diploma | Left Before Completing | | Full Time | 69990202 | iPhone |
| 210 | Male | Gay or lesbian | Not Hispanic | Black/ African American | HS Diploma | Currently Enrolled | 4 Year | Looking for work | 69990303 | iPhone 4 |
| 211 | Female | Straight | Not Hispanic | Black/ African American | HS Diploma | Currently Enrolled | 4 Year | Not employed not looking | 69990203 | iPhone 4 |
| 215 | Male | Gay or lesbian | Not Hispanic | White | HS Diploma | Currently Enrolled | 4 Year | Part Time | 69990204 | iPad |
| 216 | Female | Other: pan-sexual, bisexual but not adhering to gender binary | Not Hispanic | White | HS Diploma | Currently Enrolled | 4 Year | Part Time | 69990304 | iPhone 5C |
| 218 | Male | Bisexual | Hispanic | Black/ African American | No HS or GED | Never enrolled | | Looking for work | 69990205 | LG Android |
| 209 | Female | Straight | Hispanic | Hispanic- No race provided | HS Diploma | Completed | 2 Year | Part Time | 69990302 | Laptop |
| 229 | Male | Bisexual | Not Hispanic | Black/ African American | GED | Completed | Vocational | Looking for work | 69990305 | Laptop |
| 233 | Female | Straight | Not Hispanic | Black/ African American | HS Diploma | Currently Enrolled | 2 Year | Part Time | 69990206 | Windows phone, Nokia 63 |
| 235 | Male | Straight | Not Hispanic | White | HS Diploma | Never enrolled | | Part Time | 69990207 | Samsung Galaxy S4 Android |
| 241 | Female | Other: Not sure/ bisexual | Not Hispanic | Black/ African American | HS Diploma | Currently Enrolled | 2 Year | Looking for work | 69990306 | Nexus 4 Android |
| 239 | Female | Bisexual | Not Hispanic | Black/ African American | HS Diploma | Currently Enrolled | 2 Year | Looking for work | 69990308 | Laptop |
| 242 | Male | Straight | Not Hispanic | Black/ African American | No HS or GED | Never enrolled | | Looking for work | 69990209 | Laptop |

*(Continued)*

| Case ID | Sex | Sexual orientation | Ethnic. | Race | Educ. | Post HS | Type | Job | HSLS Case ID | Device type used |
|---|---|---|---|---|---|---|---|---|---|---|
| 243 | Female | Straight | Hispanic | Hispanic- No race provided | HS Diploma | Currently Enrolled | 2 Year | Part Time | 69990208 | iPad mini |
| 245 | Female | Bisexual | Not Hispanic | Black/ African American | HS Diploma | Currently Enrolled | 4 Year | Full Time | 69990311 | iPad |
| 254 | Female | Gay or lesbian | Not Hispanic | Black/ African American | HS Diploma | Left Before Completing | 2 Year | Looking for work | 69990210 | iPhone 5s |
| 258 | Male | Straight | Not Hispanic | Black/ African American | GED | Left Before Completing | 2 Year | Full Time | 69990309 | Samsung Galaxy Tablet |
| 247 | Female | Straight | Not Hispanic | Black/ African American | HS Diploma | Completed | Vocational | Full Time | 69990310 | iPad |
| 261 | Female | Other: Pan-sexual | Not Hispanic | White | HS Diploma | Currently Enrolled | 4 Year | Part Time | 69990211 | iPhone 5s |
| 282 | Female | Straight | Not Hispanic | Asian | HS Diploma | Currently Enrolled | 4 Year | Full Time | 69990312 | iPhone 5s |
| 246 | Male | Straight | Hispanic | Hispanic- No race provided | HS Diploma | Currently Enrolled | 4 Year | Part Time | 69990214 | Laptop |
| 289 | Male | Straight | Not Hispanic | Black/ African American | No HS or GED | Never enrolled | Vocational | Looking for work | 69990212 | Android |
| 292 | Female | Gay or lesbian | Hispanic | Hispanic- No race provided | HS Diploma | Currently Enrolled | 4 Year | Full Time | 69990313 | LG Android |
| 293 | Gender non-conforming | Straight | Hispanic | Hispanic- No race provided | HS Diploma | Currently Enrolled | 4 Year | Full Time | 69990213 | iPad |
| 244 | Male | Straight | Not Hispanic | Black/ African American | HS Diploma | Left Before Completing | | Not employed not looking | 69990314 | Android HTC1 |
| 290 | Female | Straight | Hispanic | Hispanic- No race provided | HS Diploma | Currently Enrolled | 4 Year | Part Time | 69990215 | iPad |
| 300 | Female | Straight | Not Hispanic | Black/ African American | HS Diploma | Completed | 4 Year | Looking for work | 69990315 | iPhone S5 |
| 231 | Male | Straight | Not Hispanic | White | HS Diploma | Currently Enrolled | 4 Year | Full Time | 69990216 | Laptop |
| 296 | Male | Straight | Not Hispanic | Black/ African American | HS Diploma | Left Before Completing | | Looking for work | 69990217 | Laptop |
| 306 | Female | Straight | Hispanic | Hispanic- No race provided | HS Diploma | Currently Enrolled | 4 Year | Part Time | 69990317 | Laptop |
| 309 | Male | Straight | Not Hispanic | Black/ African American | HS Diploma | Left Before Completing | 4 Year | Full Time | 69990316 | Laptop |
| 230 | Male | Straight | Hispanic | White | HS Diploma | Currently Enrolled | 4 Year | Full Time | 69990318 | iPhone 6 |
| 308 | Male | Straight | Hispanic | Hispanic- No race provided | HS Diploma | Currently Enrolled | 4 Year | Full Time | 69990219 | iPad |
| 315 | Male | Straight | Hispanic | Hispanic- No race provided | HS Diploma | Completed | 4 Year | Full Time | 69990319 | iPad |
| 313 | Male | Straight | Hispanic | Hispanic- No race provided | HS Diploma | Left Before Completing | 4 Year | Full Time | 69990220 | iPad |
| 321 | Female | Straight | Not Hispanic | Verbatim response: “Mixed Black/ White” | HS Diploma | Currently Enrolled | 4 Year | Part Time | 69990221 | iPad |

*(Continued)*

| Case ID | Sex | Sexual orientation | Ethnic. | Race | Educ. | Post HS | Type | Job | HSLS Case ID | Device type used |
|---|---|---|---|---|---|---|---|---|---|---|
| 323 | Male | Straight | Not Hispanic | White | HS Diploma | Never enrolled | | Full Time | 69990321 | iPad |
| 325 | Male | Bisexual | Hispanic | Hispanic- No race provided | HS Diploma | Currently Enrolled | 2 Year | Part Time | 69990222 | iPad |
| 326 | Male | Straight | Not Hispanic | White | HS Diploma | Currently Enrolled | 4 Year | Looking for work | 69990322 | iPad |
| 208 | Female | Straight | Not Hispanic | White | HS Diploma | Currently Enrolled | 4 Year | Part Time | 69990301 | iPhone 6 |
| 217 | Male | Straight | Not Hispanic | White | HS Diploma | Left Before Completing | | Full Time | 69990202 | iPhone |
| 210 | Male | Gay or lesbian | Not Hispanic | Black/ African American | HS Diploma | Currently Enrolled | 4 Year | Looking for work | 69990303 | iPhone 4 |
| 211 | Female | Straight | Not Hispanic | Black/ African American | HS Diploma | Currently Enrolled | 4 Year | Not employed not looking | 69990203 | iPhone 4 |
| 215 | Male | Gay or lesbian | Not Hispanic | White | HS Diploma | Currently Enrolled | 4 Year | Part Time | 69990204 | iPad |
| 216 | Female | Other: pan-sexual, bisexual but not adhering to gender binary | Not Hispanic | White | HS Diploma | Currently Enrolled | 4 Year | Part Time | 69990304 | iPhone 5C |
| 218 | Male | Bisexual | Hispanic | Black/ African American | No HS or GED | Never enrolled | | Looking for work | 69990205 | LG Android |
| 209 | Female | Straight | Hispanic | Hispanic- No race provided | HS Diploma | Completed | 2 Year | Part Time | 69990302 | Laptop |
| 229 | Male | Bisexual | Not Hispanic | Black/ African American | GED | Completed | Vocational | Looking for work | 69990305 | Laptop |
| 233 | Female | Straight | Not Hispanic | Black/ African American | HS Diploma | Currently Enrolled | 2 Year | Part Time | 69990206 | Windows phone, Nokia 63 |
| 235 | Male | Straight | Not Hispanic | White | HS Diploma | Never enrolled | | Part Time | 69990207 | Samsung Galaxy S4 Android |
| 241 | Female | Other: Not sure/ bisexual | Not Hispanic | Black/ African American | HS Diploma | Currently Enrolled | 2 Year | Looking for work | 69990306 | Nexus 4 Android |
| 239 | Female | Bisexual | Not Hispanic | Black/ African American | HS Diploma | Currently Enrolled | 2 Year | Looking for work | 69990308 | Laptop |
| 242 | Male | Straight | Not Hispanic | Black/ African American | No HS or GED | Never enrolled | | Looking for work | 69990209 | Laptop |
| 243 | Female | Straight | Hispanic | Hispanic- No race provided | HS Diploma | Currently Enrolled | 2 Year | Part Time | 69990208 | iPad mini |
| 245 | Female | Bisexual | Not Hispanic | Black/ African American | HS Diploma | Currently Enrolled | 4 Year | Full Time | 69990311 | iPad |
| 254 | Female | Gay or lesbian | Not Hispanic | Black/ African American | HS Diploma | Left Before Completing | 2 Year | Looking for work | 69990210 | iPhone 5s |
| 258 | Male | Straight | Not Hispanic | Black/ African American | GED | Left Before Completing | 2 Year | Full Time | 69990309 | Samsung Galaxy Tablet |

*(Continued)*

| Case ID | Sex | Sexual orientation | Ethnic. | Race | Educ. | Post HS | Type | Job | HSLS Case ID | Device type used |
|---|---|---|---|---|---|---|---|---|---|---|
| 247 | Female | Straight | Not Hispanic | Black/ African American | HS Diploma | Completed | Vocational | Full Time | 69990310 | iPad |
| 261 | Female | Other: Pan-sexual | Not Hispanic | White | HS Diploma | Currently Enrolled | 4 Year | Part Time | 69990211 | iPhone 5s |
| 282 | Female | Straight | Not Hispanic | Asian | HS Diploma | Currently Enrolled | 4 Year | Full Time | 69990312 | iPhone 5s |
| 246 | Male | Straight | Hispanic | Hispanic- No race provided | HS Diploma | Currently Enrolled | 4 Year | Part Time | 69990214 | Laptop |
| 289 | Male | Straight | Not Hispanic | Black/ African American | No HS or GED | Never enrolled | Vocational | Looking for work | 69990212 | Android |
| 292 | Female | Gay or lesbian | Hispanic | Hispanic- No race provided | HS Diploma | Currently Enrolled | 4 Year | Full Time | 69990313 | LG Android |
| 293 | Gender non-conforming | Straight | Hispanic | Hispanic- No race provided | HS Diploma | Currently Enrolled | 4 Year | Full Time | 69990213 | iPad |
| 244 | Male | Straight | Not Hispanic | Black/ African American | HS Diploma | Left Before Completing | | Not employed not looking | 69990314 | Android HTC1 |
| 290 | Female | Straight | Hispanic | Hispanic- No race provided | HS Diploma | Currently Enrolled | 4 Year | Part Time | 69990215 | iPad |
| 300 | Female | Straight | Not Hispanic | Black/ African American | HS Diploma | Completed | 4 Year | Looking for work | 69990315 | iPhone S5 |
| 231 | Male | Straight | Not Hispanic | White | HS Diploma | Currently Enrolled | 4 Year | Full Time | 69990216 | Laptop |
| 296 | Male | Straight | Not Hispanic | Black/ African American | HS Diploma | Left Before Completing | | Looking for work | 69990217 | Laptop |
| 306 | Female | Straight | Hispanic | Hispanic- No race provided | HS Diploma | Currently Enrolled | 4 Year | Part Time | 69990317 | Laptop |
| 309 | Male | Straight | Not Hispanic | Black/ African American | HS Diploma | Left Before Completing | 4 Year | Full Time | 69990316 | Laptop |
| 230 | Male | Straight | Hispanic | White | HS Diploma | Currently Enrolled | 4 Year | Full Time | 69990318 | iPhone 6 |
| 308 | Male | Straight | Hispanic | Hispanic- No race provided | HS Diploma | Currently Enrolled | 4 Year | Full Time | 69990219 | iPad |
| 315 | Male | Straight | Hispanic | Hispanic- No race provided | HS Diploma | Completed | 4 Year | Full Time | 69990319 | iPad |
| 313 | Male | Straight | Hispanic | Hispanic- No race provided | HS Diploma | Left Before Completing | 4 Year | Full Time | 69990220 | iPad |
| 321 | Female | Straight | Not Hispanic | Verbatim response: “Mixed Black/ White” | HS Diploma | Currently Enrolled | 4 Year | Part Time | 69990221 | iPad |
| 323 | Male | Straight | Not Hispanic | White | HS Diploma | Never enrolled | | Full Time | 69990321 | iPad |
| 325 | Male | Bisexual | Hispanic | Hispanic- No race provided | HS Diploma | Currently Enrolled | 2 Year | Part Time | 69990222 | iPad |
| 326 | Male | Straight | Not Hispanic | White | HS Diploma | Currently Enrolled | 4 Year | Looking for work | 69990322 | iPad |

Participants were recruited through online postings and flyers targeted at various postsecondary institutions and organizations. Flyers (shown on Appendix A) were handed out to students on five college campuses (including Chicago community colleges), and were posted in a variety of community venues, including job search centers, and community organizations serving youth --including those specifically serving lesbian, gay, bisexual, transgender, and LGBTQ[1] youth.

Interested candidates had to respond to a telephone screener (see Appendix B). Of the forty total participants, twelve identified as LGBTQ and twenty-eight as straight or heterosexual. Thirty-five respondents were currently or previously enrolled in a postsecondary program with seven of these having left prior to completion, while five had never enrolled in a postsecondary program. Thirty-five respondents had received their high school diploma, three had no high school credentials, and two had received a GED. Thirteen respondents were not working as of their interview date, eighteen were working while enrolled in a postsecondary program and nine were working and not enrolled in any program. Twenty-one of the forty respondents were male, eighteen were female and one was gender non-conforming. Thirty belong to racial/ethnic minority groups.

Interviews were conducted in two locations: an interview room in a Chicago area hotel and in a rented office in downtown Chicago. Each interview began with an introduction and administration of a consent form (shown on Appendix C). Then the respondent self-administered the questions on a laptop, tablet or smartphone. During the telephone screening process, participants were asked about the devices they use for accessing the Internet, and were asked to bring the device to the interview for web survey administration. Once respondents arrived at the interview, the interviewer determined whether the respondent's device or an RSS laptop or tablet would be used. An effort was made to conduct testing on a variety of devices. Twenty-three large screen devices were used, and seventeen smartphones were used.

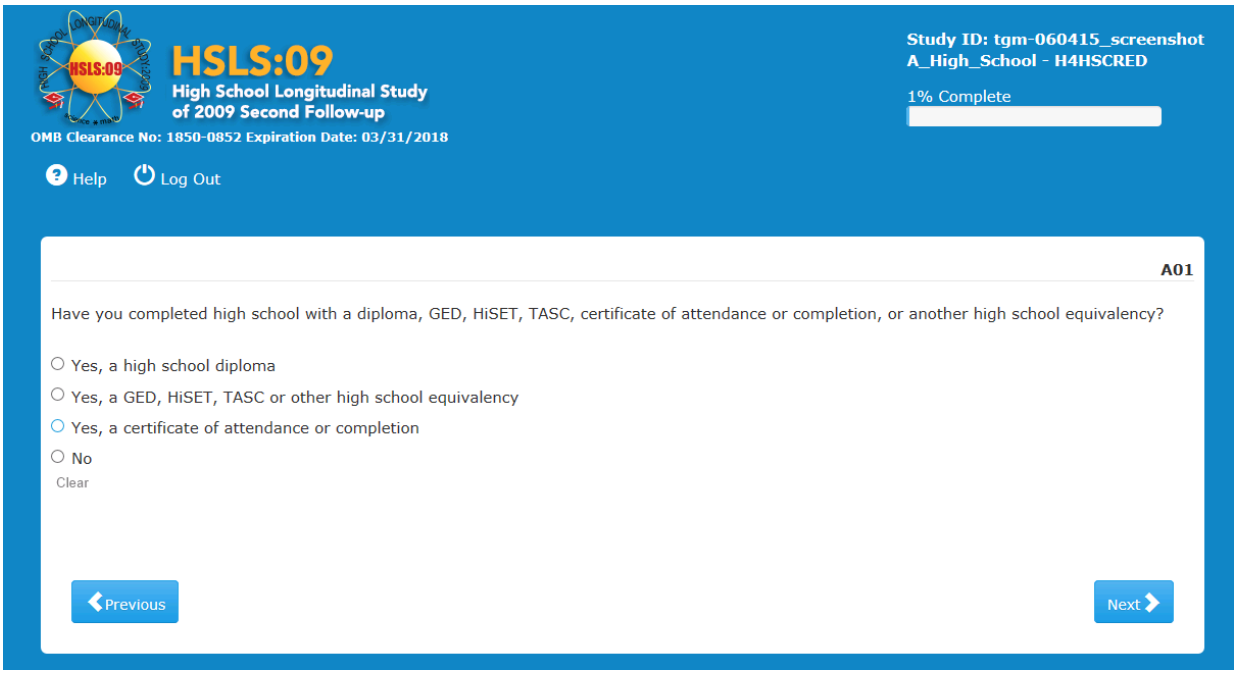
| | | |
|---|---|---|
| Large Screen Devices | 23 | 58% |
| iPad | 13 | |
| Laptop | 9 | |
| Samsung Tablet | 1 | |
| Smartphones | 17 | 43% |
| iPhone | 10 | |
| Android | 6 | |
| Windows Smartphone | 1 | |

[1] LGBTQ: Lesbian, Gay, Bisexual, Transgender, Questioning/Queer.

The interviewer watched for usability issues throughout, including any difficulties the respondent had and made note of any spontaneous comments. Whenever the respondent reached a question of particular cognitive interest, the interviewer asked scripted probes about it, as well as any spontaneous probes warranted by the respondent answers. With NCES' and RTI's assistance, each question to be probed was pre-identified as high, medium, or low priority for probing, in recognition of the fact that self-administration and probes might make for too long an interview, beyond the OMB-approved 90 minutes (See Appendix D). Thus, interviewers kept track of the time to decide if they should skip low priority probes. The probing followed what is known as concurrent probing, that is, after each question of particular interest was asked, follow-up cognitive probes were administered to shed light on the mental process the respondent followed to provide an answer. The Interview Protocol appears on Appendix E. Showcards (see Appendix F) were used to have the respondent select one or multiple answers from a list.

## Findings from Cognitive/Usability Testing

**A01**




***Item-Specific Probes:***

- ***PA01a*** *What do you think they mean here by 'high school equivalency'?*
- ***PA01b*** *Which of these -- GED, HiSET, TASC -- were you familiar with? FOR ANY YES: Tell me what you know about them.*

Most respondents (n=35) provided a definition of high school equivalency. However, they were often somewhat vague. For example:

*"Something that is almost as good as a high school diploma"*

*"Same thing as high school"*

*"Certification of the same type of value as a high school diploma"*

*"A substitute for high school"*

*"An education equivalent to what you would have gotten if you had finished high school"*

*"Homeschooling or some type of education that can be proven to be equivalent to a high school education"*

While five respondents were not sure about the meaning of high school equivalency, everyone had heard of the GED. For several respondents, it was closely related to their definition of high school equivalency. In fact, many defined high school equivalency by mentioning the GED. Other definitions included:

*"A test to replace a diploma"*

*"You have to take a test in case you dropped out of high school"*

*"A test that gives you a substitution to a diploma"*

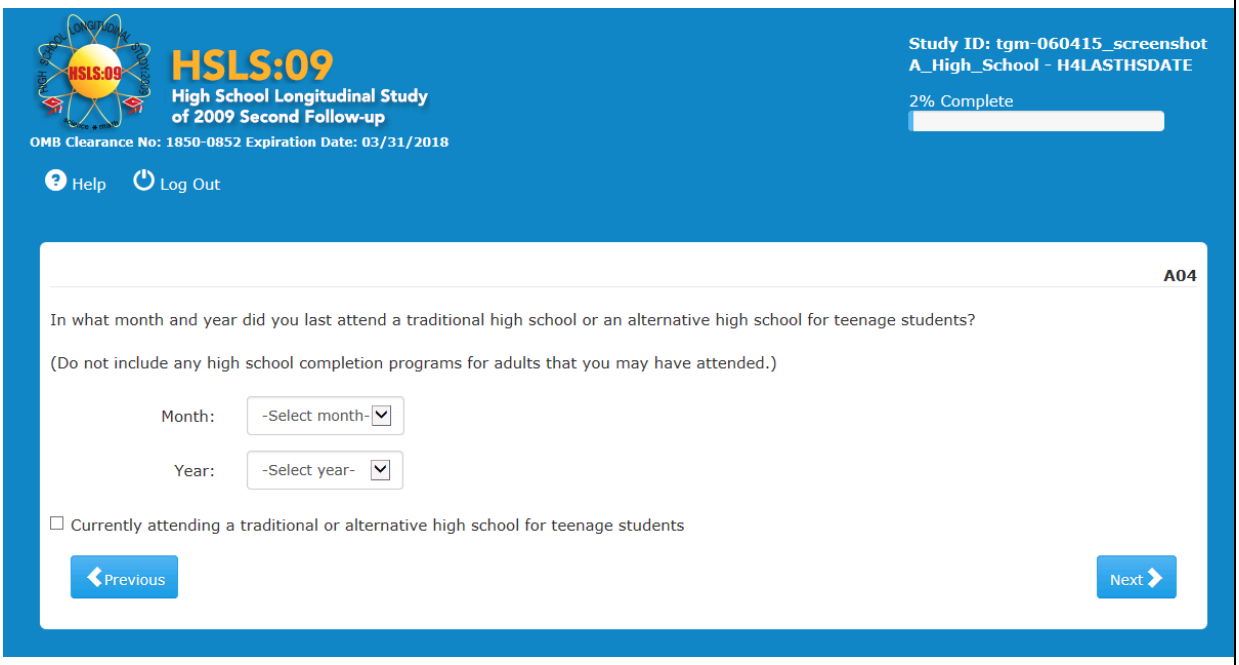
*"A test taken by people unable to complete high school after being enrolled"*

*"A program usually at a community college for those who dropped out of high school to earn a certificate that is like a high school diploma."*

No one among the forty respondents had ever heard of the HiSET, but one thought he had heard of TASC and that it was similar to the GED.

There were no usability issues in this question, except that in a few cases the interviewer noted that the system was slow.

## A04




***Item-Specific Probes:***

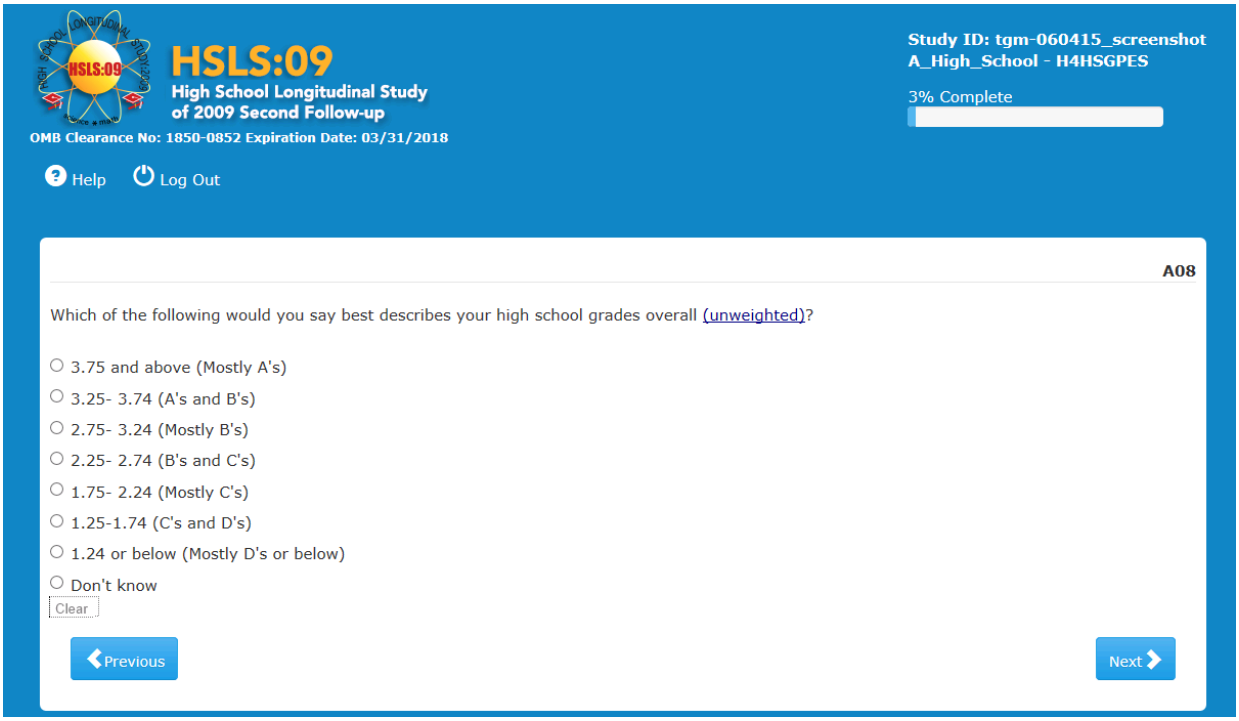
- ***PA04a:*** *What do you think this question is asking?*
- ***PA04b:*** *Have you ever attended any program that you think would be considered an alternative program for adults or a high school completion program for adults? IF YES: When you answered <MONTH, YEAR> in this question, were you thinking of this program for adults?*
- ***PA04b:*** *What does "alternative high school for teenage students" mean to you?*
- ***PA04c:*** *And "traditional high school"?*
- ***Usability Probes: UAO4c:*** *ANY ISSUES WITH MONTH/YEAR ENTRY?*

None of the respondents exhibited difficulty processing or answering this question. Because it only applied to those who did not have a high school diploma, it was only probed in a handful of cases. Those who did, thought the question was asking when they graduated or last attended.

Three respondents were asked about the meaning of 'alternative' high school. Two were able to define it ("schools willing to give you a second chance;" "for people who misbehaving or couldn't keep up.") and a third one said she was not sure what it meant.

No usability issues were observed regarding entry of month and year. One respondent went back to correct the month but had no issues doing so.

## A08




***Item-Specific Probes:***

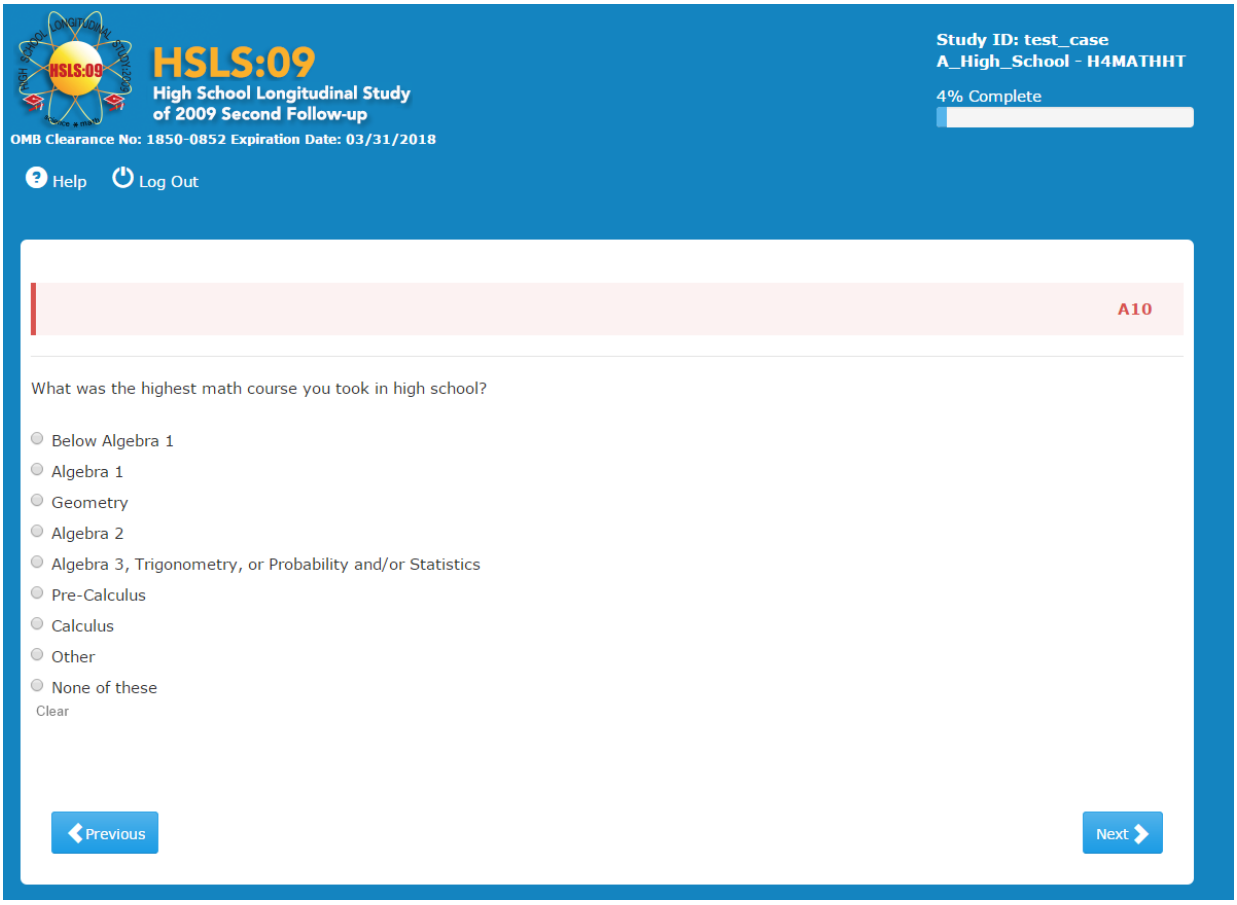
- ***PA08a:*** *How did you figure what to answer? IF NECESSARY: Did you answer based on your cumulative GPA?*
- ***PA08b:*** *IF YES TO GPA: Was that your straight GPA or was that after your school adjusted it based on the level of the classes you took?*
- ***PA08c:*** *Were your grades consistent throughout your high school year(s)?*

This question was probed in all but one interview. Respondents utilized various recall or estimation strategies, but all were able to answer. The vast majority gave their unweighted GPA; however, three said they had given a weighted GPA, one was not sure if it was weighted or unweighted, and one said his weighted and unweighted GPAs were the same. Finally, one respondent attended two different schools, one which weighted and one which did not weight grades, and the respondent said he considered both in answering.

While most respondents simply retrieved from memory their final GPA, others utilized different strategies to formulate a response. One respondent remembered her GPA was higher than 3.33 because she had a scholarship that required maintaining at least a 3.33 GPA. Three respondents could not remember the GPA so they gave their answer based on the letter grades offered in parentheses.

Some respondents had very consistent grades throughout high school while others did better some years than others and some were inconsistent within year. This made it more problematic when estimating. A respondent said he never looked at his GPA and instead "did a mental overview of my grades…that was the most recent average of my last two years." There was another respondent who only remembered his GPA from his sophomore year and senior years and picked a number in between. He added that he thought that he "low balled" his GPA in the process.

**A10**




***Item-Specific Probes:***

- ***PA10a:*** *Were you able to find an answer that worked for your situation? What other answers did you consider, if any?*
- ***PA10b:*** *How well does the answer you chose capture your situation?*

None of the respondents expressed difficulties finding a response while they were answering. During probing they explained their choices. Some were very straightforward, others required them to make a decision.

Two respondents selected 'Algebra 1,' one without difficulty and the other because it was "close enough." This respondent took "Algebra and Algebra extended" and felt 'Algebra 1' captured it best. Two respondents picked 'Geometry' without difficulty or substantial comments. Two of six respondents that selected 'Algebra 2,' did so without much need to consider. One other respondent remembered that in senior year she took a class called "College Algebra" and also remembered that it was sometimes called "Algebra 2" so she picked 'Algebra 2' from the choices offered. Another respondent was able to find an answer that fit and considered 'Algebra 3' but realized it was 'Algebra 2.' Another respondent was unsure of the level to choose, but after asking if the levels of math were ranked or in order on the list, the respondent picked 'Algebra 2.' Finally, the last one that chose 'Algebra 2,' made the point of saying that he started 'Algebra 3' but dropped out of high school before actually completing the class, and was thinking the question probably wanted the highest level completed.

Several respondents selected 'Algebra 3' without much hesitation. Two selected it because they took 'Trigonometry.' Another one took a class called "Advanced Algebra" so she picked 'Algebra 3,' because the class she took came after taking 'Algebra 2'; thus, she guessed this must be the right choice based on the list provided. Another respondent whose highest class was one that included some "smaller lessons" on pre-Calculus but, because he took it as part of Trigonometry, he choose 'Algebra 3, Trigonometry, or Probability and/or Statistics,' since these were the things his class was mostly focused on.

Four respondents selected 'Pre-Calculus.' None had difficulty making a selection.

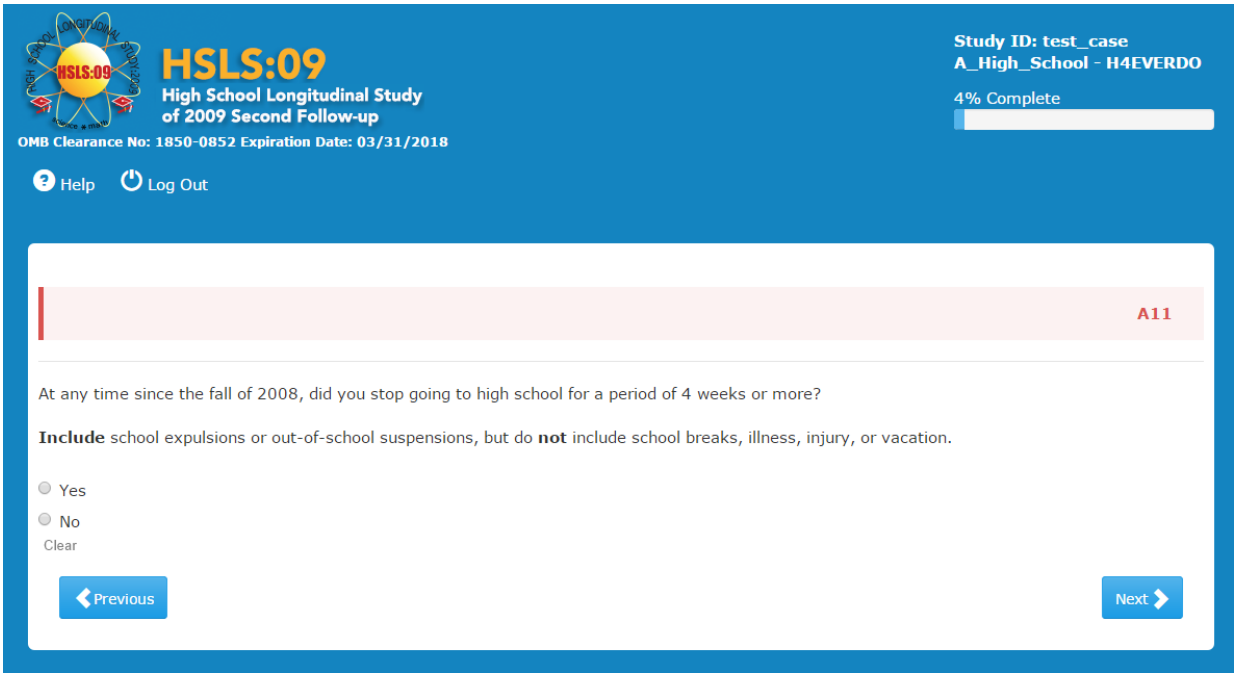
Among the seven respondents choosing 'Calculus,' 3 answered without issues. Another took AP Calculus and was looking for a choice specific to the level they took, but settled for 'Calculus.' However, one more in that situation chose 'Other,' and wrote in "AP Calculus."

Two more respondents selected 'Other.' One specified 'College Algebra' for his AP-level algebra course. The other wrote in that the highest math he took was Differential Equations.

Generally, other than the issues described above, respondents felt the list was comprehensive and was not missing anything.

No usability issues to report in this question.

**A11**




***Item-Specific Probes:***

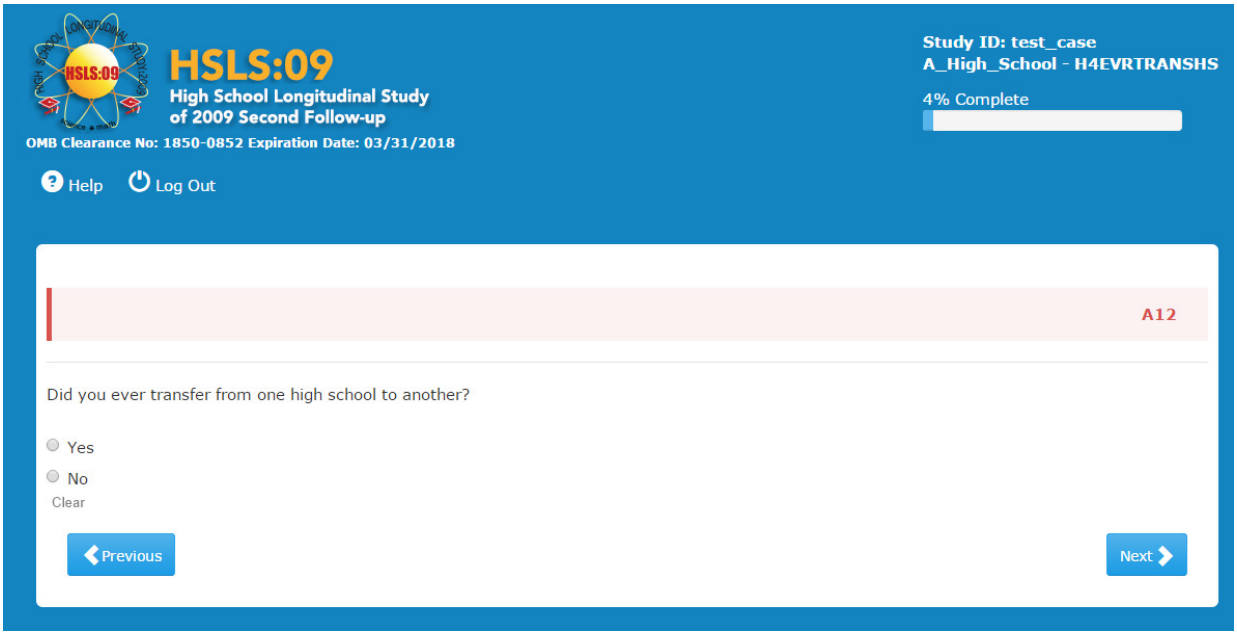
- ***PA11a IF YES:*** *Tell me about it. What kept you out of school?*
- ***PA11b IF NO:*** *Tell me about any time stayed out of high school during the school year for at least 2 weeks. IF SOMETHING REPORTED: How do you remember it was two weeks?*
- ***PA11c FOR BOTH YES:*** *What grade were you in? How do you remember that?*

All but one of the 40 respondents were asked the probes for this question. Of the 39, only one answered 'Yes' to the original question. The reason that kept him out of school for that long was that he was expelled.

Four other respondents would have answered differently if the reference period of this question had been two instead of four weeks:

- A respondent missed school for at least two weeks when he had bronchitis in junior year. He remembered it well because he was in the lacrosse team and tried to hide his illness so as not to miss any games.
- A respondent had a medical issue that caused her to be out of school for 3 weeks during her junior year of HS.
- A respondent was suspended for two weeks in the spring of 2009.
- A respondent missed two weeks of school due to surgery in 11th grade. She remembered the circumstances clearly.

**A12**




***Item-Specific Probes:***

- ***PA12:*** *What does the word 'transfer' mean in this question? Can you give me an example?*

Six respondents transferred schools during high school for different reasons, such as household moves, or switching from private to public school. This was an easily understood question, and there was only one respondent who was not sure about how to answer. He asked the interviewer if the question was "referring to a mid-year transfer or just going to another high school the next year?" The respondent was thinking about the fact that he attended private school for first two years of high school and then switched to public school for the last two years of high school. He wanted to make sure this counted as a transfer as opposed to just changing schools.

For another respondent, "transferring" in high school means having to move with your family and implies lack of choice for the student. By contrast, in college, he thinks of transferring as when you choose to leave a school to go to a different one.

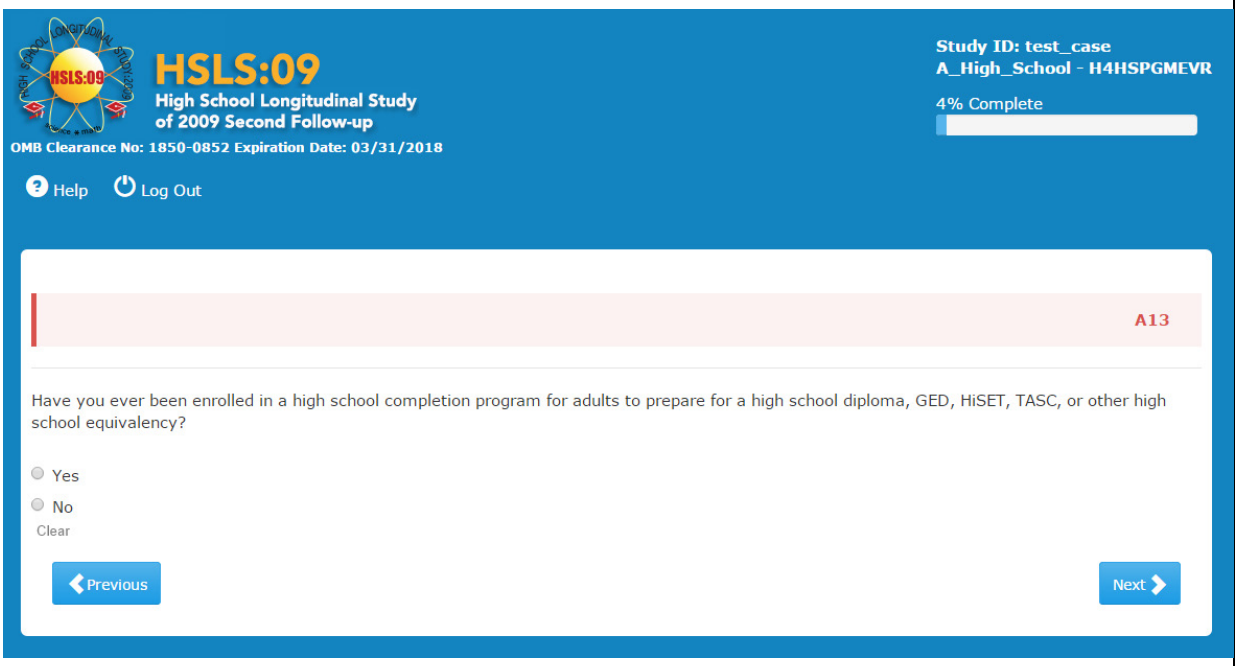
All others provided definitions of transfer that evidenced clear understanding:

- "moving schools in the middle of the year;" "a move from one high school to another"
- "permanently leave your high school to attend another one"
- "transferring your credits to another high school, for reasons such as moving to a different town"
- "to switch schools"

- "completing different semesters at different high schools"
- "It's when you have your transcript sent to another school that you now attend"
- "you spend some time at one school and then you move or something happens and you go to another school"

No usability issues in A12.

**A13**



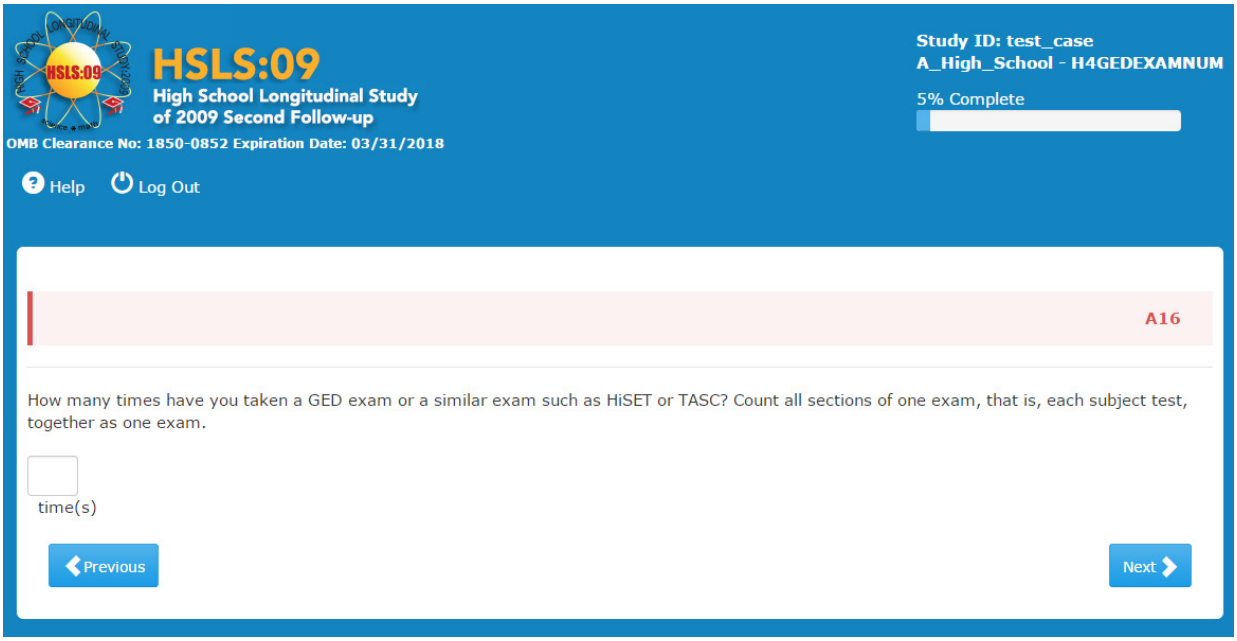

***Item-Specific Probes:***

- ***PA13:*** *What do you think they mean by "a high school completion program for adults." Have you ever heard of a program like that? Where would these programs be held?*

Most respondents were skipped out of this question based on prior answers. Six that answered it were probed on the meaning of 'a high school completion program for adults.' All mentioned the GED in their response and said classes can be offered at a high school or at a community college.

No usability issues observed.

## A16




***Item-Specific Probes:***

- ***PA16a:*** *"How did you come up with your answer?"*
- ***PA16b:*** *Were you familiar with all of these tests? FOR ANY YES: Tell me about them.*
- ***PA16c:*** *What type of tests did you take?*
- ***PA16d:*** *Were there any tests that you were unsure of whether you should include?*
- ***PA16e:*** *Did you include or exclude them and why?*
- ***PA16f:*** *Did you count each subject test separately or together as one test? Why?*
- ***PA16g IF COUNTED AS ONE TEST:*** *If you were instructed to count each subject test separately what would be your answer?*
- ***PA16h:*** *Did you ever retake a test or a subject test? If so, how did you count that?*
- ***PA16i:*** *Did you ever take parts of the exams at different times or different days?*

Five respondents indicated they had taken the GED. However, the first of these had in fact only taken a GED pretest exam but not the actual GED exam.

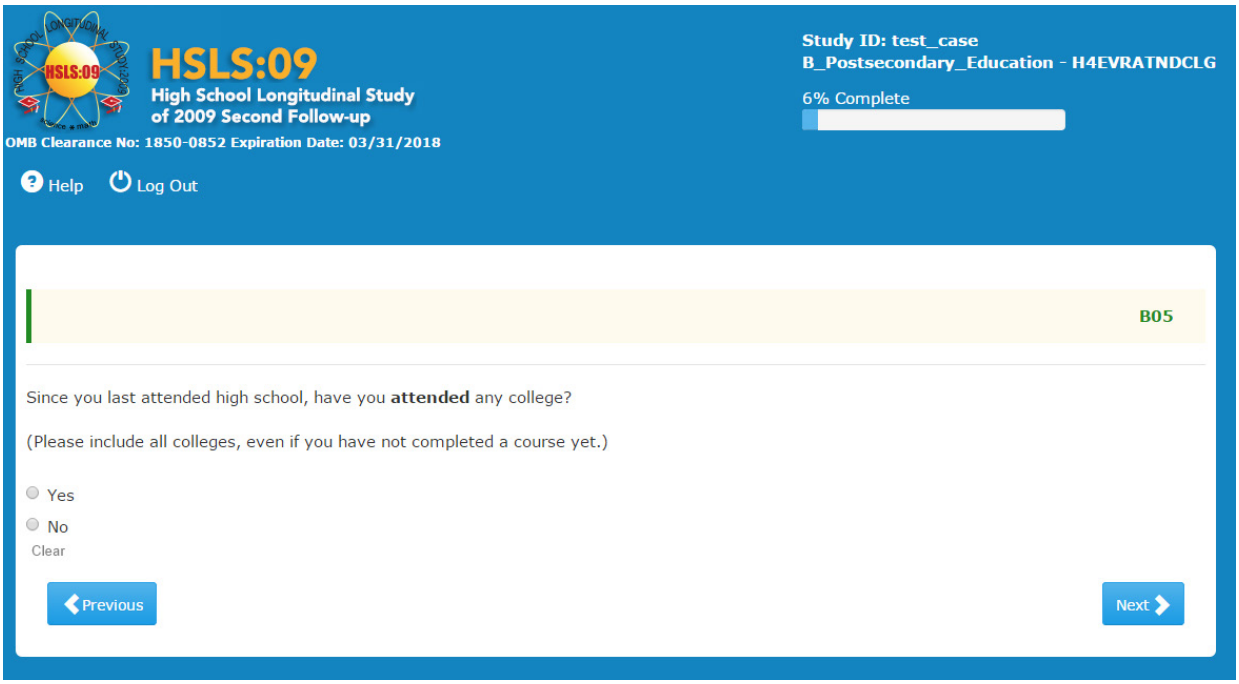
Two respondents said they took the exam once. In both cases they noted in probing that the test was divided into sections with breaks in between, but that they saw it as a single test.

One respondent said he took the test three times. This respondent also counted the sections as part of a single GED test and noted that the subject tests were spread over multiple days but that they were a single test. To determine his answer, he thought about how many times he took GED preparation programs.

A final respondent said he took the test four times. Unlike the others, this respondent counted each of the four sections as an individual test. Since he had taken two sections each day over two days he came up with his response of four. However he also noted that he had to take section tests multiple times but counted each one only once.

No usability issues observed.

**B05**




***Item-Specific Probes:***

- ***PB05a:*** *IF YES: What were you thinking of? Tell me about the college you attended? PROBE TO UNDERSTAND IF COLLEGE PROGRAM, ISOLATED CLASSES, DEGREE/non-DEGREE, OR ADULT ED CLASSES TAUGHT IN A COLLEGE ENVIRONMENT.*
- ***PB05b:*** *What do they mean by "college" in this question? What other kinds of schools could they also mean?*
    - ***IF NECESSARY:*** *Would you say yes if you had attended a technical institute?*
    - *What about a trade school?*

Although the introduction to the post-secondary section defines what the survey considers college, many respondents either did not read the definition or did not retain it. Nineteen respondents said they would include colleges, technical/vocational and trade schools in their answer. They felt the question meant to include "anything postsecondary, including technical or trade school," "anything higher than high school," "any enrollment in any program after high school." One respondent clicked

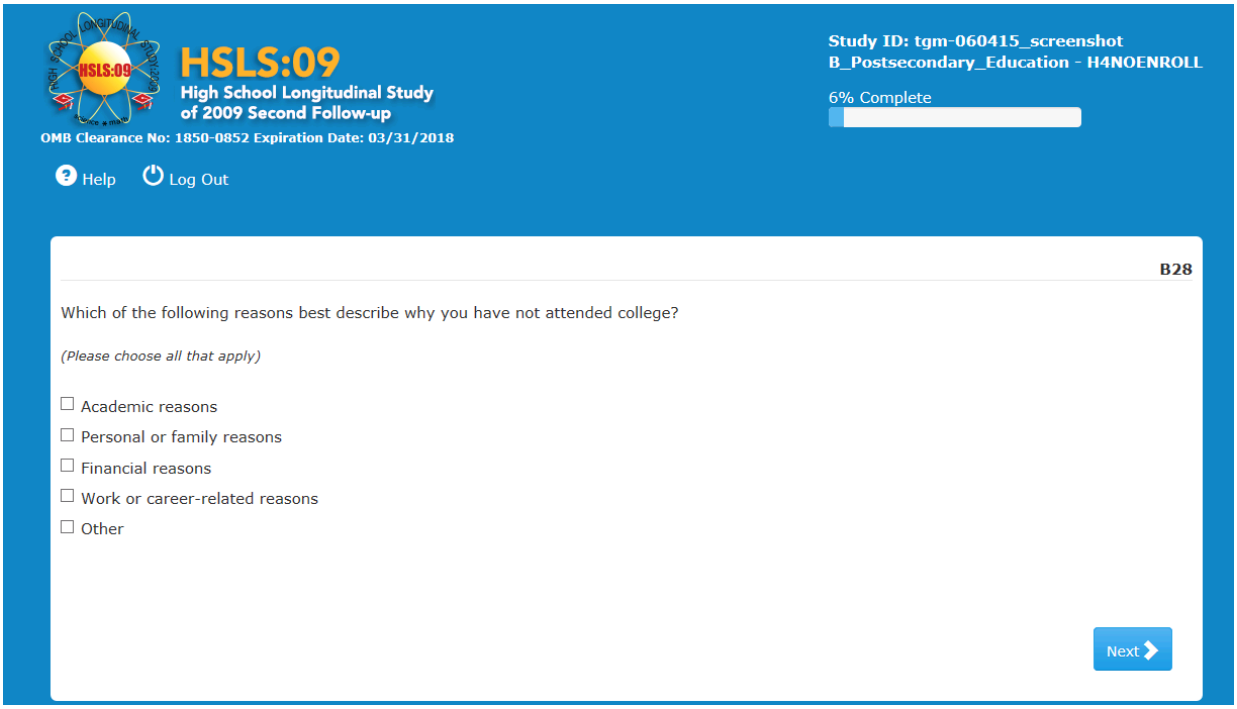
'Yes,' thinking about culinary school and Job Corps training. About five respondents mentioned the definition at the beginning of section B.

The other 21 respondents did not believe that 'college' includes everything in the definition, in particular, some did not think it includes technical school, and many did not think it includes trade school: "any school after high school...except like obviously some music class or something wouldn't count; trade school sounds more like training to me." One respondent specifically said that if the survey wanted to include a trade school the question itself should say "college or trade school."

One respondent did not know what trade school is. Another one stated she did not know too much about either technical schools or trade schools, and a third one seemed fuzzy on the concept.

One respondent answered 'No' in error, and was routed down the wrong path for their situation. The interviewer noticed and made the respondent back track and correct the answer.

**B28**



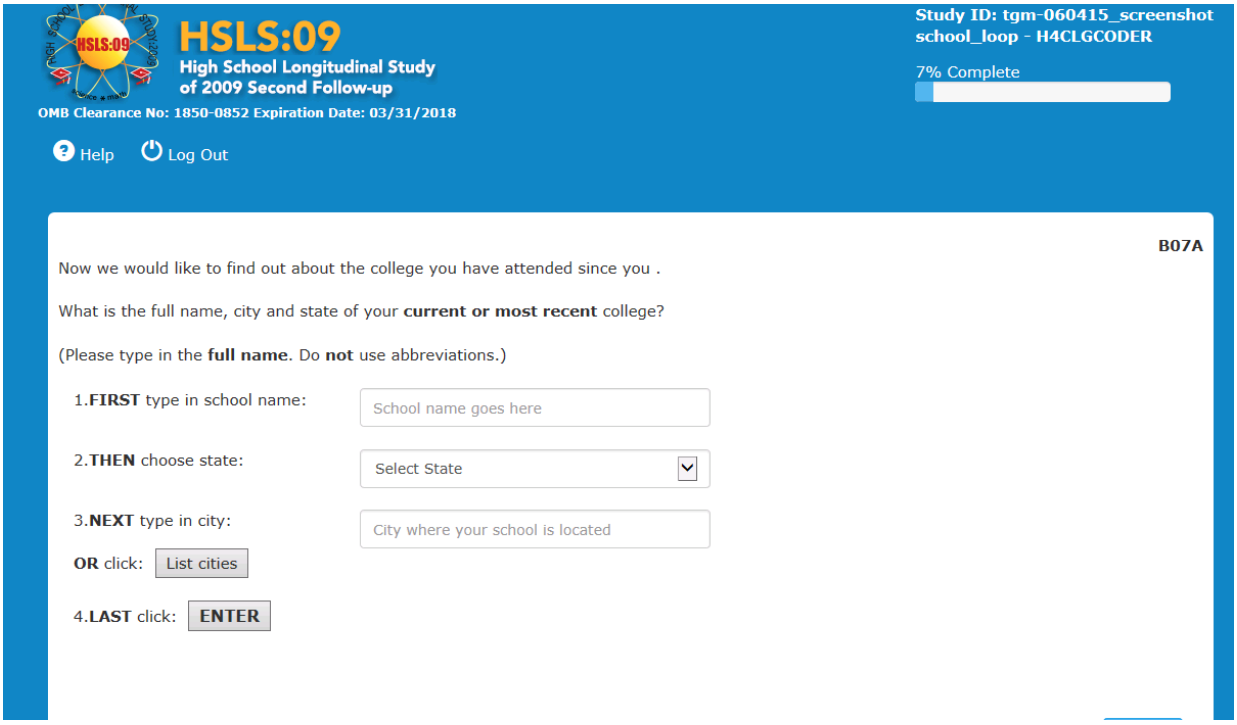

***Item-Specific Probes:***

- ***PB28, 29, 30, 32a:*** *I noticed in the survey you said that you [did not attend college/took a break after high school/left one college to enroll in another/no longer are attending] due to [REASONS].*
- ***PB28, 29, 30, 32b:*** *Tell me about what led to that decision? GET NARRATIVE REASONS.*
- ***PB28, 29, 30, 32c:*** *Did the reasons offered in the survey adequately cover your situation? Tell me more about that.*

Three respondents were asked probes in this question. Two respondents selected 'Financial reasons.' One of them explained that an uncle had offered to pay for college but a feud in the family prevented it; he felt no other option applied to the situation. The other explained that, because of previous choices he made in life, his parents would not support him financially in going to college. He considered also picking 'Personal or family reasons' but ultimately decided that 'financial reasons' covered it adequately. He commented that he liked that those were separate categories.

Finally, the third respondent selected 'Personal or family reasons' and 'Financial reasons'; he explained that he did not have the money and "I grew-up by myself, didn't have a mom and dad to help me out."

**B07A**




***Usability Probes:***

- ***Potential usability issue** -- DID R HAVE TROUBLE FINDING "ENTER" – probe specific issue and if R had expected something different if not clear.*

### Usability/Cognitive

Most respondents had no difficulty in this question. They entered their school name and found it on the list. They clicked 'Enter' to continue. One respondent did comment that it was odd to have the 'Enter' button. Another respondent said she was not sure why she needed to click on 'Enter,' and then on the arrow, but as soon as she clicked 'Enter,' she understood why. Another respondent thought it might be difficult to find the school on the list or to trigger the right names on the list, for persons who attended schools where the names are often abbreviated in different ways.

For one of the respondents, the system froze after she entered her school, but she hit Refresh and it was resolved.

Four respondents had issues with finding the right college in the listings of schools.

After typing in the name of his college, a respondent was unsure if he should select the main college campus (CITY2) that came up because, "There are two campuses:

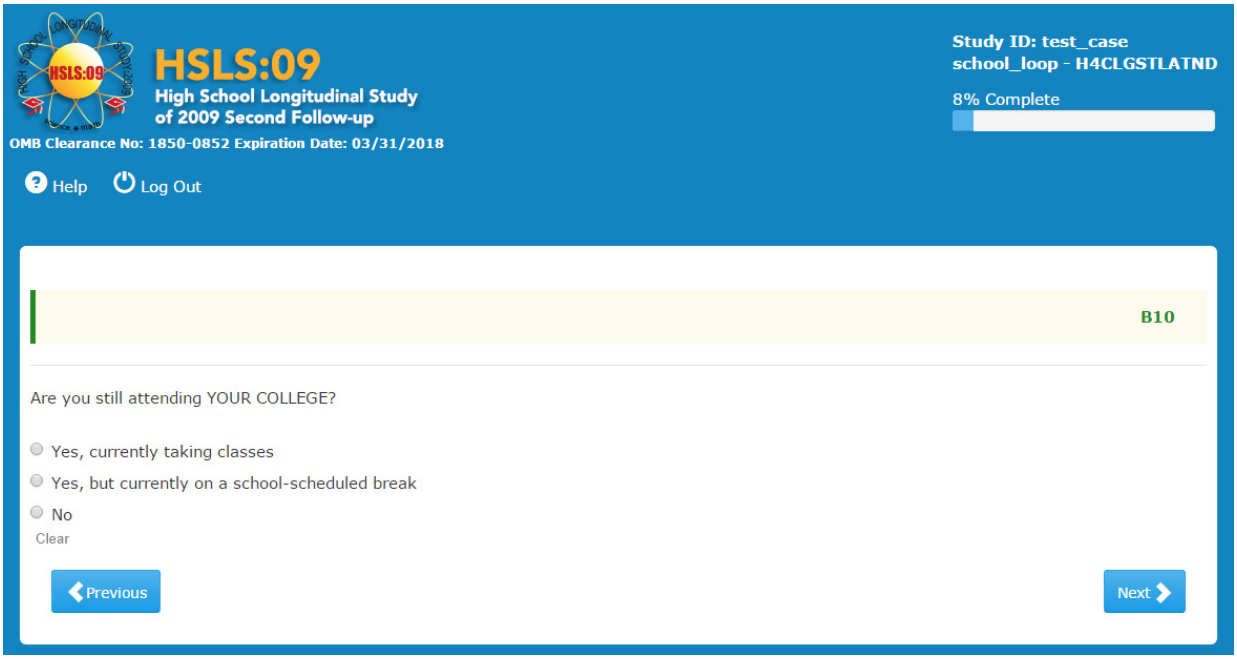
the one in CITY1 and the one in CITY2 and they don't have my campus (CITY1) listed here." He eventually decided to go ahead with selecting the only option because, "It's the same institute, but like....different locations."

A second respondent typed in his school but could not find it in the list, so he selected 'None of the above.' [Interviewer note: This was a large community college; however, the screen was hard to see and it was not clear if he had mistyped the school name].

A third respondent was not sure which city his school was located in, he clicked 'List cities' and scrolled through trying to find the right city. He noted there were too many cities to figure it out but finally did find it and clicked 'Enter.'

Finally, a respondent typed in the name of his college, a large public university with a geographical name. The selection box that popped up listed four colleges with very different names and all from a neighboring state (it is possible he entered the wrong state abbreviation and the interviewer did not notice.) The respondent hit 'Next' and continued to the next screen. When probed, he said he thought the list was "what if you didn't mean this college" (the one you typed in) to consider a different one; since he had meant his original college, he did not review. He did not see the 'None of the above' option. The options on the following screens (without the correct school) did not have the option 'four year public.' The respondent had seen the help screen 'keep option or go on' as if you want to keep what was originally typed, rather than a selected school.

**B10**




***Item-Specific Probes:***

- ***PB10a:*** *What do you think they mean by school-scheduled break here?*
- ***PB10b:*** *What do you think they mean by taking classes here?*
- ***PB10c:*** *Let's say you are in a program where all the classes are online. How would you answer this question?*
- ***PB10c:*** *Let's say you are in college and are currently doing a semester abroad. How would you answer this question?*
- ***PB10d:*** *Let's say all you are doing this semester is an internship for school credit. How would you answer this question?-*
- ***PB10e:*** *Let's say you are doing an independent study or working on a research project for credit. How would you answer this question?*
- ***PB10f:*** *If the question asked: Are you still enrolled at [post-secondary institution]? How would this question be the same or different from Are you still attending [post-secondary institution]?*

For the vast majority of the respondents, a 'school-scheduled break' was a summer break or time between school terms, and even a few mentioned holidays, or 'time when school is not in session.' However, a few saw it differently. One respondent who is not currently enrolled and is taking a break from school but has the option to return, answered 'on school-scheduled break' because he chose to leave and planned it. One respondent defined the break as possibly including "a leave of absence." Another defined the break as "being on probation." Another brought up the notion of deferment to define a school-scheduled break. Three respondents considered internships, research projects, and independent study as school-scheduled breaks.

One respondent on summer break first answered the first option, but when she saw the second one, she changed her answer. She appeared confused and asked the interviewer whether she was answering correctly.

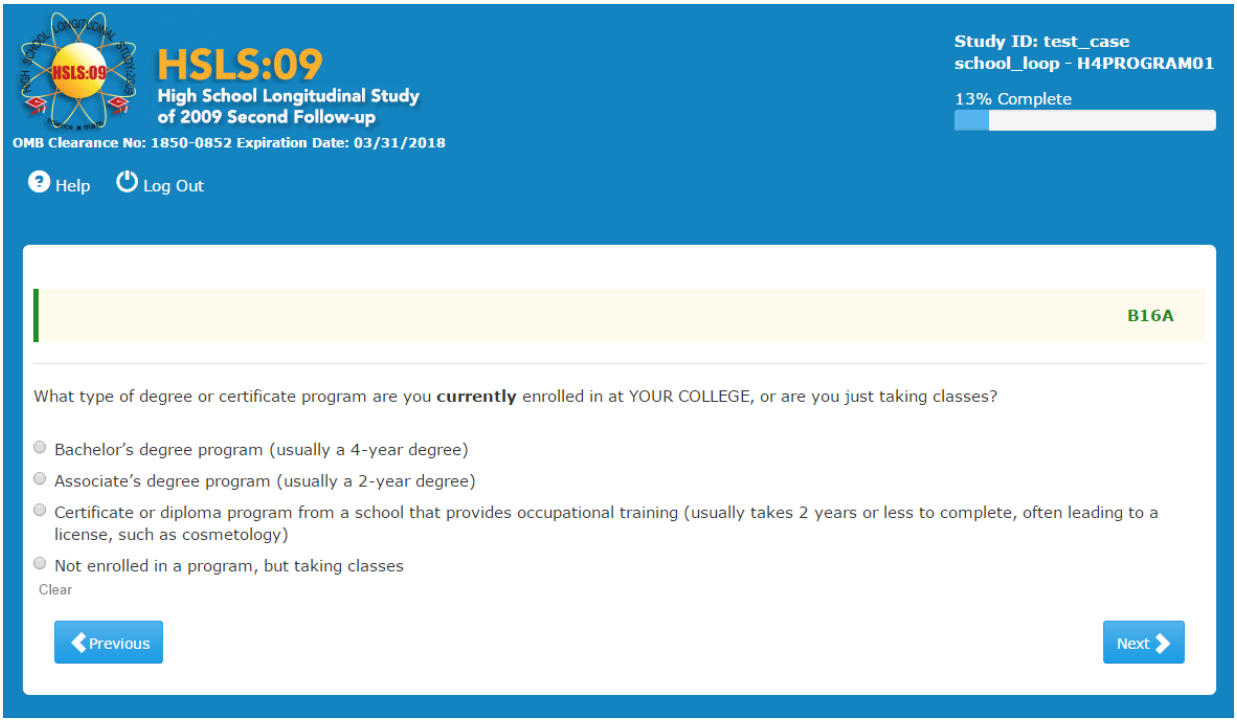
Most respondents interpreted 'taking classes' as being enrolled and doing something for which you get credit. For them, taking classes does include going to class in person, taking online courses, and doing a semester abroad. Internships and independent study were not as clear cut for some respondents, because there is no classroom environment involved.

For several respondents, you can be enrolled in a program but not necessarily taking classes at the moment. For instance, you are in a program but are taking a semester off. However, you have the option to return after a break. Enrolled would also include internships, independent study, semester abroad, as well as classes (in person or online), or doing a research project for credit. One respondent explained that at her community college, if a student does not take any classes for three years, they need to re-enroll. For a few, enrolled and attending mean the same.

**Usability:**

In one case, the question loaded so slowly that the respondent had to answer it twice. (case 69990203)

**B16A**




***Item-Specific Probes:***

- ***PB16Aa:*** *Tell me what you were thinking when you answered this question? INTERVIEWER, IF R ANSWERED 4, PROBE TO SEE IF R WAS TRULY* ***NOT ENROLLED.***

R answered that he was "not enrolled in a program but taking classes" because he is just taking classes but has not figured out what kind of degree he can get or the requirements for graduating. He added that he "is not on a pathway of classes towards a degree." Two respondents expected a more specific set of answers. Both were in BFA programs and ended up choosing B.A.

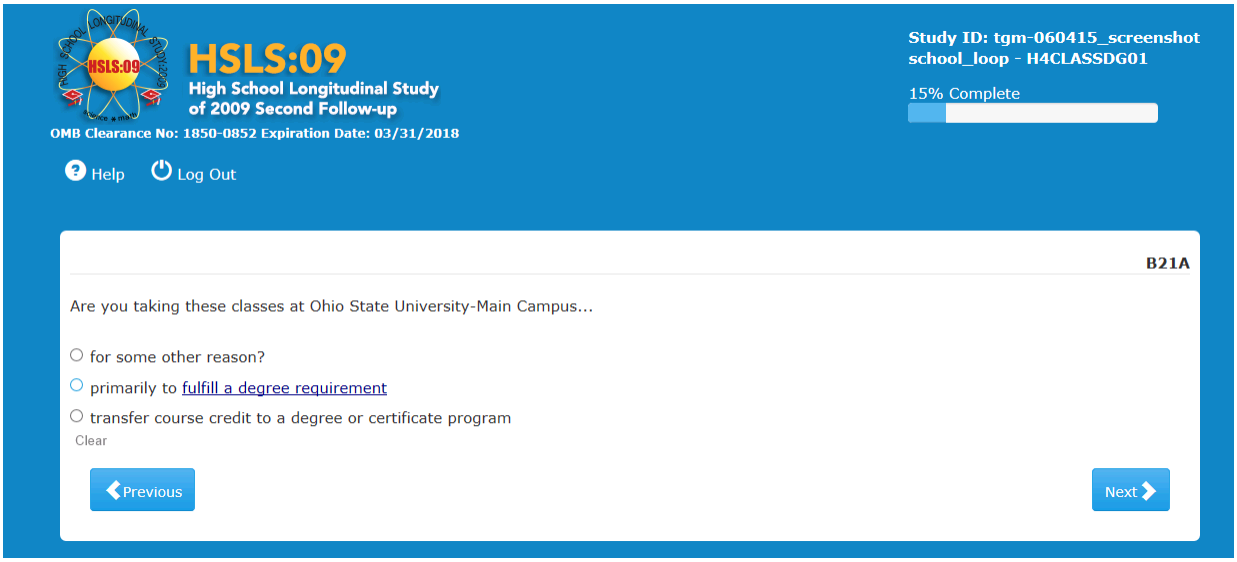
A respondent who is in an Associate's Degree program but now on summer break, was hesitant to answer because she will not actually be enrolled until the fall.

While a majority of respondents were able to answer the question as intended, there were five respondents for whom this question was problematic in some way:

- A respondent not currently enrolled and not taking classes answered 'Not enrolled in a program, but taking classes,' because he found no better choice. He answered "No" when asked if he was still attending the college he named. He had taken a psychology class in the past, but was never enrolled in any type of program.

- A respondent enrolled in a dual BA/MA program where she had just completed and received a bachelor's degree and is now continuing toward the master's at the same school and in the same program. This respondent was confused with the instrument since she is both currently enrolled and has graduated. She would have wanted to select 'in Graduate program' but that was not an option. She chose 'Certificate or diploma program...' because of the mention of occupational training, given that her master's program is for an occupation leading to a license. She recognized that this choice didn't really fit and that it was intended for 'trade school,' but it was a better fit than the others. [After continuing through several questions after this one that did not fit her situation she went back and clicked that she is currently completing her bachelor's --even though she already has-- just so she could get through the section.]
- A respondent who is currently doing an internship for an MA found no response choice that suited her situation. She selected 'Not enrolled but taking classes' because she thought it was the best option.
- A respondent who had already graduated said that she would answer the question as if she were in residence taking classes.
- A respondent who was taking classes to fulfill his general education requirements before moving from a 2-year college to a 4-year university answered 'Associate's degree.' He said he was first going to answer 'Not enrolled in a program but taking classes,' but "when I thought about how long I was going to stay there, that made me choose 'Associate's degree program.'"

## B21A




***Item-Specific Probes:***

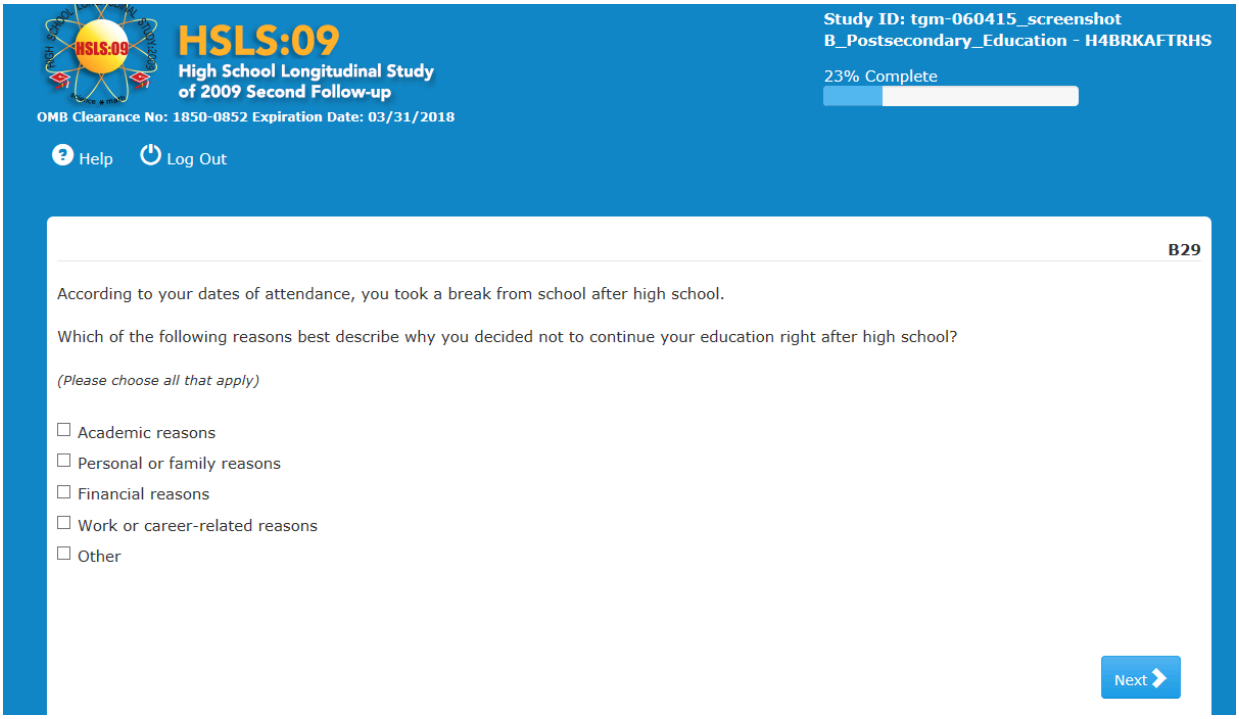
- ***PB21Aa:*** *Tell me more about your answer.*
- ***PB21Ab:*** *Did you have any hesitation as to what answer to select?*
- ***PB21Ac:*** *What do you think they mean by a degree requirement here?*
- ***PB21Ad:*** *What do you think is the difference between the first and second response choices?*
- ***PB28:*** *Which of the following reasons best describe why you have not attended in college?*

Only a couple of respondents were probed on this question. One of them chose the first option because he did not take this class for any particular reason; he just wanted to get a "feel" for college. Another respondent chose "degree requirement" because her goal is not to "take classes just to take classes;" she is working towards a Master's degree.

**Usability:**

One of the respondents brought up the HELP screen to find a definition of requirements. She said it was not really helpful for making an answer selection. She was anticipating the HELP screen would tell her if the question was asking about general requirements or major field requirements and it did not tell her that. (case 69990211)

**B29**

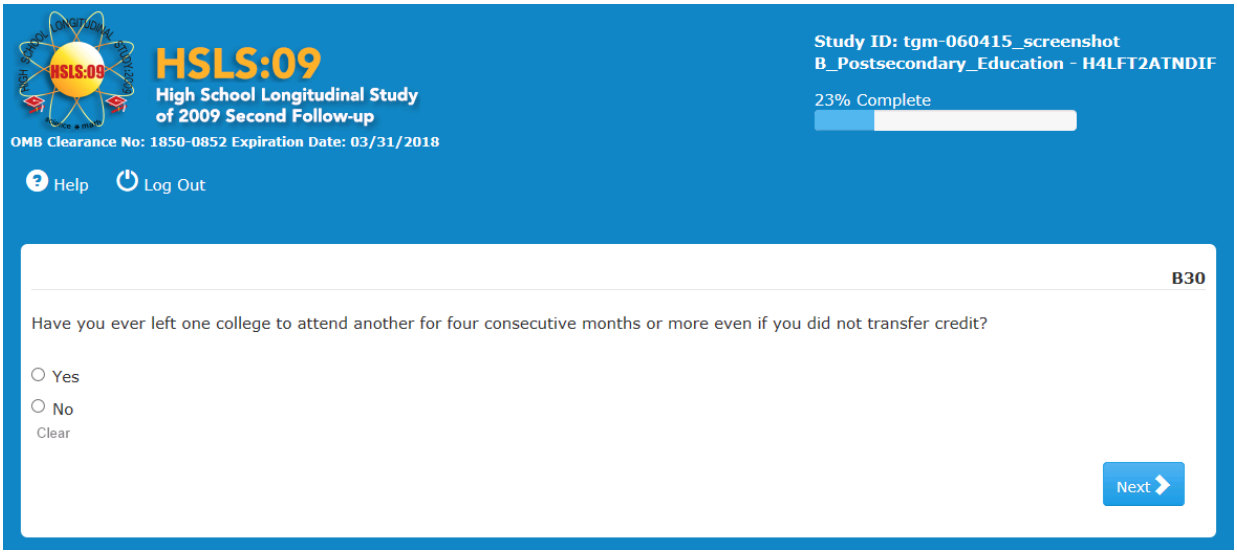



***Item-Specific Probes:***

- ***PB28, 29, 30, 32a:*** *I noticed in the survey you said that you [did not attend college/took a break after high school/left one college to enroll in another/no longer are attending] due to [REASONS].*
- ***PB28, 29, 30, 32b:*** *Tell me about what led to that decision? GET NARRATIVE REASONS.*
- ***PB28, 29, 30, 32c:*** *Did the reasons offered in the survey adequately cover your situation? Tell me more about that.*

This question was not probed for any case.

**B30**




***Item-Specific Probes:***

- ***PB28, 29, 30, 32a:*** *I noticed in the survey you said that you [did not attend college/took a break after high school/left one college to enroll in another/no longer are attending] due to [REASONS].*
- ***PB28, 29, 30, 32b:*** *Tell me about what led to that decision? GET NARRATIVE REASONS.*
- ***PB28, 29, 30, 32c:*** *Did the reasons offered in the survey adequately cover your situation? Tell me more about that.*

Respondents who transferred from one college to another had no difficulty clicking 'Yes' to this question. For instance, one respondent clicked 'Yes' since she transferred schools, given that the program she was in was not well developed and the school was located in a city with few opportunities.

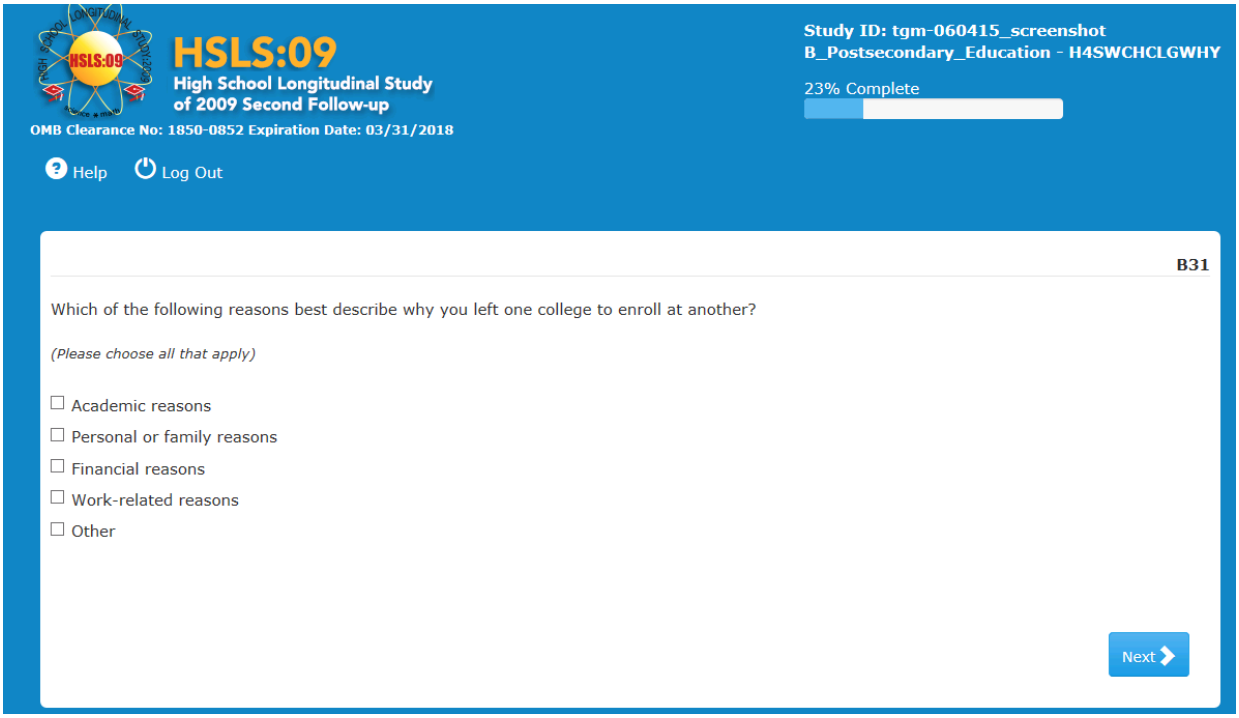
One respondent who clicked 'No' was probed about his situation. The interviewer asked, based on his prior answers, why switching from his community college to the state university did not qualify for a 'Yes' response. The respondent explained that he had been in a special program where if a student did well at a community college near the state school, they automatically moved him over, and the community college would not even appear on the student's transcript. Thus, he did not think he should answer 'Yes.'

Two respondents who changed schools but did so when they graduated from college and started at a graduate program elsewhere, were not sure about how to answer. Two other respondents appeared confused about the question. One was able to process it and answer after re-reading. The other clicked 'Yes,' but upon probing she

indicated she was confused about what the question was asking: "I thought of classes not counting to how soon I would graduate. Or now I'm thinking it's whether you transferred or not." She then said she did switch from one community college to another because of bad experiences with professors.

**Usability**: No issues observed.

**B31**




***Item-Specific Probes:***

- ***PB28, 29, 30, 32a:*** *I noticed in the survey you said that you [did not attend college/took a break after high school/left one college to enroll in another/no longer are attending] due to [REASONS].*
- ***PB28, 29, 30, 32b:*** *Tell me about what led to that decision? GET NARRATIVE REASONS.*
- ***PB28, 29, 30, 32c:*** *Did the reasons offered in the survey adequately cover your situation? Tell me more about that.*

Only one of the respondents missed the instruction indicating that multiple answers can be selected. The rest either chose multiple responses or at least indicated they saw one could do that. One respondent chose all answers except for 'other,' since he felt they all partly covered his situation.

Generally respondents felt their situation was adequately covered in the available response choices. One, for example, answered he left one school for another due to

financial reasons: he transferred to a less expensive college, closer to home. Another one who picked the same response, cited higher costs than she had expected.

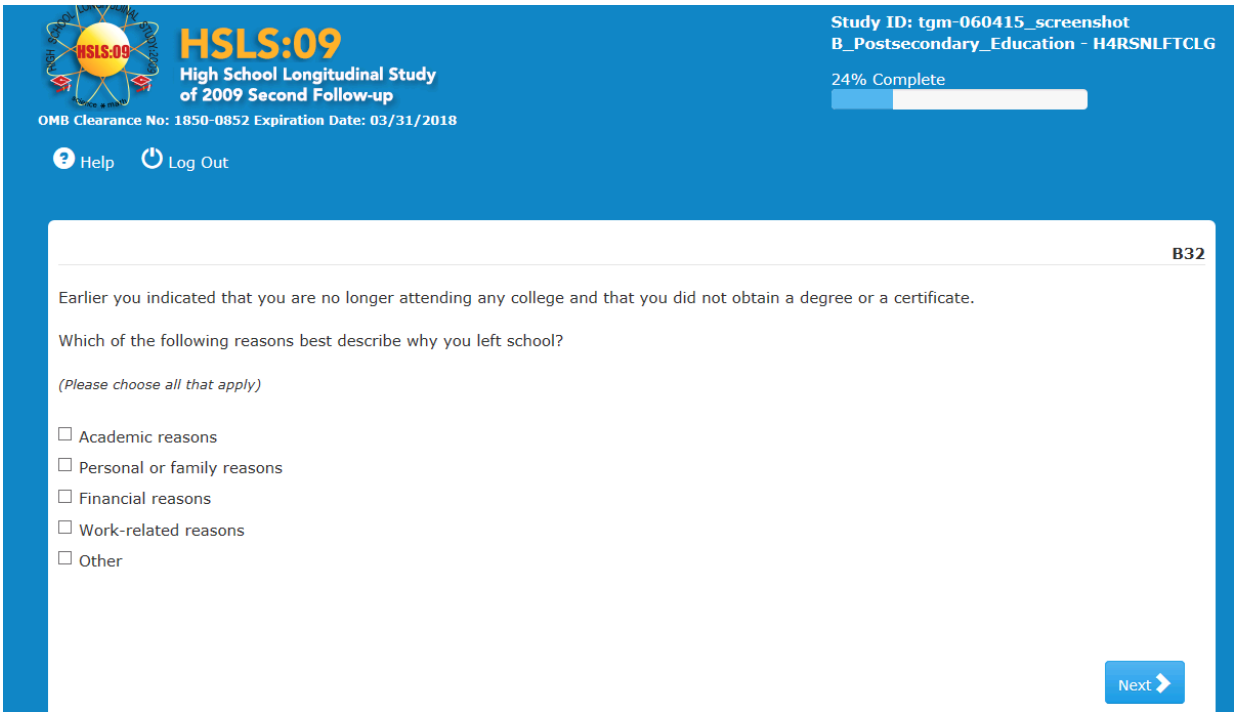
Two respondents chose 'academic reasons.' One of them, for example, transferred because she was moving on from her AA degree to study for her BA.

Finally, one respondent picked 'other' and wrote in her answer, but the interviewer did not probe.

**Usability:**

The respondent who was enrolled in an M.A. program and answered 'taking classes' at question B16A, for lack of a better option, was routed to this question but did not feel it applied to her. She answered 'other' to move on. She did not realize she could have left questions blank that did not apply to her.

**B32**




***Item-Specific Probes:***

- ***PB28, 29, 30, 32a:*** *I noticed in the survey you said that you [did not attend college/took a break after high school/left one college to enroll in another/no longer are attending] due to [REASONS].*
- ***PB28, 29, 30, 32b:*** *Tell me about what led to that decision? GET NARRATIVE REASONS.*
- ***PB28, 29, 30, 32c:*** *Did the reasons offered in the survey adequately cover your situation? Tell me more about that.*

Two respondents answered these probes. One of them felt that the choices offered did not cover what he was thinking. Under 'Other,' he entered "Did not need the classes to achieve my goals."

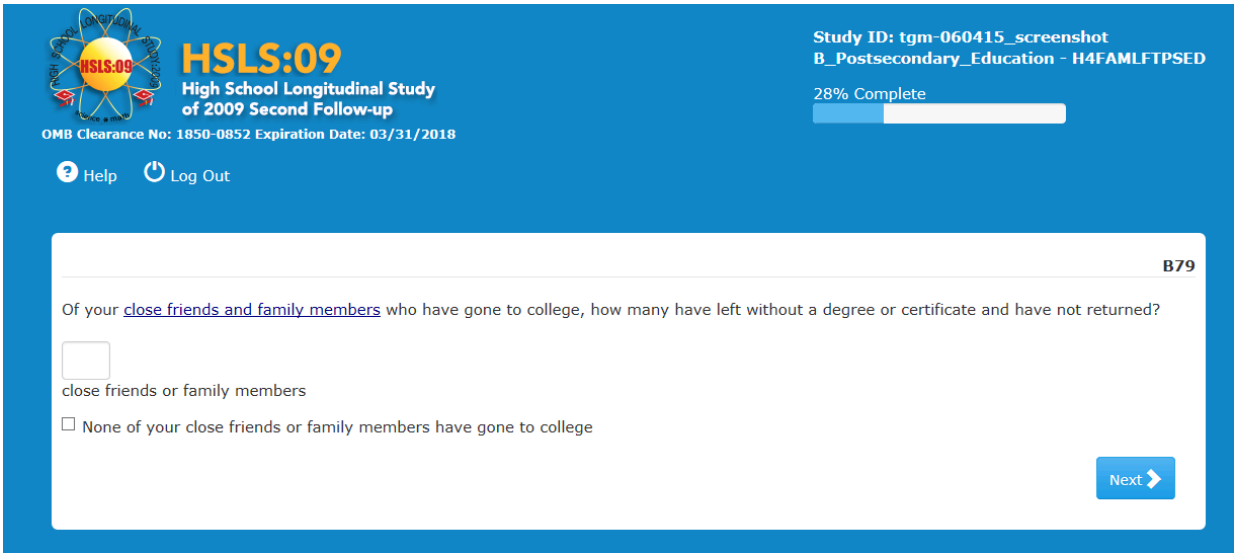
The other respondent thought the options given were sufficient for him to make a choice. He answered that he was no longer attending school for both personal/family and financial reasons, explaining that he did not have a lot of support/guidance from his family and that he was going to school on his own.

**Usability:**

The respondent who answered 'Other' had to shorten his answer and could not list all the reasons he wanted because the write-in form only allowed him to type in a few characters. This respondent was using a laptop.

A respondent tapped 'Select/Unselect All' instead of 'Continue' to leave the screen on his Android HTC1 smartphone.

**B79**




***Item-Specific Probes:***

- ***PB79a:*** *How did you figure your answer?*
- ***PB79b:*** *Tell me about the situations of the people you counted.*
- ***PB79c:*** *When you answered the question, whom did you include as close friends or family members in your thinking?*
- ***PB79d:*** *Were there any people you were unsure of whether or not to include?*
- ***PB79e:*** *Did you include them or exclude them and why?*

Respondents utilized different strategies to provide an answer. Some counted and some estimated. One respondent entered '0' because everybody says they will return to school at some point. The responses were as high as 15.

Generally they focused on nuclear family plus members of the extended family they maintain contact with. One respondent was not sure if a step-father should be included. As far as friends, while some kept the number down and included their innermost circle only, others seemed to include a large group of friends. A couple of respondents decided to answer only about close family and not get into their "friends' business."

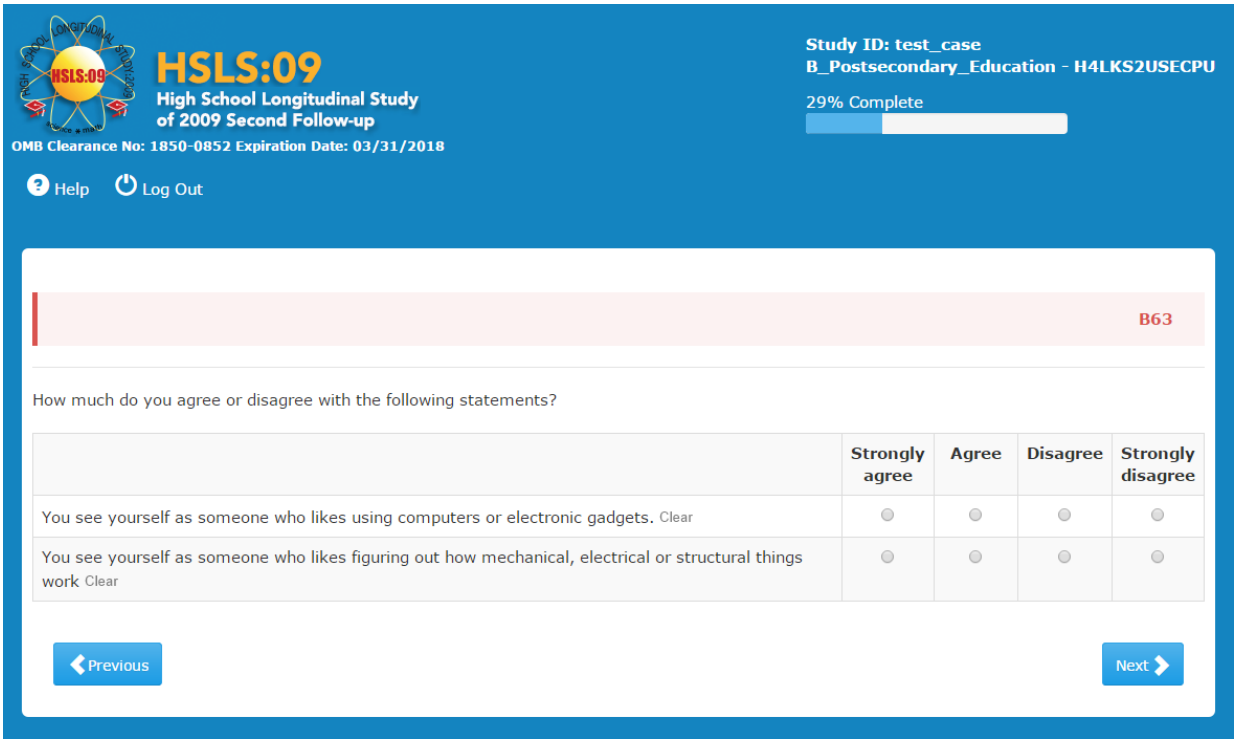
For respondents who know many people who dropped out of college or who have large groups of close friends and family, this seemed like a time-consuming, hard-to-answer question. A few others commented on the fact that it is difficult to keep track over time if someone who had dropped out is now back in school.

Respondents described a variety of reasons why their family and friends left school without graduating. These included financial reasons and mental health issues.

There were a few confusions. Two respondents misread or misinterpreted the question. One thought the question asked about those who had attended college or gotten a degree. The other thought the question asked who had "left with a degree." Two others had to read the question multiple times to be sure what was asked. A fifth respondent selected 'None of your close friends or family have gone to college,' when he really meant none had dropped out.

**Usability:** No issues observed. One respondent clicked on 'close friends and family members' and was successful in getting a definition from the help text.

## B63




***Item-Specific Probes:***

- ***PB63a.*** *Tell me more about your answer. IF AGREED OR STRONGLY AGREED TO COMPUTER ITEM: Do you think of yourself as a 'techie'?*
- ***PB63b.*** *Tell me more about your answer.*

Most respondents when asked about their answers said that they agreed because they like using their devices, however both those who saw themselves as a 'techie' and those that didn't said that a 'techie' likes figuring out the devices, fixing them, learning about them or being interested in the future and future technology. Of the 32 respondents who were asked if they see themselves as a 'techie' 19 answered no. Only one respondent disagreed with both questions, he noted that he grew up without computers or gaming systems in the home. No one who disagreed with question B63a, agreed with B63b however four people did agree with B63a but not B63b. One person noted that he sees 'structural' as different than 'mechanical or electrical' since 'structural' can refer to things like music and as a songwriter he likes that. He, along with two other people commented they wanted a third 'neutral' option.

**Usability:**

Four interviewers reported that the system was running slow.

On all smartphones, grids such as the four column grid in B63 and the five column grid in B38 required scrolling right when the device was held vertically. Interviewers reported that only the first two columns 'strongly agree' and 'agree' were visible on a vertically held smartphone screen with 'disagree' and 'strongly disagree' only visible after scrolling right. In addition, the formatting of the instrument on the smartphone for all questions was a dark blue/green border surrounding a white field with black text. When a respondent needed to scroll to the right, the white field did not travel to the additional response options. Instead, the remaining response options were seen as black text on the dark blue/green background field, similar to what one would see after highlighting text.

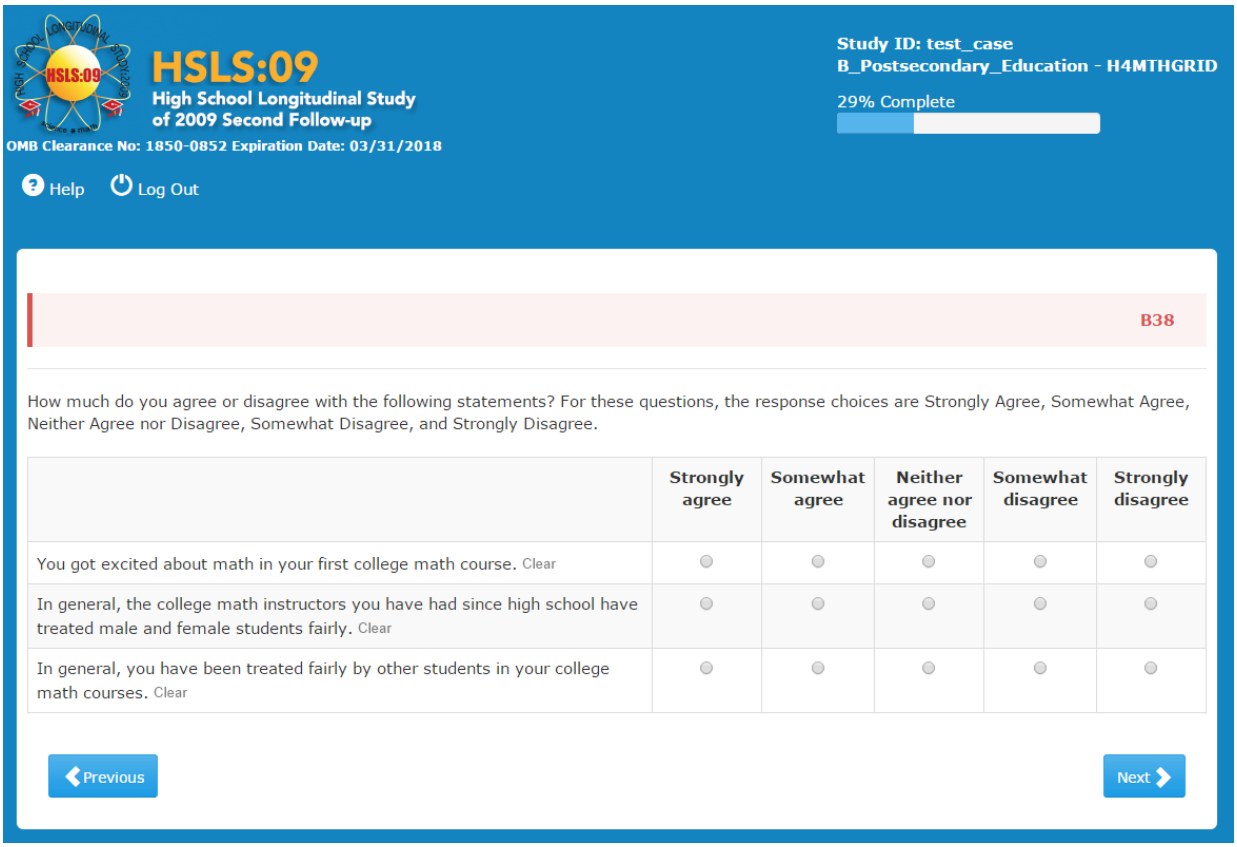
Despite the need to scroll, respondents generally did not rotate their smartphone to landscape view. Interviewers reported that almost all respondents maintained a vertical orientation and scrolled right for additional response categories. Two interviewers reported that 1-2 respondents held their phones either some or all of the time in landscape view.

On tablets, interviewers reported that scrolling was not necessary on some devices but necessary on others, however models requiring scrolling were not identified. Interviewers reported that most respondents held their tablets horizontally throughout the interview, one interviewer said two respondents held their tablet vertically. None reported that the tablet was turned (orientation switched) during administration.

For interviews administered on laptops, the horizontal orientation allowed all response options to be visible for all questions.

One respondent who had kept her phone vertical, was asked if she thought of turning her screen horizontally to see all answer categories, she said she had not considered doing that. She then turned her phone and saw that she could see all columns and thus all response categories; however, on all remaining questions she continued to hold the phone vertically and scrolled right to see the remaining response categories. This respondent was also asked in B38 if the blue/green dark field with black text was a problem and she responded that it was not (see B38).

**B38**




***Item-Specific Probes:***

- ***PB38a:*** *What do you think they mean by 'treated fairly' in this question?*
- ***PB38b:*** *What situations did you consider when you answered? Can you give me some examples?*

All respondents seemed to understand this question as intended. The term 'treated fairly' was described as without bias or favoritism, being graded the same; having equal time and attention in discussion and in the individual attention the teacher provides. Examples of being 'treated fairly' or not included showing bias, gender stereotyping, thinking boys (or girls) were better in a subject and showing favoritism to one's own gender. The only student who said treatment was different noted that the teacher gave the males more freedom to speak.

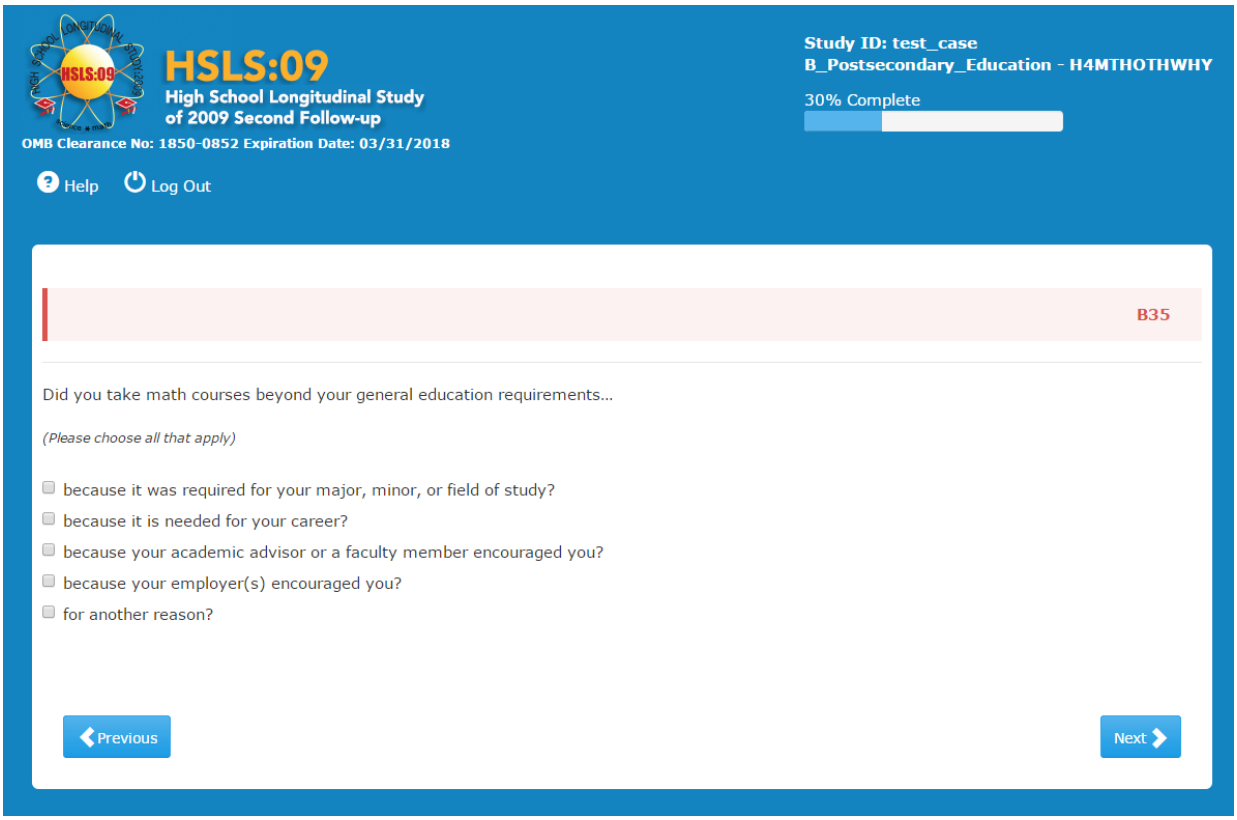
**Usability:**

Several interviewers reported that the system was slow.

When using a smartphone with a vertical orientation, respondents would have to scroll right to see the additional response columns on all questions with a grid format (see usability B63). The formatting of the instrument on the smartphone was a dark

blue/green border surrounding a white field with black text, however whenever a respondent scrolled right the white field did not travel to the additional response options. Instead, the dark blue/green border became the background field with the additional response items remaining in black text. One interviewer thought this was more difficult to see, similar to reading through highlighted text. When she asked a respondent if the field color difference from light to dark when scrolling right was an issue, the respondent said it was not an issue but did make the site look 'poorly formatted.'

**B35**




***Item-Specific Probes:***

- ***PB35a:*** *How well did the response options capture your reasons for taking those courses?*
- ***PB35b:*** *Did you think you could select more than one reason?*
- ***PB35c:*** *In addition to the reason you chose, was there another reason? IF YES, what was that?*

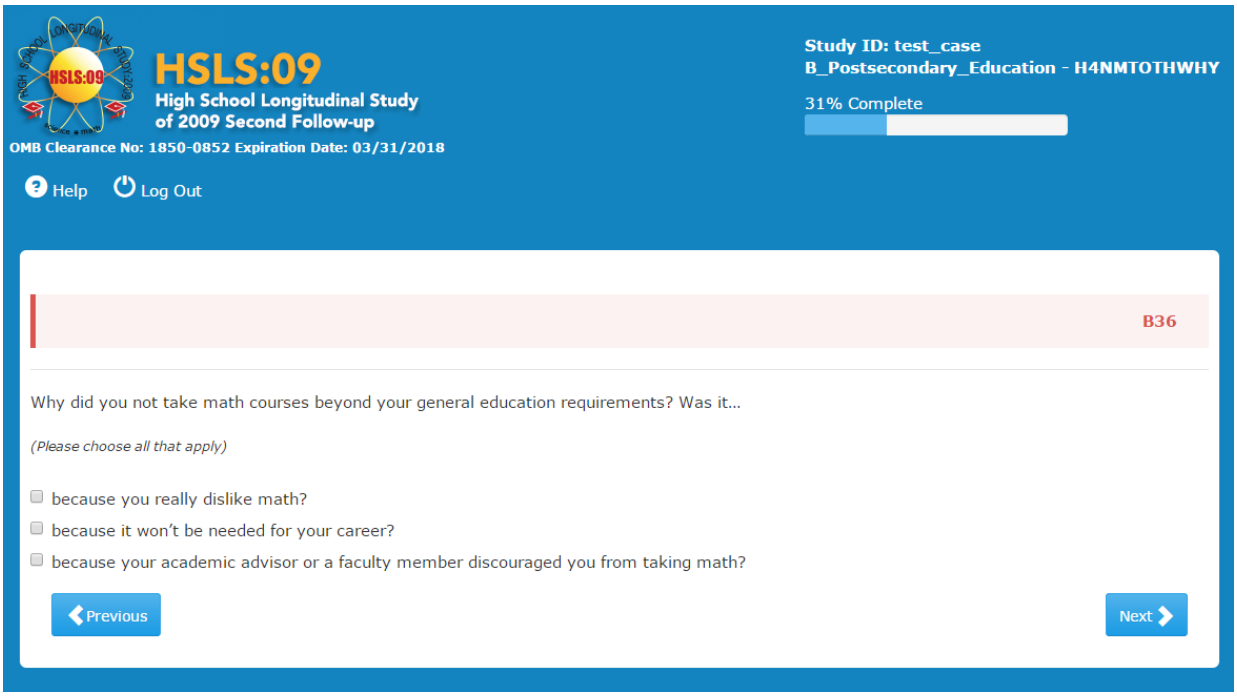
Most respondents were skipped out of this question.

Additional response categories offered by the respondents were "friends or family encouragement" and that they took additional courses "for the enjoyment of it."

**Usability:**

There were no usability issues although one R did point out that he recognized that he could select more than one reason by the shape of the response boxes.

**B36**



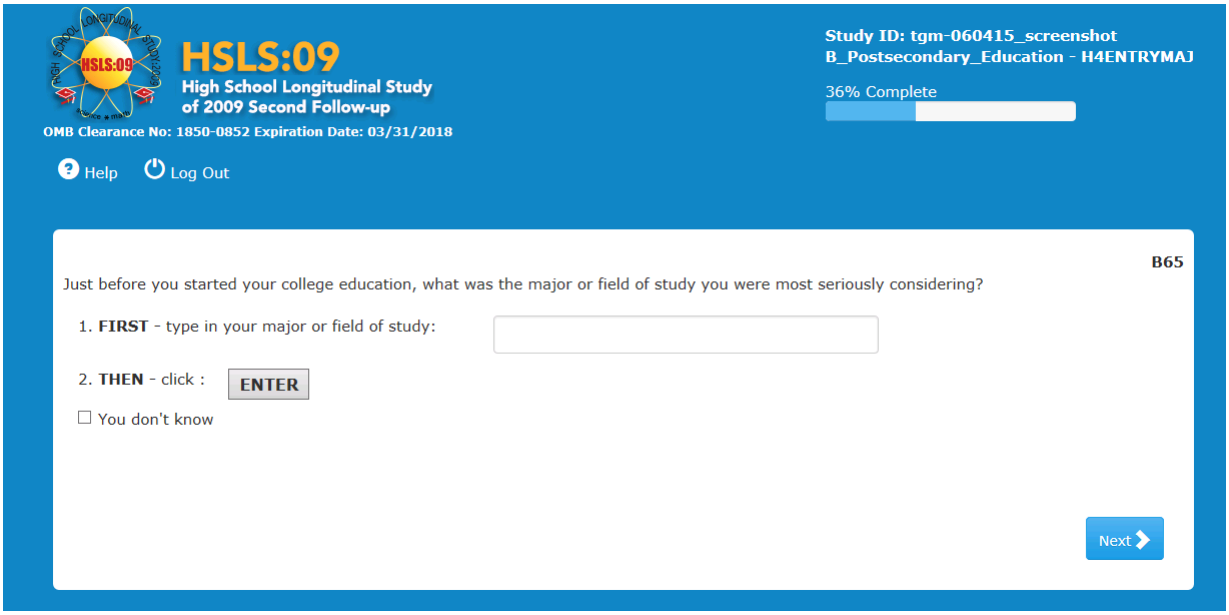

***Item-Specific Probes:***

- ***PB36a:*** *How well did the response options capture your reasons for not taking those courses?*
- ***PB36b:*** *Did you think you could select more than one reason?*
- ***PB36c:*** *In addition to the reason you chose, was/were there another/other reason(s)? IF YES, what was that/ were they?*

For most respondents the options captured their reasons. There were however several different reasons cited by respondents including, "not being academically prepared" and "cost." Three Rs had not yet reached the point in their academics to take higher level courses but intended to and, three more had scheduling issues. In addition two respondents at specialty schools such as a culinary school noted there were no additional math courses available. The three respondents who felt that the categories did not capture their reasons included a student at a culinary institute, one said she does like math but it is very difficult for her and a third noted that she did not take them because they were computer based at her school and she did not like format.

**Usability**: No issues except a few noting a slow machine.

**B65**




***Usability Probes:***

- *Potential usability issue -- DID R HAVE TROUBLE FINDING "ENTER" – probe specific issue and if R had expected something different if not clear.*

Generally, respondents were able to answer without difficulty, either by typing in an answer and clicking on Enter --which they found easily-- or checking the 'Don't know' option.

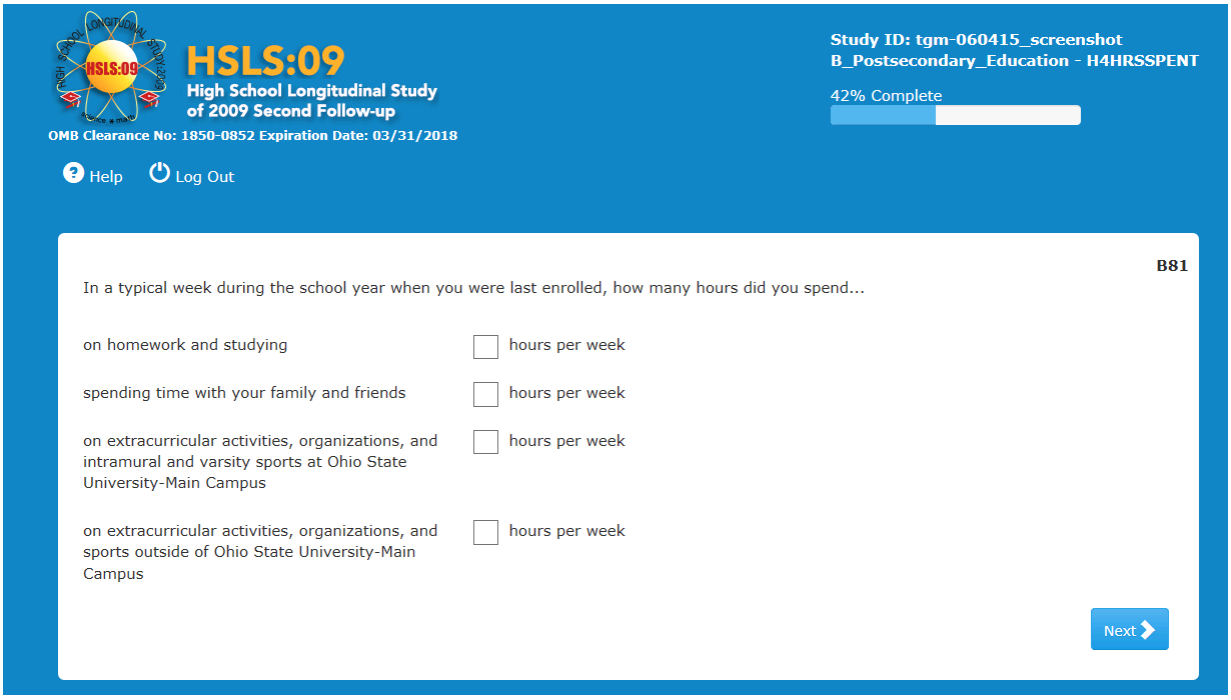
One respondent found the phrase 'most seriously considering' very helpful. Another remarked that the definition of Environmental Studies offered was "the best I have ever seen."

**Usability:**

One respondent appeared confused as to why there was an 'Enter' button. Another one scrolled up and down, unsure of what she had to do to complete this question; she eventually selected her major and the correct description.

Another respondent clicked 'Enter' and then quickly hit 'Next' without realizing there were two parts to the question, that is, that she first should type in a response and then choose from the list offered. The interviewer had to help.

## B81




***Item-Specific Probes:***

- ***PB81a:*** *What do you think they mean by "spending time with your family and friends"*
- ***PB81b:*** *How did you come up with your answer?*
- ***PB81c:*** *Do you live with family or friends? IF YES: Tell me more about how you figured your answer for option b.*
- ***PB81d:*** *Tell me how you figured what is a 'typical week' for answer d (extracurricular activities). Did you think about sports in a specific season?*

Respondents used different strategies to calculate their answers and seemed to vary in the level of precision they tried to achieve.

The question about time with family or friends seemed to have more variability of interpretation than the other activities. Most defined it as "hanging out" with friends or family. However, respondents' living situation seemed to affect the way they decided what the question was asking them. A respondent decided not to count time spent with his girlfriend because he lives with her, so he only counted when he goes out with friends or to see family. Another respondent who lives with her two best friends was not sure whether to include the time when they are just home together sitting around the apartment. A respondent who lives with friends considered his responses in relation to how much time he spends socializing with them, which he considers quality time, as opposed to studying. Another respondent considered that

time with friends meant time going out with them to parties, meals or other activities outside of the apartment where they live together.

What was actually included in 'spending time' varied by respondents as well. While some discounted what they considered non-quality time (e.g., the respondent who said that she only considered quality time when she and her family or friends were actually doing something and not just sitting around watching TV), another included time not spent face-to-face but in electronic or phone communications. Another counted only going out with family, not just regular time spent together.

A respondent indicated a 'typical' week is one in which he plays sports or works out. Another said it is a week without final exams. A third one thought of a typical week as one in which you are working and taking classes.

One respondent did not know what they meant by 'extracurricular activities' and wondered if volunteering would be included.

One respondent found counting the number of hours hard, and skipped answering.

**Usability:**

One respondent had difficulty seeing this screen on his tablet and often zoomed in and out.

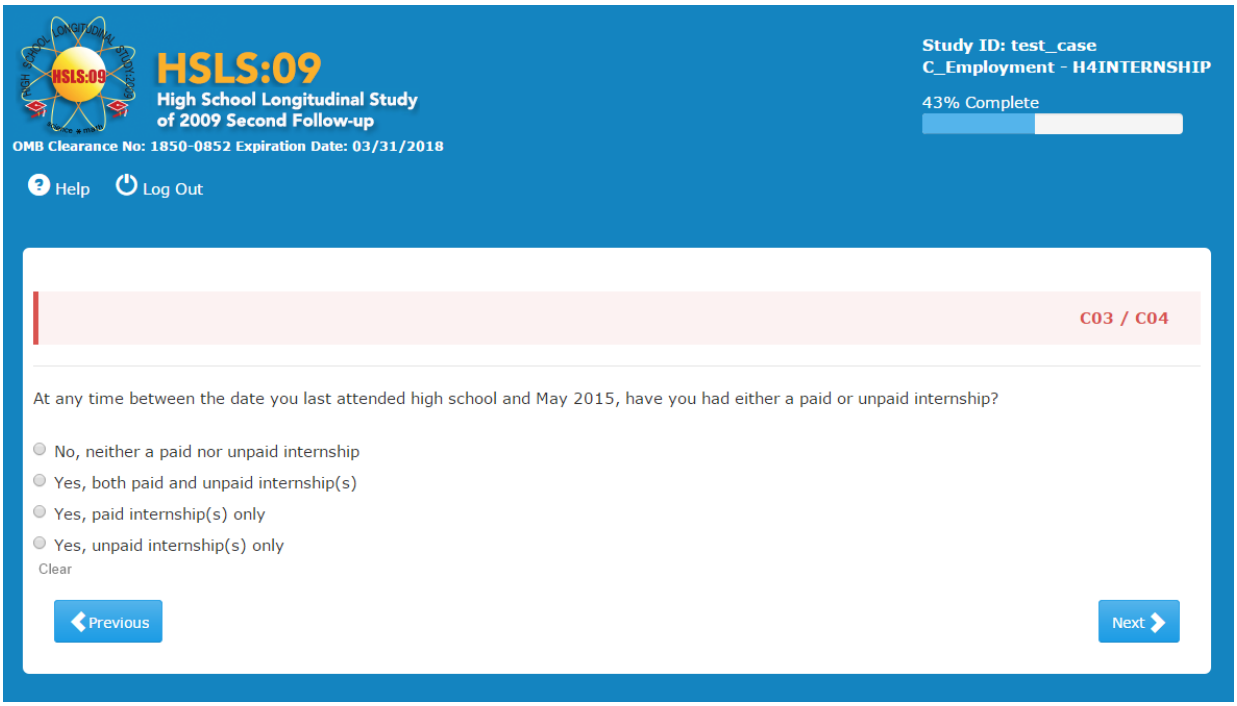
Three respondents tried to enter double digits but all they could see on the phone screen was the first digit (e.g., could only see "2" when typing "25").

A respondent tried to enter a range but saw that was not allowed and had to enter just one number.

## EMPLOYMENT SECTION

Now we are interested in learning about your employment experiences since you [received your high school diploma/received your certificate of attendance or completion/last attended high school].

### C03 / C04




***Item-Specific Probes:***

- ***PC03/C04a:*** *IF YES: Tell me about the internship/internships you have had?*
- ***PC03/C04b:*** *How is an internship different from a job? Different than volunteer work?*

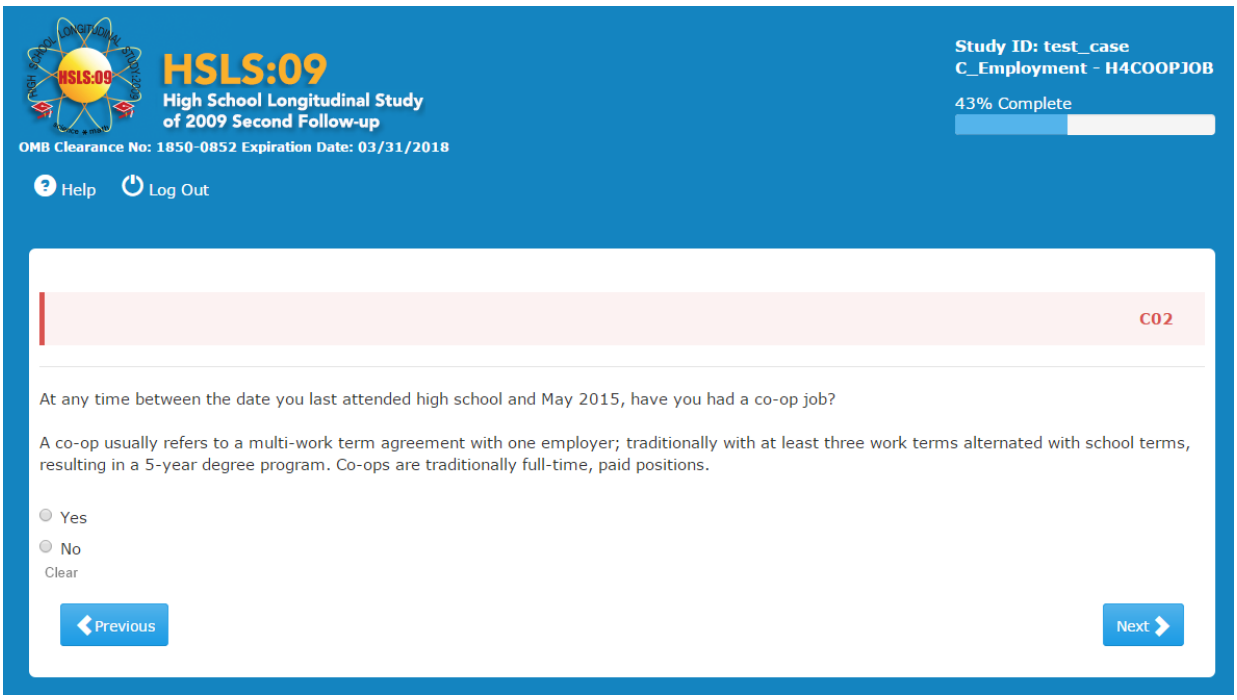
All respondents were able to process this question. Fifteen respondents initially reported having had an internship with most of those reporting they had a paid internship. One respondent was unsure if she should report her internship as paid or unpaid because she was paid from a grant through the school that covers wages for unpaid internships.

Thirteen respondents saw internships as a way to develop career skills or learn about a career. Almost as many differentiated it from a job in terms of school, noting it provided credit or learning opportunities. Four noted it provided mentorship opportunities or to build connections. One respondent noted that an internship was "less independent" than a job (more supervision) while another saw it as having more supervision than a job and one respondent described it as: "just a stamp on your forehead that says you are too young to be taken seriously."

When asked the difference between an internship and volunteer work, three respondents said they were the same or similar but most respondents saw a difference although not all were able to describe the difference clearly. Volunteer work was described as different in that it provided social benefits, offered flexibility or convenience with scheduling; it was also described as less prestigious than internships or short term.

There were no usability issues although one interviewer reported that the system was slow.

**C02**




***Item-Specific Probes:***

- ***PC02a**: What does a co-op job mean to you?*
- ***PC02b**: How is a co-op job different from an unpaid internship / paid internship?*
- ***PC02c**: IF YES: Tell me about your job?*
- ***PC02d**: Was the job through the school?*

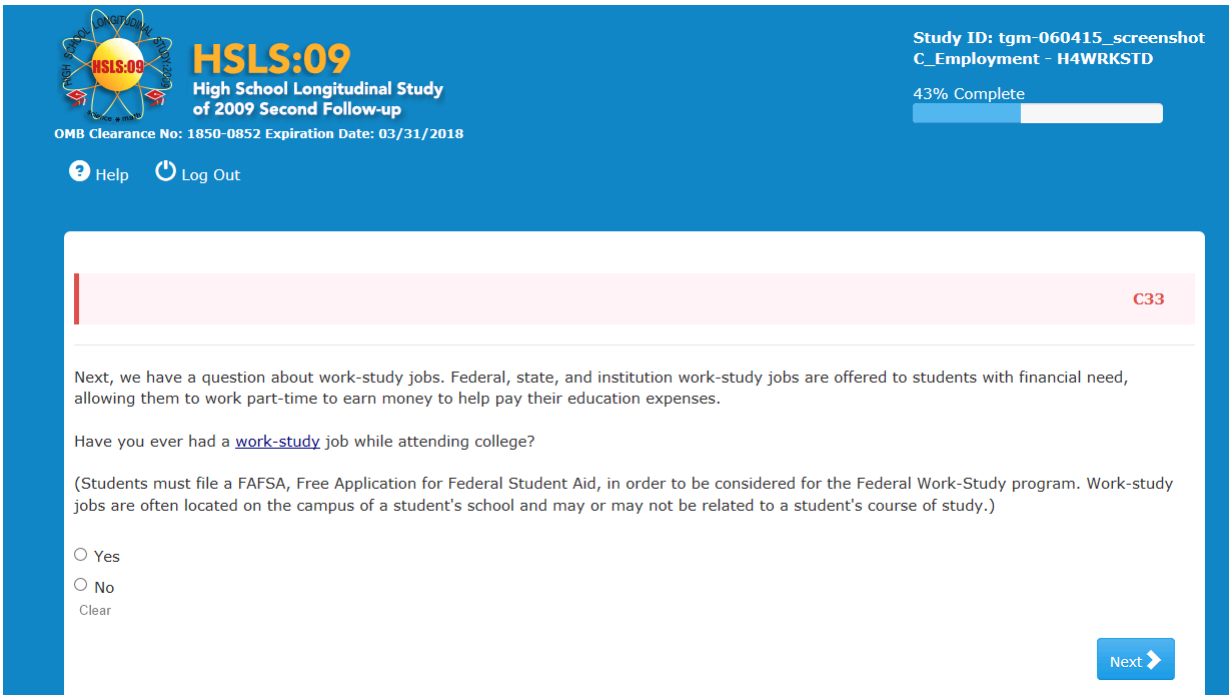
Twenty seven respondents were unfamiliar with the term 'co-op.' The rest seemed to have only a slight understanding of the term and relied on the definition provided to help them come up with what it meant to them. It was described as a "real job" as compared to an internship or a high paying job. Other respondents saw it as a work/study arrangement or one with "more to do." One respondent thought it might be "group work" with more than one person working together. One who did

not know the term guessed that it was when you alternated work and classes each semester.

No one responded that they had a co-op job.

**Usability**: No issues except for one case that was consistently slow.

**C33**




***Item-Specific Probes:***

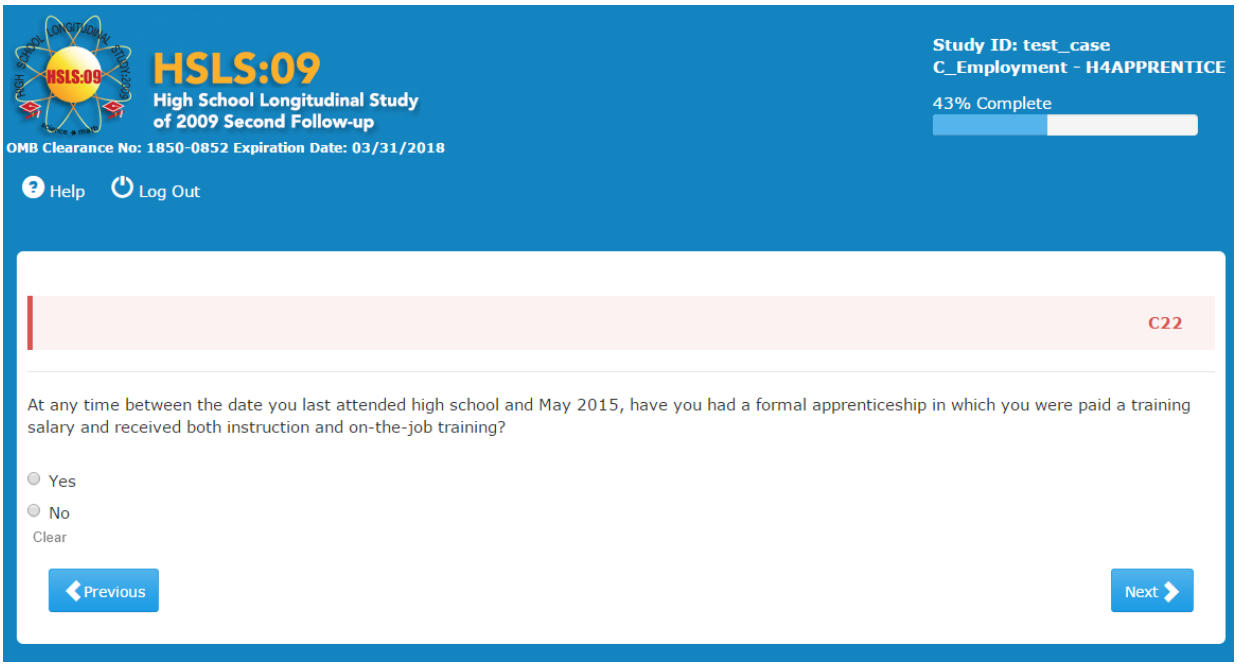
- *PC33a: What does a work-study job mean to you?*
- *PC33b: How is a work-study job different from an internship or other job?*
- *PC33c: IF YES: Tell me about the work study job/s that you have had?*
- *PC33d: IF NO, did you try to get a work-study job? Was this opportunity available to you?*

Respondents generally understood what work-study jobs are based either on their own knowledge or the question description. Both respondents who had work-study and those that did not described it as different than an internship. They described it as an on campus job used to pay for college costs rather than an internship which was to gain experience within a major or an off campus internship. Some respondents noted that internships can be unpaid whereas work study is paid. Respondents also noted that it was associated with financial aid. One respondent noted that work-study jobs are more accommodating to a student's schedule than an internship.

One respondent misunderstood work-study as a job that is needed to fulfill certain requirements a student needs before s/he can apply for a specific program and that one would not attend school at the same time. One other respondent who had also not heard of work-study guessed that it would be in the field of study or help in getting a job after school.

**Usability**: No issues except for one case that was consistently slow.

**C22**




***Item-Specific Probes:***

- ***PC22a:*** *What does an apprenticeship mean to you?*
- ***PC22b:*** *How is an apprenticeship different from an internship or job?*
- ***PC22c:*** *IF YES: Tell me about the apprenticeship/s that you have had?*

One respondent answered 'yes' to apprenticeship however the interviewer believed this to be a false positive, the respondent had keyed into the concept of paid 'on the job training,' and since he had been paid during his job training he thought he should answer 'yes.'

Six respondents noted that an apprenticeship was for the trades, vocational or technical training. One of these respondents also noted that one does not need college as you would with an internship.

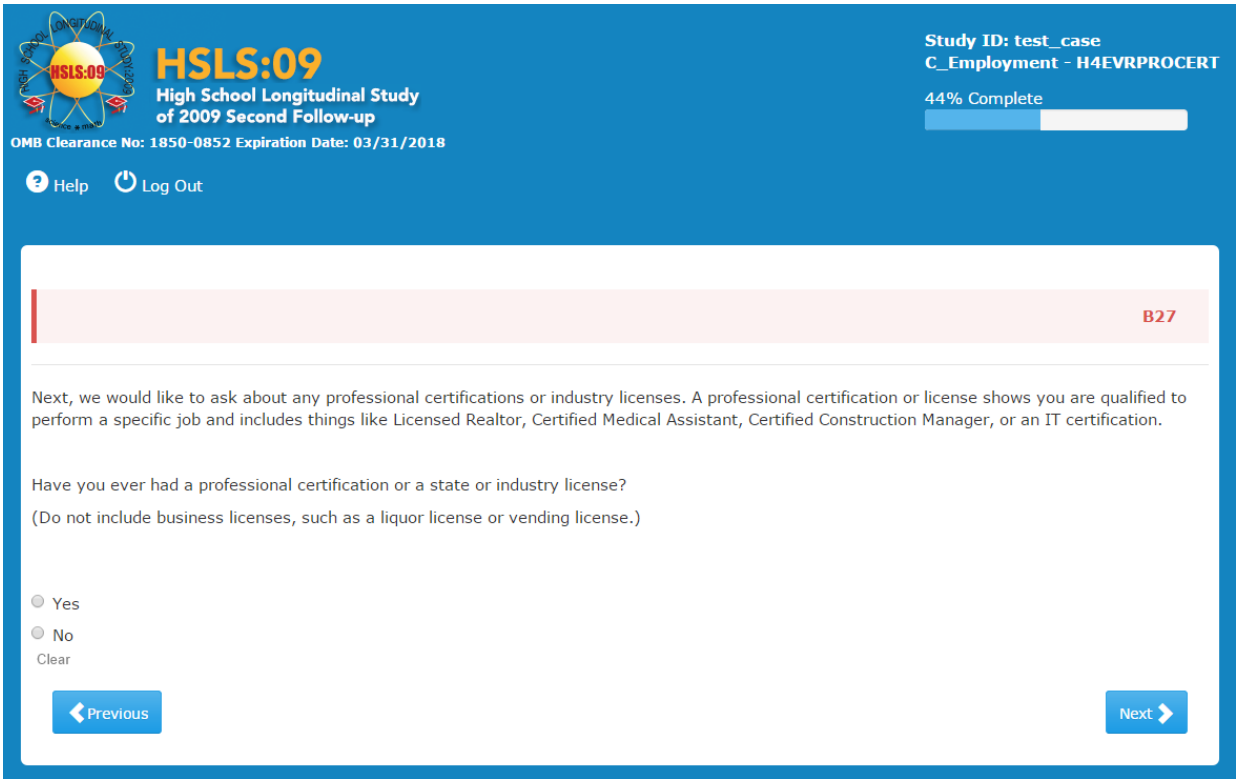
Thirteen respondents noted that an apprenticeship was working directly under someone, in a mentorship relationship, or in a one-on-one training. Several of these respondents contrasted this with an internship that was less formal.

Respondents also saw an apprenticeship as job-specific training, one noted that an apprenticeship qualifies you for a job, "at the end of an internship you leave as an intern at the end of an apprenticeship you leave with a job."

Twelve respondents mentioned they were unsure what an apprenticeship was with one noting that she had heard the term from the TV show 'The Apprentice' but didn't really know what it meant.

**Usability**: No issues observed.

**B27**




***Item-Specific Probes:***

- ***PB27a:*** *IF YES: What type of certification or license have you received?*
- ***PB27b:*** *IF NO: Have you thought about getting any certification or license? Tell me more about that.*

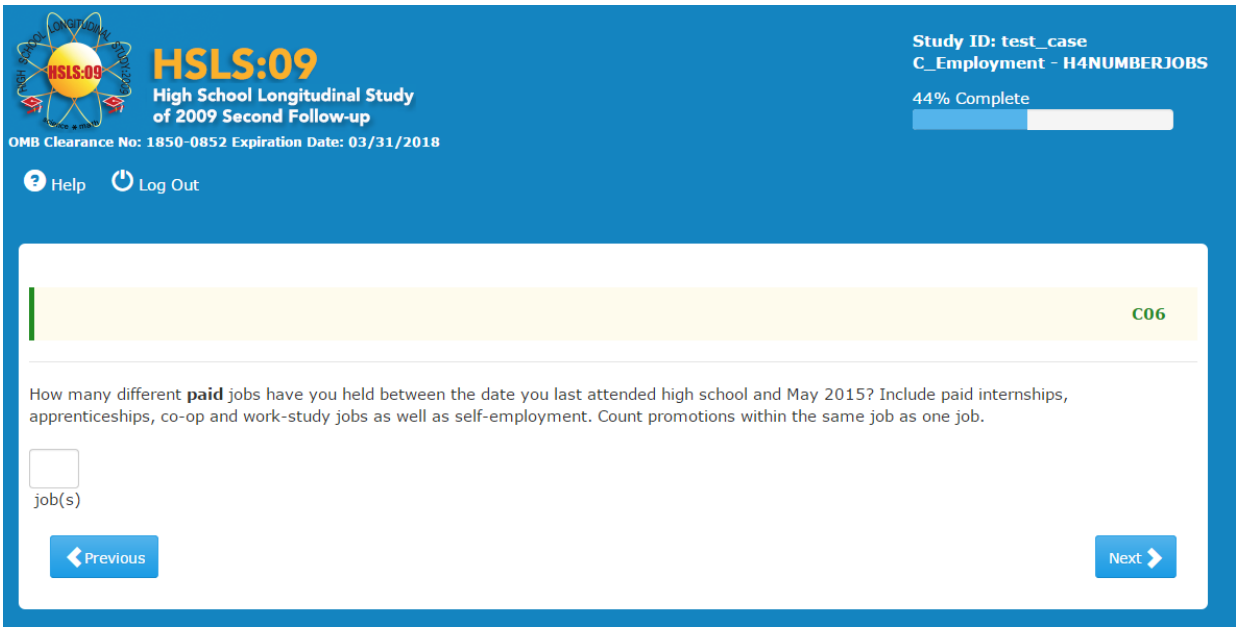
Eight respondents said they had received certifications and licenses. These included two food handlers, a CNA, a CDL, a pharmacy technician and a massage therapist.

The remaining two include one respondent who has a certification as a soccer coach and one that received certification in MS Word and Excel while in high school. The respondent with the CNA also noted that she has a CPR certification. The respondent with the CDL also has a certification as a dishwasher but was unsure if the question was looking for that.

Of the twenty-seven respondents who clicked "No," fifteen have considered receiving certifications or licenses, including two who will be getting master's in Social Work and several who have considered but not pursued other fields such as beautician, bar tending, real estate, EMT and HVAC systems. One noted he would consider it when he determined what he wanted to do.

**Usability:** No issues except for one case that was consistently slow.

**C06**




***Item-Specific Probes:***

- ***PC06a:*** *How did you come up with your answer?*
- ***PC06b:*** *Are there any jobs you have had that you were not sure if you should include?*
- ***PC06c:*** *Have you worked any gigs, one-time jobs or temp-jobs? How did you count these?*
- ***PC06d:*** *If you work at the sandwich shop and move from making sandwiches to taking orders, would that count as one job or two?*

No significant difficulties were observed among respondents in providing an answer to this question. While some respondents counted every work activity for which they got paid, others only counted 'official' jobs, but not short-term or temporary gigs, or odd jobs. One respondent based his answer on the number of W-2 forms he

received; he did not include one time jobs or jobs where he was "paid under the table."

In one case, a respondent counted all her babysitting gigs for different clients as one self-employment job, but others counted every occasion in which they received payment. Others were not sure if they should consider a number of odd jobs (such as moving, or construction jobs) as one self-employment job. One respondent said: "They send me to a ton of employers so I wasn't sure if I should consider every single one or just the temp agency, so I just counted the temp agency." Another reported six jobs total, with five being regular employment and the sixth one "is when I don't have a job and I hustle, like I cut grass or do miscellaneous things around the neighborhood for other people."

Respondents had no difficulty including in their count the specific types of jobs listed in the question (paid apprenticeships, co-op, work-study, or internships). Summer jobs, however, were forgotten or excluded by some respondents, not deliberately in every case since upon probing the respondents remembered them and corrected their answer to include them.

Some respondents felt that a job had to have some minimal duration to be reported. For instance one person thought a job was worth including if it was at least for a couple of months. Among the jobs that were not counted, there were short term and temporary jobs in warehouses. Another respondent did not include one-time gigs because "they were side jobs, temporary jobs, not my real job." Another respondent did not include a two-day seasonal job. Another respondent did not include gigs such as dog sitting or dog walking which were "cash in hand" jobs. He thought of paid jobs as ones with official paperwork, where you have interviewed and they have your official identification, information, etc. On the opposite extreme, a respondent counted gigs lasting just a day or so as individual jobs. A respondent did not count gigs simply because he did not think about them until the probing.

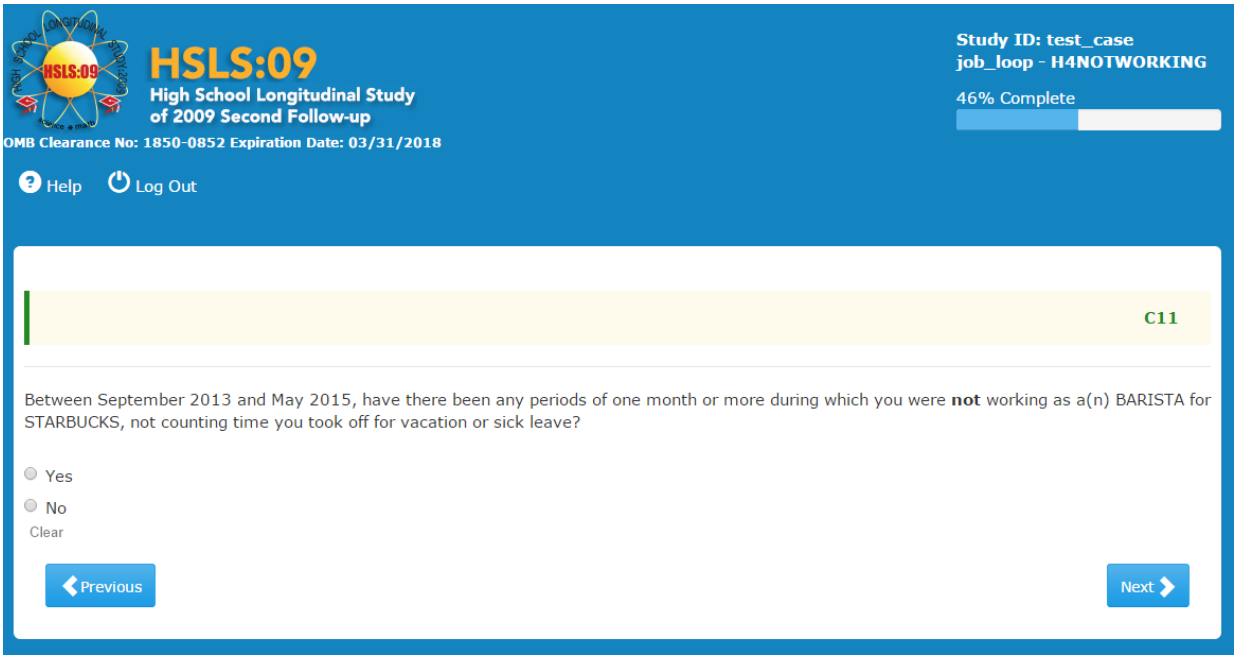
One respondent was unsure about including her current job because the work hours are inconsistent. She did count it. One respondent said that she would count working at two different bookstores that were part of a chain as two separate jobs. Finally, a respondent thought that her retail job should not be included, because she thought the question was asking ONLY about internships, co-op jobs, self-employment, and work-study jobs. She thought so even after re-reading it. She did not see those as examples, but as a list to choose from.

Almost all of the respondents considered the sandwich shop scenario as one single shop because it was "in the same place," "for the same employer," "at the same

company," "same boss and company, just changing positions," or "because it is a promotion." Only three did not follow the instruction and considered it as two jobs, saying that if the change in position also brought about a pay increase, then it is two jobs.

**Usability:** No issues except three cases reported that the system was slow.

**C11**




***Item-Specific Probes:***

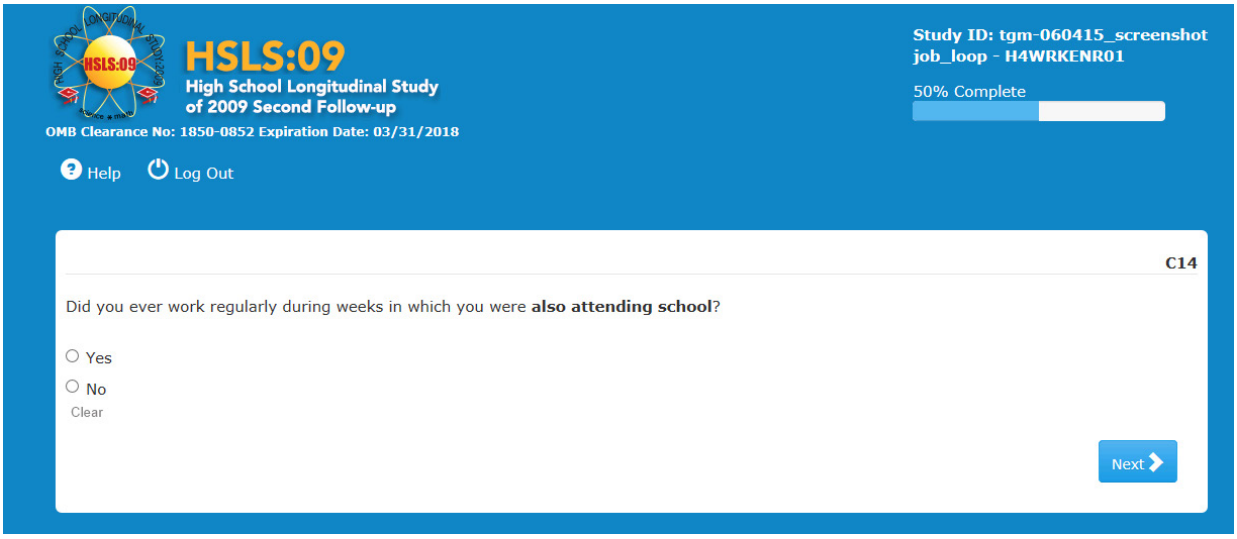
- ***PC11a:*** *IF YES: Tell me about the times you were not working?*
- ***PC11b:*** *What were the reasons that you were not working during this time?*

Most respondents who were asked this question clicked 'No' and therefore were not probed. Among those who clicked 'Yes,' there was a variety of situations. One respondent took three weeks off to work at a different job, while remaining committed to the first job. Another respondent said the work at her job was irregular and they called her in only when there was work available. Another respondent did not work at various times due to the coaching season conflicting with her schedule.

Finally, a respondent reported not working as a temp while he is in school.

**Usability**: No issues except for one consistently slow case.

## C14




***Item-Specific Probes:***

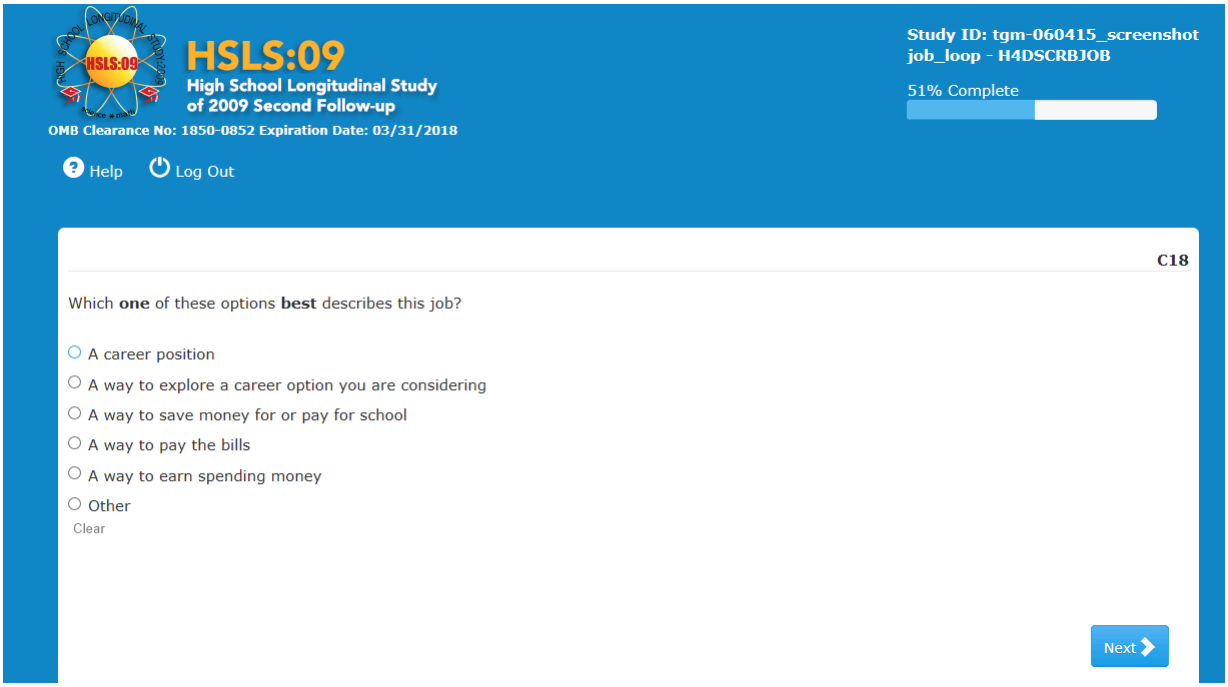
- ***PC14a:*** *What were you thinking as you answered this question?*
- ***PC14b:*** *What do you think of as working "regularly?"*

Respondents had no particular difficulties with this question. One respondent, however, was only thinking about the present when she clicked 'No,' but in probing she said she had worked while going to trade school.

'Working regularly' was defined by many in relation to the work schedule: "a consistent weekly schedule for the duration of the job," "having a schedule for work," "being on the schedule every week, no breaks in time," and "having a schedule each week outlining hours you expected to work." Others thought in terms of "working every week," "at least once a week," "either part time or full time," or "a lot of hours."

**Usability:** No issues observed, except for one consistently slow case.

## C18




***Item-Specific Probes:***

- ***PC18a:*** *How easy or difficult was it to choose one response?*
- ***PC18b:*** *Tell me how you selected your answer?*
- ***PC18c:*** *What is meant by "A career position?"*
- ***PC18d:*** *What is meant by "A way to explore a career option?"*
- ***PC19e:*** *What is the difference between options 1 & 2?*

About ten respondents found it difficult to choose just one response. One of them suggested allowing multiple responses or adding 'all of the above.'

Respondents' narratives supported their response choice, indicating the response categories are working as intended.

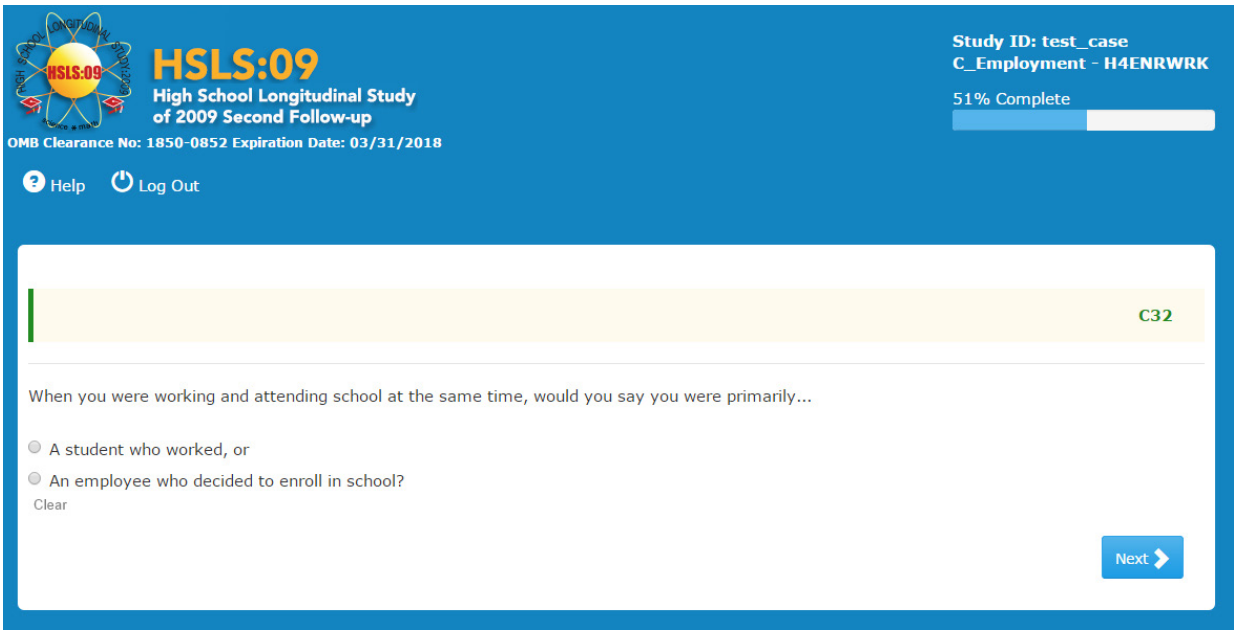
Respondents had no difficulty defining the first two response options and distinguishing between 'a career position' and 'a way to explore a career option.' They defined it in different terms but generally showing a good understanding of both terms. For 'a career position' they said: "you are sure," "something I have the intention of doing for the rest of my life," "something that leads to something that I'm going to do for the rest of my life or for a really long time...," "the position you are in that is your career," "a career position is more permanent," one that might turn into a career for you," "you know what you want to do and you are doing it," "a job that is in your career field." For 'a way to explore a career option,' they explained it as "trying to see if you like it," "something I am trying out to see if that's what I

want to do for the rest of my life," "a job where you are working to find out what is involved in the job," "that you are looking to see if you like it and may not be a career for you," "that you are testing something to see if you like it," "is a job in a field that you might be considering as another alternative choice for yourself," "that you are trying it out and if it does not become a career, it's a way to pay the bills" "seeing if that career is a fit for you." working a job that you think you might be interested in but do not want to commit to yet," "when you don't know where you want to go/work so you are looking at different jobs to see what you might want," and "a way to get exposure, not gonna stay there forever."

**Usability:**

One respondent wanted to click two options and was initially confused although was able to respond.

**C32**




***Item-Specific Probes:***

- ***PC32a:*** *Tell me about your choice of response.*

Among those who answered this question, the vast majority thought of themselves as 'a student who worked.' Some based that answer on the fact that were in school full-time when they looked for a part-time job. One respondent explained that she works part-time while attending school. She said that the "woman I take care of is a snowbird" so she does not work for her for some time during the winter.

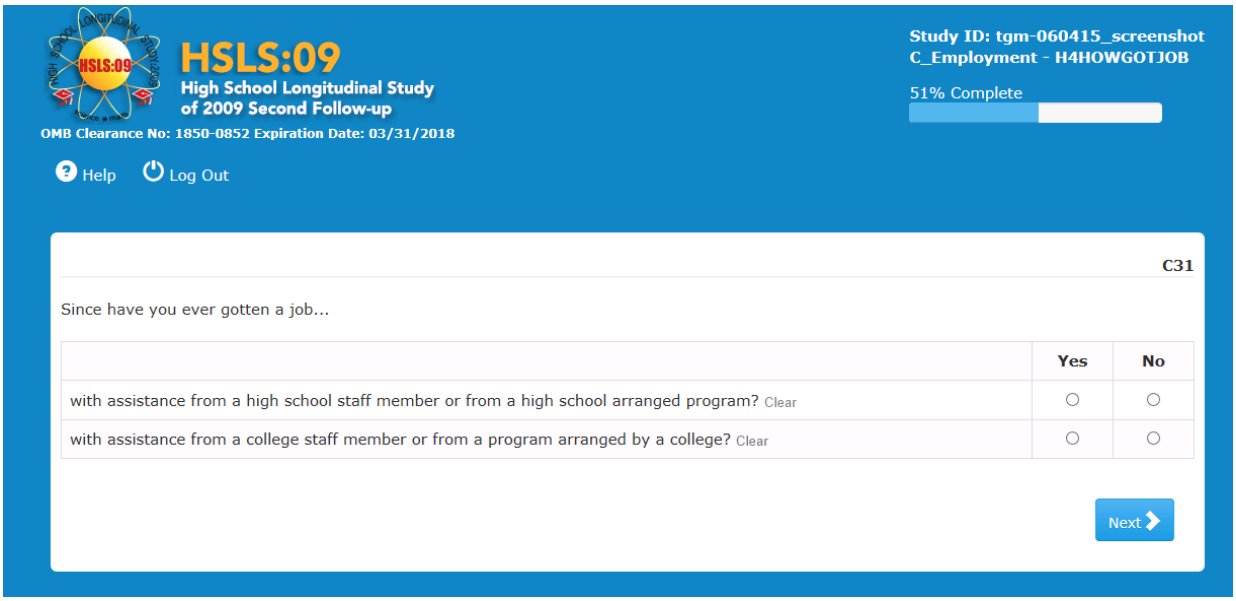
Others spoke of priorities or what started first: "I prioritized school over the job." Another said she came to town primarily to attend school but was also working. A respondent said she puts school first and would ask for time off from work if she needed it because of school. Another was thinking about work study and how in those jobs you are a student first. Another one explained: "I was a full time student and part time worker. So I am a student first and worker second." Another respondent explained he was in school before he had a job, so he considers himself a student with a job.

Another respondent clicked 'an employee who decided to enroll in school,' basing his answer on the number of hours devoted to each activity: when he was in school he was working many more hours than he was spending on school.

Finally, one respondent said she answered randomly "A student who worked." She did not know which response would best apply to her. She wondered if there would be someone who would do both (work and go to school) equally.

**Usability:** No issues observed.

## C31




***Item-Specific Probes:***

- ***PC31a:*** *What were you thinking of when you answered this question?*
- ***PC31b:*** *What do you think is meant by "assistance from a high school/college staff member?"*
- ***PC31c:*** *What type of person were you thinking of as "staff members" who might offer this kind of assistance?*
- ***PC31d:*** *What do you think they mean by a 'high school arranged program' and a 'program arranged by a college'?*

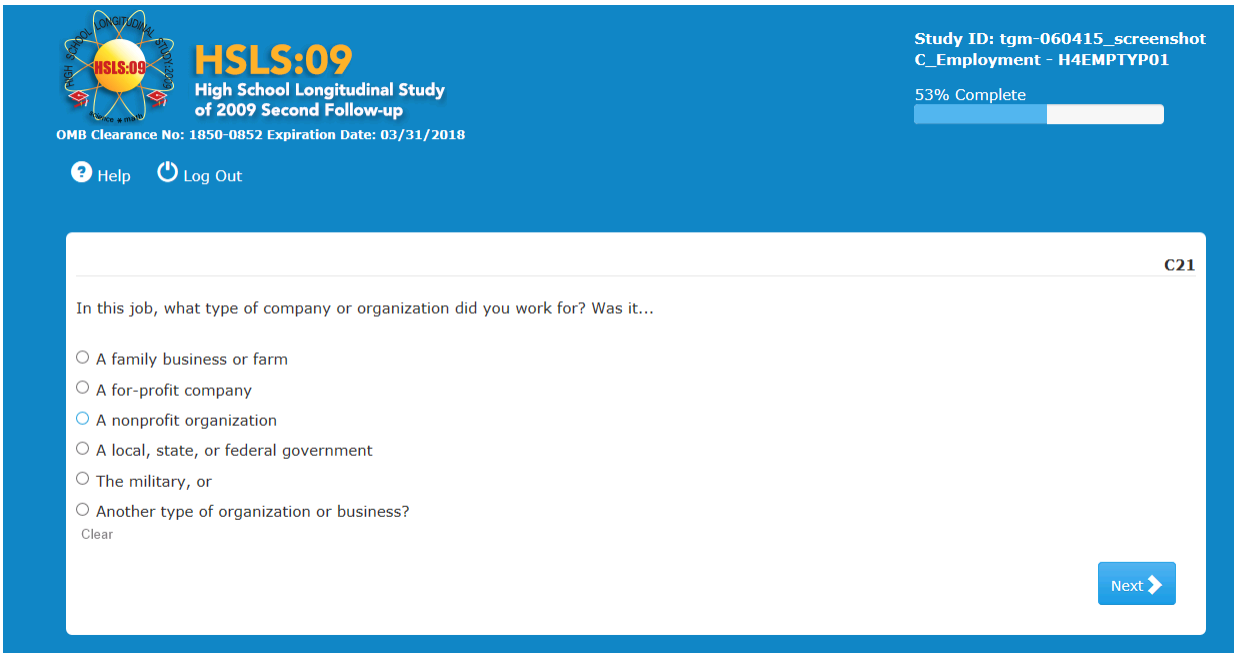
Only three respondents answered these probes. None of them had ever benefitted from such a job assistance program.

None of the three was clear about what a 'high school arranged program,' or 'program arranged by a college' might be like. One guessed: "Maybe the high school has companies they work with the hire young adults directly and work with your school schedule possibly?" Another thought that 'high school arranged program' perhaps was something related to a GED program, while the third one thought it meant that a teacher might help you but said that he did not actually know what the terms meant.

One respondent interpreted 'assistance from a high school staff member' as meaning that "anyone who works at the high school helped you get the job." Another defined 'staff members' as "teachers, anyone who works at school, counselors, deans."

**Usability**: No issues observed.

## C21




***Item-Specific Probes:***

- ***PC21a:*** *Tell me how you selected your answer?*
- ***PC21b:*** *How certain were you of the response you chose?*
- ***PC21c:*** *Were any of these response options unclear or confusing?*
- ***PC21d:*** *What is the difference between options 2 & 3 (for-profit vs. nonprofit)? Can you give me one or two examples?*

Only three respondents answered the probes.

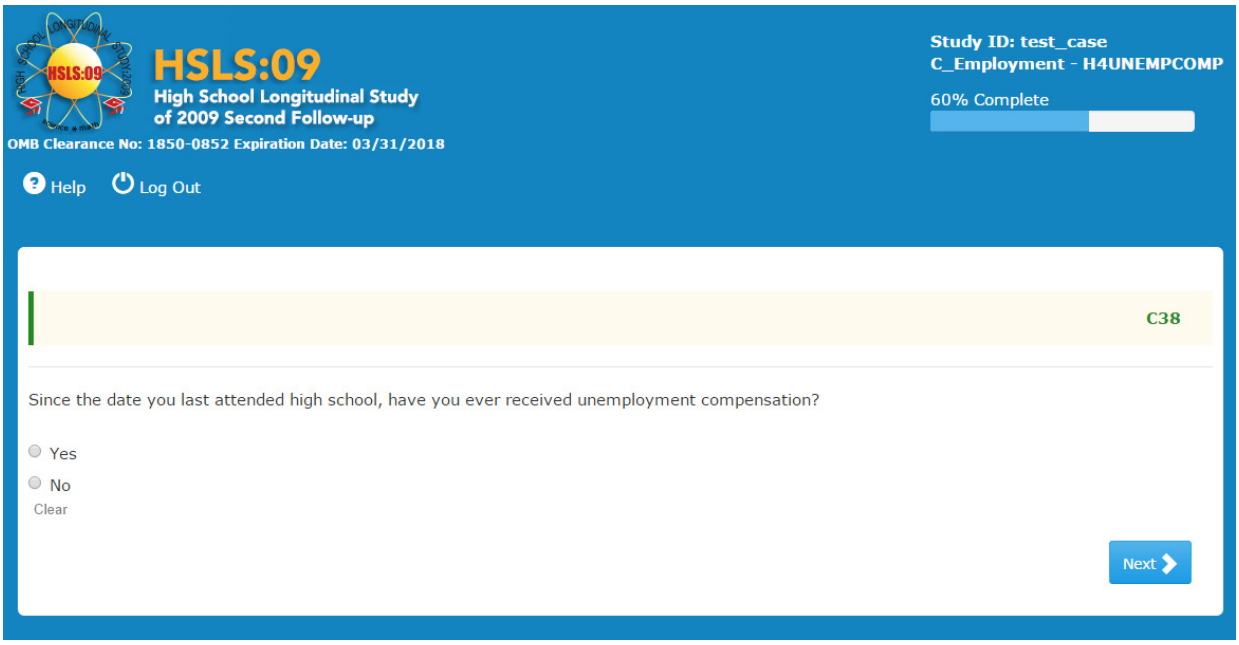
Two of the three respondents were confused by the response choices, primarily because they were not sure what each one meant exactly.

The first one was trying to categorize his job at a major department store and chose 'Another type of organization or business.' He was only 50/50 confident about his answer. He did not know what a federal, state or local government meant. When asked to define 'for-profit company,' he realized he worked for one and changed his answer, since "the goal of a for-profit company is to make money." When asked what a 'not-for-profit business' is, he struggled to come up with a response and guessed a "park district."

A second respondent also answered 'Another type of organization or business' because he was not sure what the choices actually meant. He could not explain the difference between non- and for-profit companies.

**Usability:** No issues observed.

**C38**




***Item-Specific Probes:***

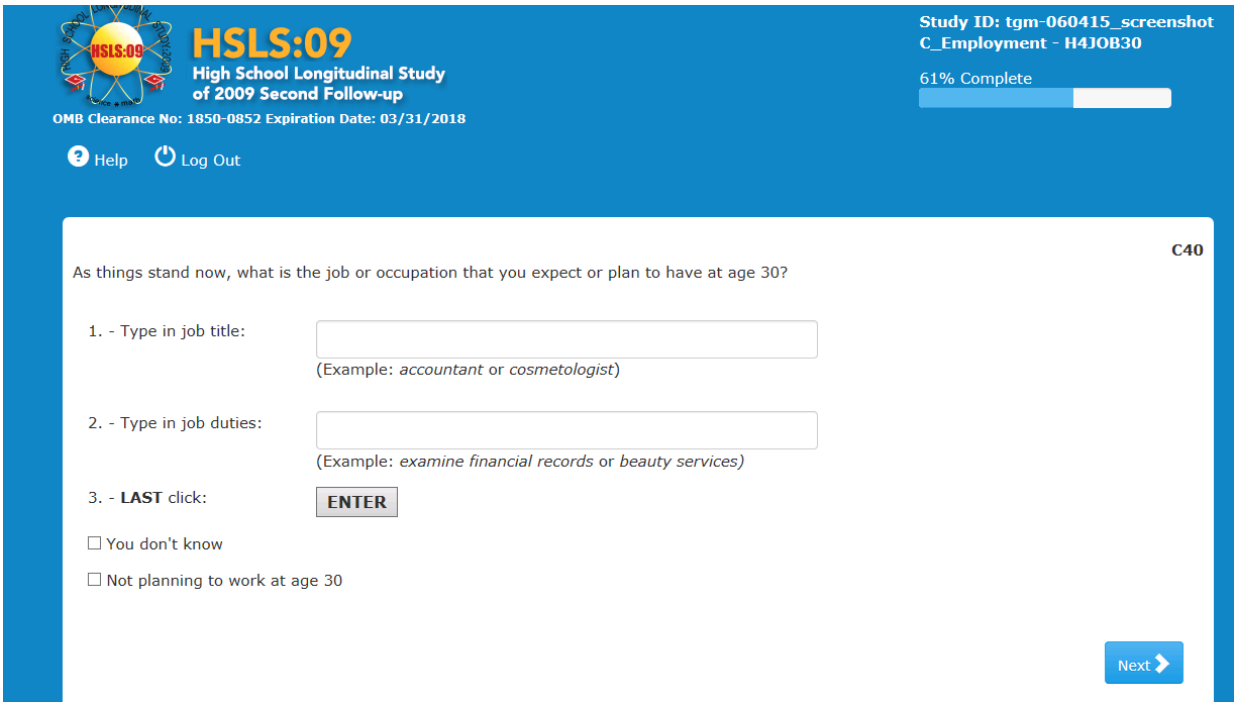
- ***PC38a:*** *What do you think they mean by "unemployment compensation?"*
- ***PC38b:*** *IF YES: Tell me about the time when you received unemployment compensation. What were the circumstances?*

Three respondents were probed on this question. Two clicked 'No,' and one clicked 'Yes.' The latter said he had received unemployment when he was laid off from McDonald's, and described it as "I got what they owed me." In probing he explained that he had been laid off and was thus eligible to receive unemployment.

The other two respondents did not know clearly what 'Unemployment Compensation' exactly means. One said it was like a "disability check." The other one thought it means "when a job is over you get paid for it…from the years or months you worked, the taxes or something. You get paid for having worked."

**Usability:** No issues observed.

**C40**




***Item-Specific Probes:***

- ***PC40a:*** *What was the hardest part of answering this question? What made it hard?*
- ***PC40b:*** *IF NOT VOLUNTEERED: What about listing your job duties? How easy was that?*

Several respondents found the question hard to answer simply because they do not really know what they want to be doing at age 30. Five selected 'You don't know.' One respondent said the hardest part of answering this question was thinking about age 30 because it was so close but so far away. "That's five years after I graduate and there is always the possibility I'll change my major." He was not sure what his duties would be either. Another respondent said that the question was hard in that she

wants to learn other things related to working in a salon but the question was "as things stand now" so she "answered realistically."

Two others said they did not know, but they provided an answer. The first one had a very hard time picking an answer to this question because he is unsure of what he wants to do at age 30. He entered "entrepreneur" and when the interviewer pointed out that he could have answered 'you don't know,' he said he did not see it but wanted to keep what he wrote in even though he did not know the specifics. The other said "I'm still trying to figure that out." but entered both a job and several duties.

In the remaining cases, some had difficulty coming up with the right job category among those offered by the program, while others were not sure of what job activities to enter.

One respondent struggled with this question: "What if I don't have no specifics? ... Hopefully I can own my own company...What if I don't want any job? I just want to own my own business so I don't have to worry about working anymore." He first entered that he wanted to own his own business in music and fashion, then selected in the dropdown 'producer' because "I'd like to do that too."

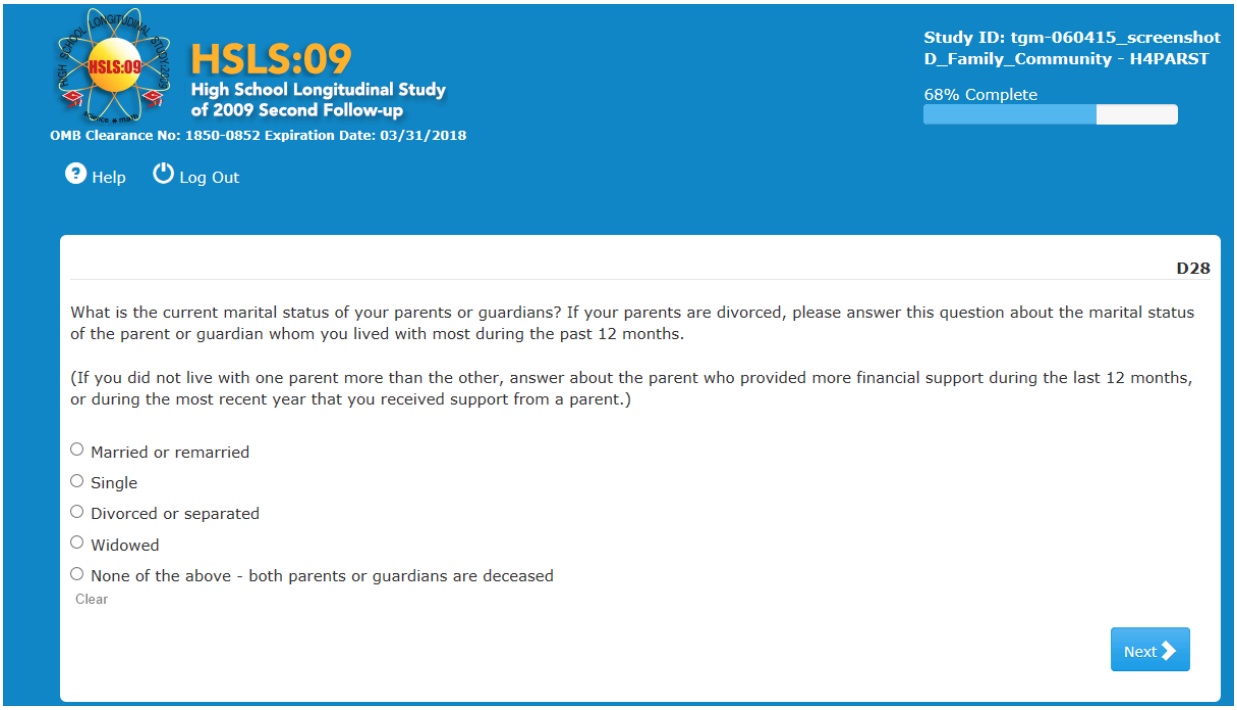
Other examples of the difficulties experienced included:

- A respondent was not sure what to enter for job duties but, after some thinking, he was finally able to come up with something that she was comfortable with.
- A respondent is in the music industry and had difficulty explaining how his future job would incorporate both playing music and the business side of music. It was easier for him to describe job duties than finding a job title.
- A respondent thought answering was hard because she wanted to come up with terms that would bring up the right kind of option to pick from (she had learned this mattered from previous write-in questions throughout the survey).
- A respondent answered "physician therapist," but was not sure what to answer for 'Job Duties;' she pressed 'Enter' and that confirmed what she had written as description of duties.

**Usability:** No issues observed

## COMMUNITY SECTION

### D28




***Item-Specific Probes:***

- ***PD28a:*** *What does "marital status" mean in this question?*
- ***PD28b:*** *Who were you thinking of when you answered this question? How did you choose to think about that person/people?*
- ***PD28C:*** *In your own words, what is the question asking you to do if your parents are divorced when answering the question? What if your parents were never married? Would you answer differently?*

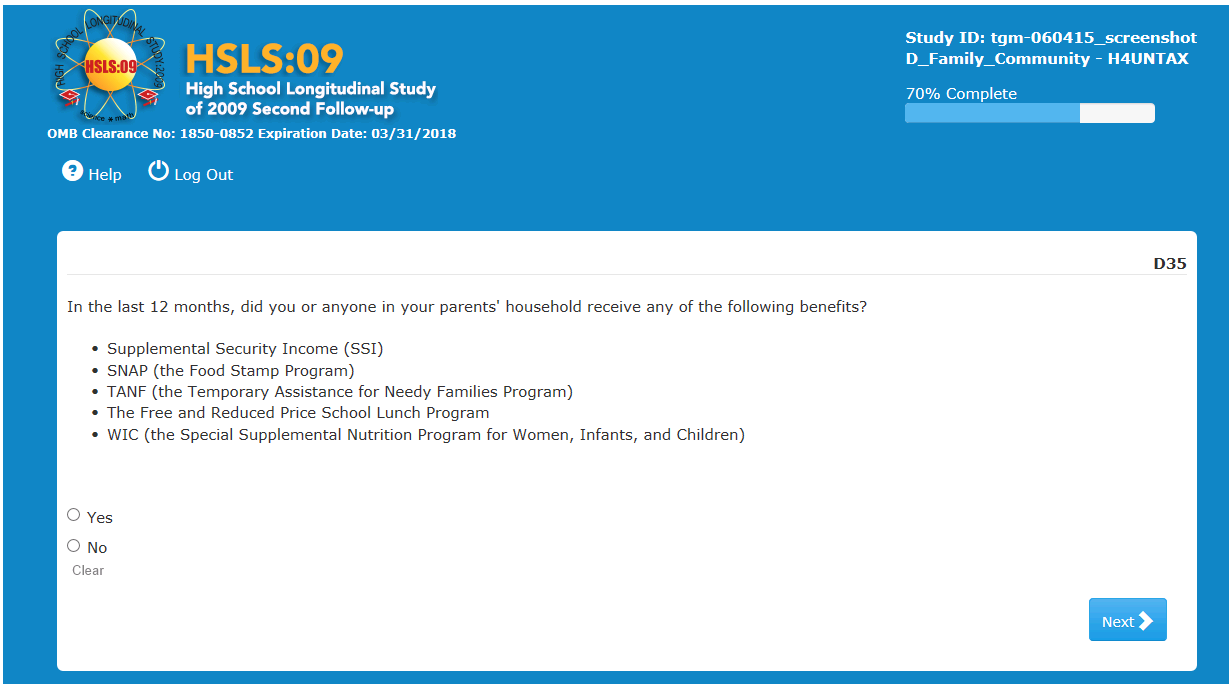
A few respondents did not correctly interpret the intent of the question or what they were expected to do. A respondent had difficulty understanding the question and had to reread several times before answering.

Regarding the instruction about divorced parents, one said that if his parents had been divorced, he would have considered his two biological parents' relationship to each other when answering the question. Another one stated confusion about how to answer if her parents were divorced but this did not apply to her personally. They did not seem to clearly understand that the question was asking for their parents' current status, not just if they were married to each other.

Generally respondents understood 'marital status' as referring to the marriage or relationship status of the parents to each other, or "are your parents husband and wife?"

**Usability:** No issues observed.

**D35**




***Item-Specific Probes:***

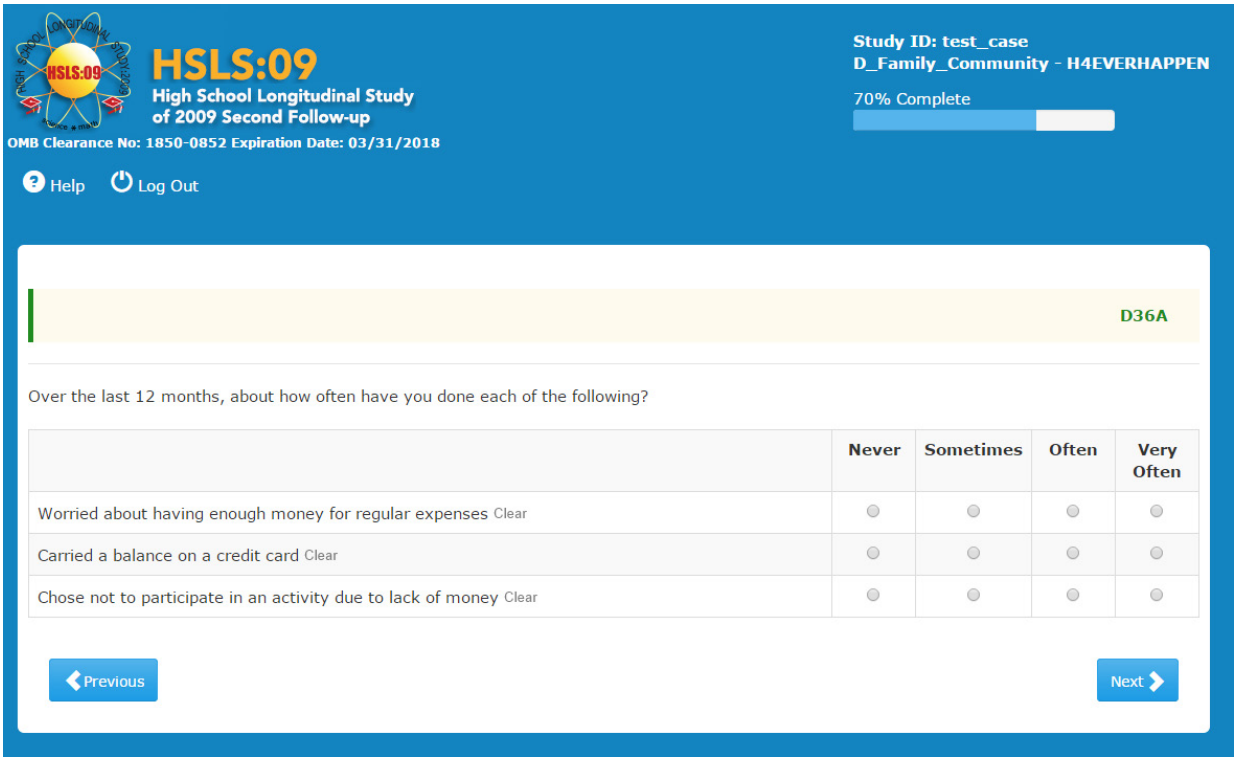
- ***PD35a:*** *Were you familiar with <ASK FOR EACH TYPE OF BENEFIT>?*
- ***PD35b:*** *IF YES: Tell me about getting <BENEFIT>? Who received it?*
- ***PD35c:*** *IF YES: When did you begin receiving that benefit? Do you currently receive it?*

About twelve respondents had at least heard of all the benefits listed in this question. Another seven had at least hard of SNAP, WIC and the Free & Reduced Lunch programs. SSI and TANF were less known to this population.

Three reported someone in their household receiving some benefits (2 said "SNAP," and one "Free & Reduced Lunch)."

**Usability:** No issues observed.

## D36A




***Item-Specific Probes:***

- ***PD36Aa:*** *For a, you said you [RESPONSE] worried about having enough money for regular expenses. When thinking about that, how did you come up with your answers?*
- ***PD36Ab:*** *Did you think about the whole year, or more recently?*
- ***PD36Ac:*** *If you had to give a number for how many times you worried about having enough money for regular expenses in the last 12 months, how many times would you say?*
- ***PD36Ad:*** *IF MORE THAN NEVER FOR C: About how many times have you carried a balance on a credit card? When you answered the question how far back did you think?*

For this question, the 12-month reference period worked well. Respondents seemed to focus on the past year without difficulty. Only three answered thinking of a shorter period, between one and 6 months.

Three respondents who never have to worry about money explained their reasons, including having a trust fund, finding it easy to find a job, and "knowing how to stretch my money."

Among those answering 'sometimes,' their narratives suggest that they do not have serious financial pressures but once in a while they have some concerns about things like transportation or travel.

Among those answering 'often,' there were concerns about paying for housing (living at school over the summer), and paying for books and other expenses while at school without family help. The frequency of worry was "100 days," "at least 20 times," and "every day (of the month), probably 30," and "6 to 8 times."

Those who worry very often painted a picture of rather constant worry. They answered the probe on how many times they worry, with numbers such as "200 times probably; almost every other day," "300," "at least once daily, 1000 times," "I think about it every day, 365 times," "500," "365, every day I guess." Only two or three expressed 'very often' in much smaller numbers, ranging around 8 to 10 times in the past year.

Two respondents objected to the question asking number of times, thinking it was difficult to answer that way.

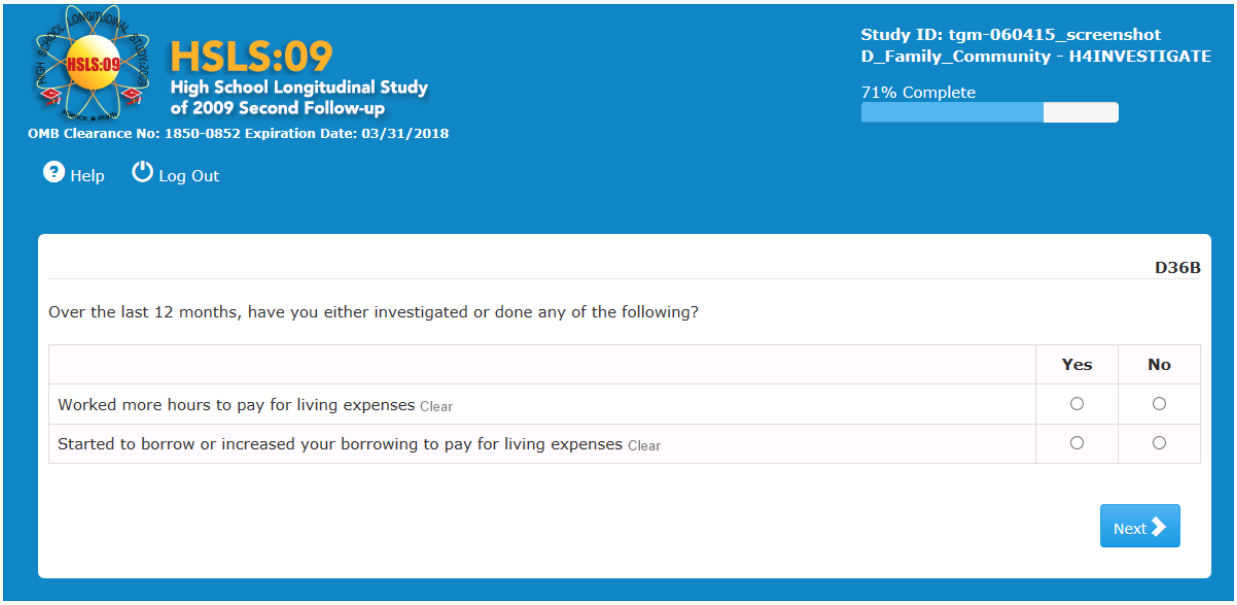
Only three respondents expressed uncertainty on how credit card balances work. Two were unsure about the meaning of "carrying a balance" on a credit card. One of them thought of 'balance' as in a debit card, which he was more familiar with. A third one answered "part b" thinking of his debit card and interpreting the question as asking if he had any money available in the debit account.

Five respondents who answered 'sometimes,' 'often,' or 'very often' were thinking about different periods of time when replying. One thought about the current calendar year, i.e. since January. Another thought back "about 6 months." The other three thought of the past 12 months as instructed in the question.

While they mostly answered with number of times, one respondent answered she had carried a balance "at least 300 days."

**Usability:** No issues observed.

## D36B




***Item-Specific Probes:***

- ***PD36Bb:*** *What do you think they mean by "living expenses" in this question? Can you give me some examples?*
- ***PD36Bc:*** *What do you think they mean by "investigated" in this question? Can you think of some examples of what types of activities they could mean?*

Respondents had no observable difficulties interpreting or answering this question. The definitions they provided for 'living expenses' included the types of expenses that would be expected, but varied depending on the kinds of things the respondents are responsible for in their daily lives (given their age and differential dependence on their parents, they do not all have to worry about the same things. The following are illustrative of the responses elicited: "room and board, tuition fees, and personal expenses (toiletries, food, transportation)," "gas, light, air conditioning," "food and rent," "rent, transportation, food, phone, cable bill, lights, garbage, water," "rent, clothing, food, water bills," "day to day things like food, rent, clothes," "transportation, food, clothes," "daily stuff, food," "clothes, personal hygiene items," "rent, housing, food, transportation," "just bills," "food, rent, utilities," "food, rent, toilet paper, etc.," "rent and utilities," "food, bills, rent," "food, necessary clothing, and necessary bills like utilities."

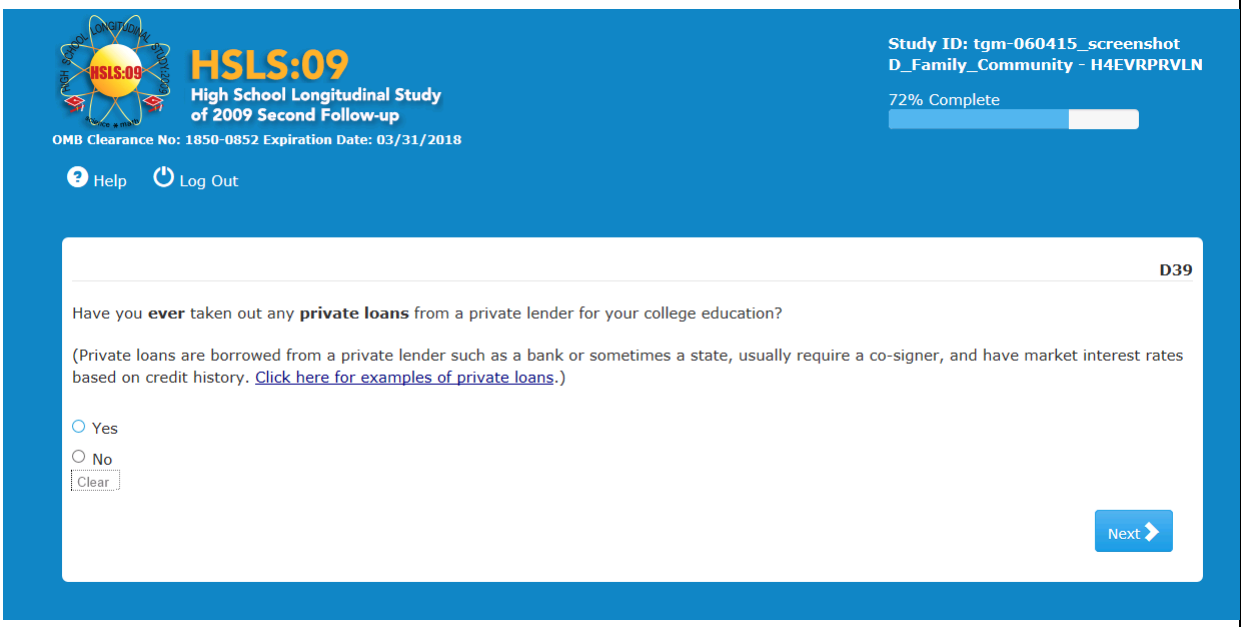
The concept of 'investigating' was clear to most respondents. One respondent said she did not know what it meant, and another did not at first but was able to figure it from context. Another respondent was surprised at hearing the term in the probe because she did not recall the word being in the question.

The vast majority defined it as "looking into" or "researching." Examples respondents gave included:

- "looking for loans or other support but not having gone through with it"
- "see if you could pick up a shift at work or more hours available and talk to the manager or something"
- "looked into or asked people to borrow money from them"
- "inquired about, like getting more hours."
- "search job ads"
- "searching for a way to get a loan"

**Usability:** No issues observed.

**D39**




***Item-Specific Probes:***

- ***PD39a:*** *Have you ever taken out any loan for your college education? IF YES: What type of loan it that? Why did you count/not count that loan when answering the question?*
- ***PD39b:*** *Other than private loans from private lenders, what other types of loans can you get for paying for college?*

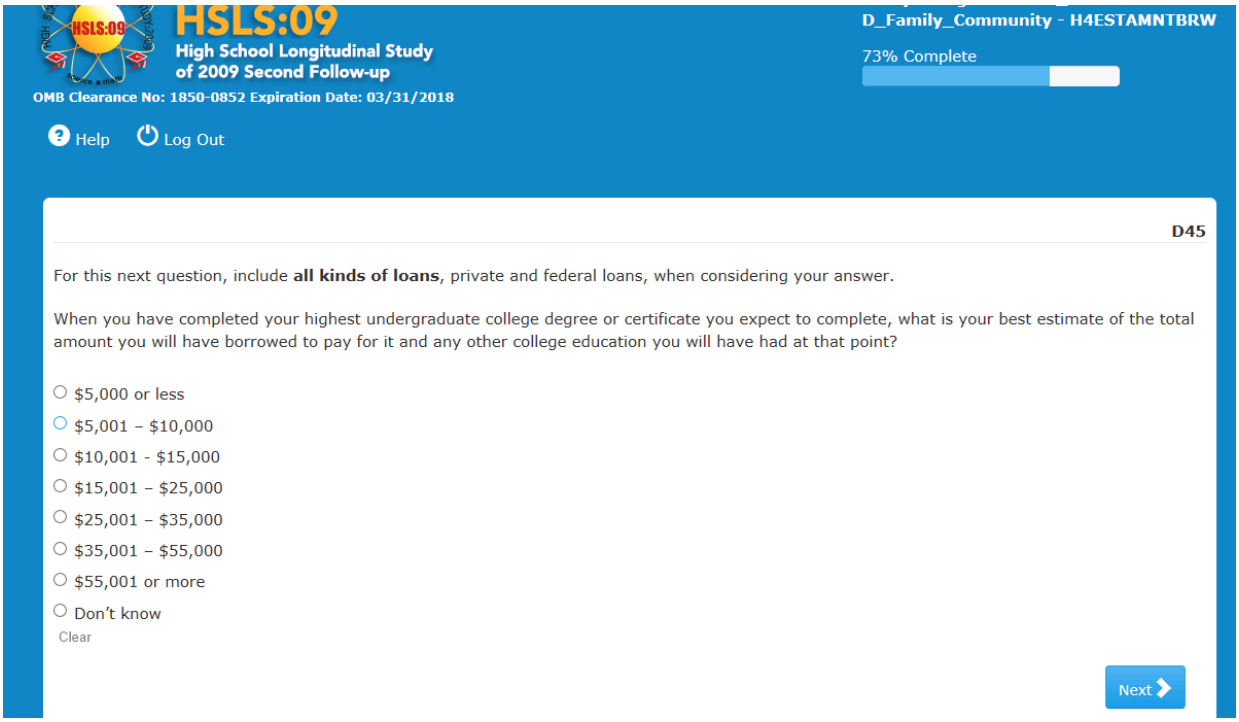
Most respondents answering these probes said that they had taken out federal loans, but no private loans. A few were slightly uncertain, in particular those with PLUS loans, but they checked the help text to make sure. One respondent knew virtually nothing about loans, except that they need to be paid back.

One respondent thought that he did not have a loan but rather got a reduced rate on his classes. However, these costs had not yet been paid at the time of the interview and he was unclear if this was a loan or not; he thought it was not, because he did not "go through a loan process."

Other types of loans they mentioned included federal loans both subsidized and unsubsidized, "Stanford loans," "Pell Grants," "Parent PLUS loans," "loans through the school," loans from family," and "a direct sponsor from a [music] studio or my mentors."

**Usability:** No issues observed.

**D45**




***Item-Specific Probes:***

- ***PD45a:*** *What loans were you thinking of when you answered this question?*

From most responses to the probes, it appeared that the respondents were thinking of any and all money they already owed. Since a majority of the respondents were either close to completing or had already completed their undergraduate education, this is likely a good projected total amount.

In answering, most respondents were thinking of the types of loans they currently have (or had at graduation time; one respondent has borrowed for her graduate

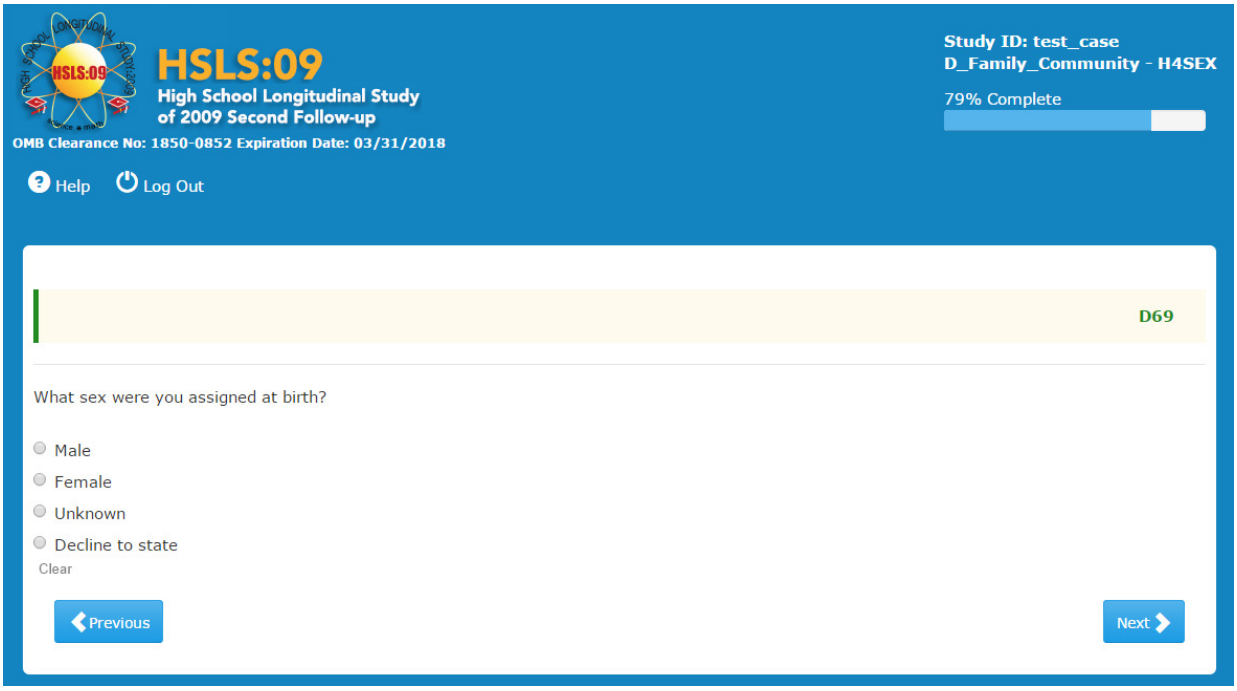
education but had no previous loans for undergraduate). Respondents included federal and other student loans, and appeared comfortable in selecting a range.

One respondent answered 'Don't know' because he did not see an option for 'no loans.' He did not realize a value of zero would be included in the range '$5000 or less.' Another respondent who had no student loans of any kind skipped the question without answering.

Only one respondent was explicit about including future debt. She was thinking of "future loans" and answered for the new debt she thinks she might acquire once she goes back to get her associate's degree (once she pays off the loans she has now).

**Usability:** No issues observed.

## D69




***Item-Specific Probes:***

- ***PD69a:*** *In your own words what is this question asking?*
- ***PD69b:*** *IF NECESSARY: What do you think they mean by 'your sex assigned at birth'?*
- ***PD69c:*** *How do you think the doctor decides what to put in the birth certificate?*
- ***PD69d:*** *Can someone's sex be left blank or unassigned on their birth certificate in the state in which you were born? If so, under what circumstances?*

**NOTE:** D69 has been revised from the second follow-up field test instrument's version of this question. The parenthetical "(what the doctor put on your birth certificate)" has been removed and response options 3 and 4 have been added. This cognitive interview will test a version that is presented in the Williams Institute Report (Conron et al., 2014).

This question posed no difficulties for respondents. They answered without trouble or hesitation. They understood the question as intended.

When probed about the meaning of 'your sex assigned at birth,' respondents answered with replies such as:

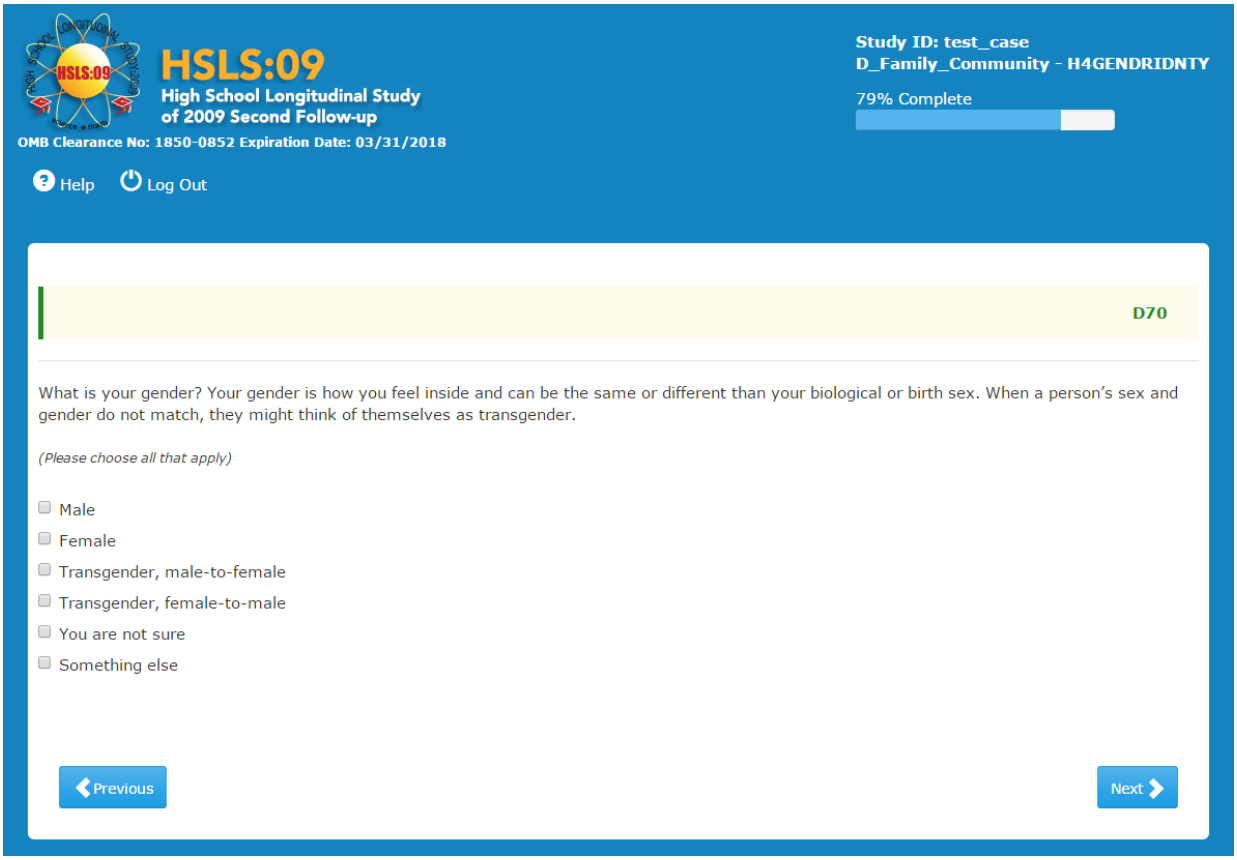
- "Birth assigned at birth is based on the genitals"
- "The doctor looks at your genitalia and decided if you were male or female based on if you have a penis or a vagina."
- "When I popped out of my mom they said, 'It's a boy!' because of the genitals of the baby, of me."
- "Are you male or female? Do you have a male organ or a female organ?"

- "The doctor decides gender by looking at 'your private parts'."
- "Was I born with a vagina or a penis?"
- "How many chromosomes you have and based on genitalia."
- "The doctor decides based on the reproductive organs of the baby."
- "The doctor assigns baby's sex based on your private areas."
- "What gender you were at birth…a little girl or a little boy, which is decided by doing science plus appearance." The respondent explained that 'doing science' was about genetics and chromosomes testing.
- "Are you male or female or somewhere in between, based on genitals?"
- "Your legal sex based on visual investigation at birth."
- "Possibly a chemical test could be done if there was any question."
- "What is your body defined as, pure anatomy."

About half of the respondents did not think that sex could be left blank on a birth certificate and almost another half was not sure. Two respondents thought that if a baby is born with a mixture of male and female organs, or two sets of organs, maybe the sex can be left blank on the certificate.

**Usability**: No issues observed.

**D70**




***Item-Specific Probes:***

- ***PD70a:*** *What do you think of this definition?: "Your gender is how you feel inside and can be the same or different than your biological or birth sex." Is this something you already knew?*
- ***PD70b:*** *IF NOT: Does it make sense to you? Tell me why/why not.*
- ***PD70c:*** *What does transgender mean to you?*
- ***PD70d:*** *How easily did you find one or more responses to choose? Tell me more about that.*
- ***PD70e:*** *Did you feel like there were any options missing here? Would you add anything?*

***SHOW SHOWCARD***

- ***PD70f:*** *Now look at this question. (SHOWCARD) Do you prefer one version of the question? Which do you prefer and why?*

**NOTE:** The order of D69 and D70 was varied in the cognitive interviews to test order effects as recommended by the Williams Institute Report (Conron et al., 2014).

The vast majority of respondents understood the question as intended, indicating they were previously familiar with the definition of gender provided in the question and that it made sense to them. Only one respondent said he was not familiar with that definition but took no issue, another one had heard it before but still found it odd, while two others simply did not agree with it. One said "I don't agree with that

definition. I think your gender is what sex you are when you are born…I don't think how you feel inside is relative to your biological or birth sex. Once you are born at birth you are that gender even if you decide to change it, you are always regarded as what you are born with." "I don't go with this whole whatever you are in your head is what you are on paper. What you are on paper is what you are physically;" adding that he had been raised to believe that his gender is what his body is and what his organs are.

Respondents were generally fine with the reference to transgender included in the gender definition in the question. They provided their own definitions of transgender that were generally in line with the one in the question. These included:

- "Gender doesn't agree with the sex assigned at birth."
- "What they identify as is not the same as the gender they were assigned at birth."
- "Someone who has taken steps to move away from the sex they were assigned at birth. Whether they just wear different clothes or got surgery."
- "When someone does something to their body to change it."
- "Transgender is one person becomes the opposite of what they are a guy wants to become a female…"
- "When you change from the sex you are assigned to the sex you feel or want to be."
- "When someone is born as one gender and they don't identify as that gender."
- Transgender means "the gray area…you're male or female or you're in the gray area…someone who was born one way and wants to switch, take the hormones or do the surgery."
- "Transgender means you identify with a sex that is not your birth sex."
- "A person who dresses as a sex they are not."
- "When you feel like you're not the sex that the doctor called you."
- "Transgender = changing to opposite sex of what you are by appearance."
- "The feeling someone has about being born in the wrong body."
- "Transgender is when your sex is one thing legally but the way you dress and have people reference you, the way you want to be seen and the reality you construct is a different sex."

A few respondents suggested additions to the response choices. One felt the options offered could be improved by adding "non-gender conforming" and "genderfluid" or "genderqueer," but added these could all be included under 'something else.' Another suggested "non-binary" as an option for those who do not identify as either male or female.

Two respondents did not choose either male or female but neither chose transgender. One of them was screened in recruiting as 'gender non-conforming' and chose 'something else' and felt it was a good option for him. The other one chose 'female' during the survey, but in probing she added 'not sure.' She said she did not always conform to the binary.

Respondents were shown an alternate way of presenting this question on the following Showcard:

What is your current gender identity?
(Please choose all that apply)

☐ Male

☐ Female

☐ Transgender Male/Transgender Man

☐ Transgender Female/Transgender Woman

☐ Genderqueer/Gender Non-conforming

☐ Different Identity _____

A good number of respondents were not familiar with the terms 'genderqueer' and/or 'gender non-conforming.' They also preferred 'different identity' over 'something else,' and they liked the option to provide a write-in answer (one respondent mentioned that the original version response choice 'Something else' seemed to suggest the survey had no interest in learning what else the person considers him/herself.

Others who were familiar with all the response categories offered, had a very strong preference for the Showcard version of the question, primarily because it lists 'genderqueer' and 'gender non-conforming' as options, or "because it has more variety of choices." One respondent liked the level of specificity in the original question response options of "transgender, male-to-female" and "transgender, female-to-male."

A good number had a marked preference for the simplicity and directness of the Showcard question stem. A couple of respondents remarked on the word 'current' in the showcard version and indicated they liked it because it gives the sense that gender identity can indeed change over time. On the other hand, many liked the

presence of the definition. Some were also mindful that their own preference might not be what persons in different gender communities might prefer to see.

A couple of respondents found it difficult to compare the two versions and indicate which they preferred and why. Several others indicated like and dislikes in both question formats, and proposing a combination of both. For example, a respondent liked the question as worded in the original question but would add the 'genderqueer' option from the Showcard and remove/replace the 'something else' and 'you are not sure' options from the original question as well. She liked the question 'What is your current gender identity' but would add the definition if the Showcard version were used. Another respondent preferred the response options on the Showcard, especially the write-in option, but liked best the definition from the original question.

The respondent who was screened as 'gender non-conforming' said he preferred the original question because he was able to find 'something else,' which reflects how he feel inside. Another respondent who answered 'female' but in probing self-defined as gender non-conforming, liked the Showcard because "it gives 'more agency' to the people who are gender nonconforming rather than not sure."

**Usability:** No issues observed.

### Testing for Question Order Effects of Questions 69 and 70

Respondents were randomly assigned to one of two question order versions. Half of the respondents (n=20) were asked question 69 first, followed by question 70 (and its Showcard alternative) and the other half (n=20) were asked first question 70 and the Showcard alternative, followed by question 69.

The most notable difference was a preference for the Showcard version among those respondents who saw question 69 first. There was no evident difference between those who stated they already knew the definition in question 70 and those who stated that they preferred having the definition.

| | 69/70 | | 70/69 | |
|---|---|---|---|---|
| Order of Admin: | Number | Percentage | Number | Percentage |
| Liked parts of each* | 3 | 16.7% | 4 | 21.1% |
| Original | 3 | 16.7% | 7 | 36.8% |
| Showcard | 12 | 66.7% | 8 | 42.1% |

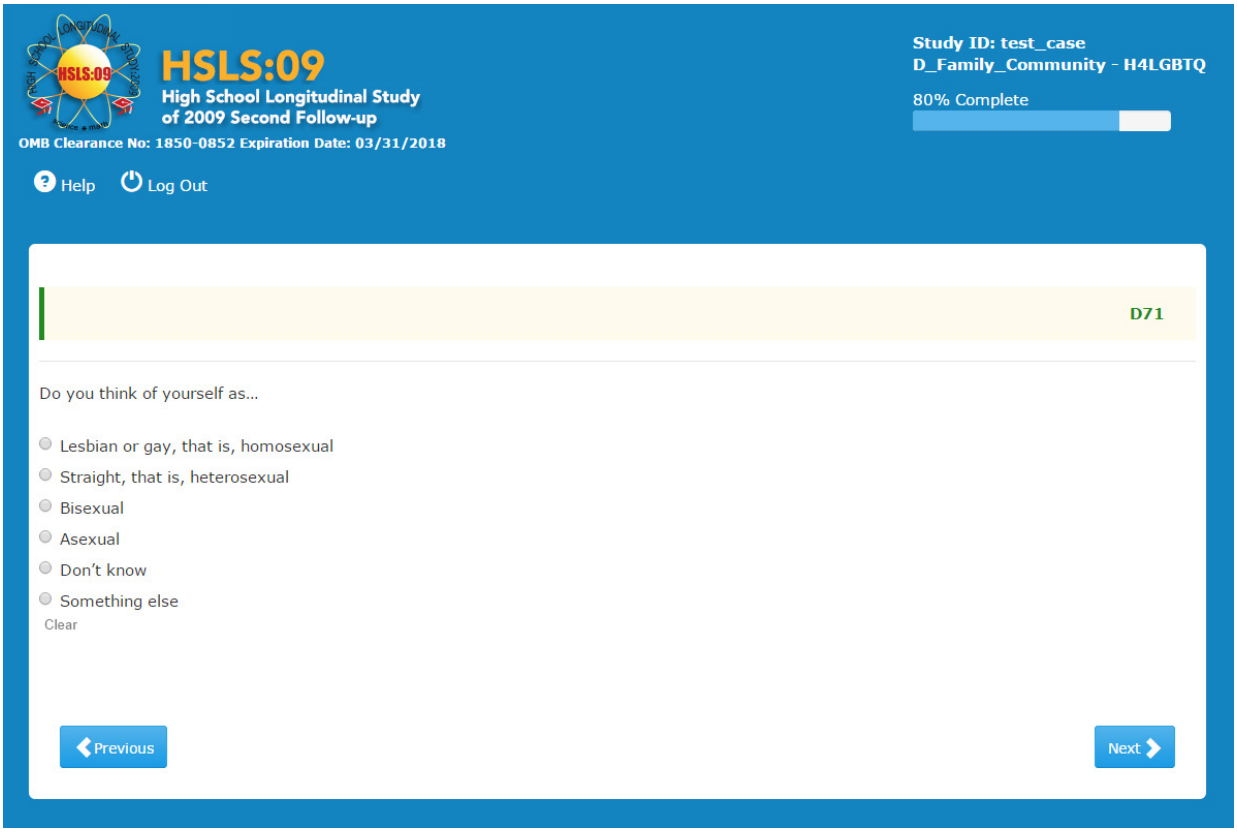
*Not all respondents indicated a preference.

In addition, two respondents who received question 70 first appeared to see it as a combined sex/gender question whereas no respondents who received question 69

first mentioned this. The first one thought of both gender expression and biological sex when answering question 70.

The second one, a male respondent, when asked about his Showcard preference said he preferred the question he saw on the screen because "it incorporates your gender and sexual orientation both." He saw the response option 'you are not sure' as asking about someone's sexual orientation, not their gender identity. He stated that combining the current version and the Showcard would make it "a more in-depth question," because he saw the original version as including sexual orientation.

**D71**




***Item-Specific Probes:***

- ***PD71a:*** *Tell me how you choose your answer.*
- ***PD71b:*** *What does the term "homosexual" mean to you?*
- ***PD71c:*** *What about the term "heterosexual"? What does that mean to you?*
- ***PD71d:*** *And "asexual"?*

All respondents were able to identify a response. One respondent had reported 'straight' in the screener and in this question answered 'something else,' "after long days of meditation." Another answered 'don't know,' after choosing 'other' in the

screening; this respondent said she often will choose 'bisexual' but since she hasn't had a relationship with a woman she was not sure.

One person who identified as something else and one respondent who identified as bisexual noted that pansexual should be included.

Nineteen respondents had no issues answering this question and were able to define homosexual, heterosexual and asexual without issue.

Two respondents didn't care for the terms, one wishing that pansexual was an option and the other noting that she doesn't care for the terms heterosexual and homosexual and prefers using the terms gay and straight.

Three respondents who identified as straight were unsure what the term 'heterosexual' meant, one R who knew he was straight googled the term before responding, one noted that because it was in the same list as 'straight' it must mean straight.

Sixteen respondents were unsure of the term asexual although as one respondent noted "in this question if someone is asexual they will know what it means and pick it so it doesn't affect me." Another respondent noted that he was unfamiliar with the term in relation to humans but in animals meant reproducing within yourself. Guesses included: "without a specific sex," "not liking sex," "and loving just oneself." One respondent who had not known the term heterosexual also thought asexual might also mean straight another wondered if it meant the same thing as pansexual. No respondent identified as asexual and the 16 respondents who were unsure of its meaning included those who identified as straight, gay and bisexuals.

**Usability**: Other than a couple slow systems, there were no reported usability issues.

*This page intentionally left blank*

# Appendix D: Survey Specifications

This page intentionally left blank.

This appendix provides a representation of the High School Longitudinal Study of 2009 (HSLS:09) second follow-up web survey instrument. To facilitate cross-referencing with the restricted-use electronic codebook (ECB) and the public-use Online Codebook, each of the instrument's survey screens are represented with a *screen identifier* (e.g., S4 A01; S4 D11A-B) which corresponds to a variable label prefix or prefixes. The screen identifier indicates the sequence of the screen in the survey, as encountered by a respondent, and also indicates in which data file(s) and variable(s) the data collected on the screen are stored. The following list provides a mapping between screen identifiers and data files (where an asterisk [*] indicates an arbitrary alphanumeric value):

- S4 A** = Section A of the student-level file
- S4 B** = Section B of the student-level file
- S4 C** = Section C of the student-level file
- S4 D** = Section D of the student-level file
- S4 I** = Student-institution file
- S4 P** = Student-institution-program file

Some survey items may appear on multiple files (e.g., the student-level file and the student-institution file); therefore, some survey screens have multiple screen identifiers. Additionally, certain data are collected on multiple screens and combined into a single variable. Hence, there are instances in which multiple screens have the same identifier. There are also instances where a screen is identified as an input to another.

# Section A: High School

**Introduction to Section A**
Question Wording: Before we begin, please note that this survey's data collection began in March 2016. Most questions will focus on your activities through the end of February 2016 so that all survey participants report on the same time period. [First, we have some questions about your high school experience.]

---

**S4 A01**
Question Wording: By the end of February 2016, had you completed high school with a high school diploma, a GED, or another high school equivalency?

**Variable: S4HSCRED**

1=Yes, a high school diploma (not including Adult High School Diplomas)
2=Yes, a GED (General Education Development diploma)
3=Yes, another high school equivalency such as HiSET, TASC, NEDP, or AHSD (Adult High School Diploma)
4=Yes, a certificate of attendance or completion
0=No

**Applies to:**
Second follow-up respondents for whom there was no prior indication of a high school diploma or for whom prior data was inconsistent in terms of type of high school credential or date of credential (i.e., second follow-up respondents for whom S4PRE_01=0).

**Notes:**
This variable is included in the abbreviated instrument.

---

**S4 A02A-B**
Question Wording: In what month and year did you receive your [high school diploma/GED/high school equivalency/certificate of attendance or completion]?

**Variable: S4HSCREDMO**
Item Wording: 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

**Variable: S4HSCREDYR**
Item Wording: Year:

2010=2010 or earlier
2011=2011
2012=2012
2013=2013
2014=2014
2015=2015
2016=2016

**Applies to:**
Second follow-up respondents who, during the second follow-up interview, indicated their high school credential type (i.e., S4HSCRED in (1, 2, 3, 4)).

**Notes:**
These variables are included in the abbreviated instrument.

---

**S4 A03**
Question Wording: From what state did you receive your [high school diploma/GED/high school equivalency/certificate of attendance or completion]?

**Variable: S4GEDSTATE**

[Dropdown list of states, U.S. territories and an option to indicate foreign]

**Applies to:**
Second follow-up respondents who, during the second follow-up interview, indicated receipt of a GED or other high school equivalency (i.e., S4HSCRED in (2, 3)).

---

**S4 A04A-B**
Question Wording: In what month and year did you last attend a traditional high school or an alternative high school for teenage students? [Do **not** include adult high school completion programs that prepare people for a GED or another high school equivalency. We will ask you about those programs later.]

**Variable: S4LASTHSMO**
Item Wording: 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

**Variable: S4LASTHSYR**
Item Wording: Year:

2010=2010 or earlier
2011=2011
2012=2012
2013=2013
2014=2014
2015=2015
2016=2016

**Applies to:**
Second follow-up respondents who, during the second follow-up interview, indicated (1) receipt of a GED; (2) receipt of some other high school equivalency; or (3) that they had not earned a high school credential (i.e., S4HSCRED in (0, 2, 3, -9)).

---

**S4 A05**
Question Wording: What grade were you in when you last attended high school? (If you attended an adult high school completion program, think back to the high school you attended before that.)

**Variable: S4LASTHSGRADE**

1=9th grade
2=10th grade
3=11th grade
4=12th grade

**Applies to:**
Second follow-up respondents who, during the second follow-up interview, indicated (1) receipt of a GED; (2) receipt of some other high school equivalency; or (3) that they had not earned a high school credential (i.e., S4HSCRED in (0, 2, 3, -9)).

**Notes:**
This variable is included in the abbreviated instrument.

---

**S4 A06A – S4 A06F**
Question Wording: What is the name of the high school [from which you received your high school diploma/from which you received a certificate of attendance/you last attended]?

(If you attended an adult high school completion program, think back to the high school you attended before that.)

**Variable: INPUT TO S4LASTHSID, S4LASTHSCONTROL, S4LASTHSLOCALE, S4LASTHSREGION, S4LASTHSCENDIV, S4LASTHSSTATE**

1=[2013 Update High School]
2=[First follow-up high school]
3=[Base year high school]
4=[Other high school previously attended - 1]
5=[Other high school previously attended - 2]
6=[Other high school previously attended - 3]
7=A different high school

**Applies to:**
Second follow-up respondents for whom there was no prior indication of a high school diploma or for whom prior data was inconsistent in terms of type of high school credential or date of credential (i.e., second follow-up respondents for whom S4PRE_01=0).

**Notes:**
This variable is included in the abbreviated instrument.

Variables on the student data file with prefixes S4 A06A – S4 A06F combine data from all screens with the screen identifier S4 A06A – S4 A06F.

---

**S4 A06A – S4 A06F**
Question Wording: What is the full name, city, and state of the high school [from which you received a diploma/from which you received a certificate of attendance or completion/you last attended]?

[(If you attended an adult high school completion program, think back to the high school you attended before that.)]

(Do not enter abbreviations.)

**Variable: S4LASTHSID**

**Variable: S4LASTHSCONTROL**

**Variable: S4LASTHSLOCALE**

**Variable: S4LASTHSREGION**

**Variable: S4LASTHSCENDIV**

**Variable: S4LASTHSSTATE**

**Applies to:**
Second follow-up respondents for whom there was no prior indication of a high school diploma or for whom prior data was inconsistent in terms of type of high school credential or date of credential (i.e., second follow-up respondents for whom S4PRE_01=0).

**Notes:**
This variable is included in the abbreviated instrument.

Variables on the student data file with prefixes S4 A06A - S4 A06F combine data from all screens with the screen identifier S4 A06A - S4 A06F.

---

**S4 A07**
Question Wording: Which of the following would you say best describes your high school grades overall?

**Variable: S4HSGPA**

1=Mostly A's
2=A's and B's
3=Mostly B's
4=B's and C's
5=Mostly C's
6=C's and D's
7=Mostly D's or below
8=Don't know

**Applies to:**
Second follow-up respondents for whom final high school GPA was not available from transcripts because they had not yet received a high school diploma or certificate of attendance at the time of the high school transcript data collection, their transcript(s) did not indicate a final high school GPA, or incomplete transcript data were collected for them (i.e., second follow-up respondents for whom X3TOUTCOME not in (1, 2, 3, 4, 5, 6) or X3TGPATOT <= 0 or X3TCREDTOT < 12).

---

**S4 A08**
Question Wording: What grade were you in when you **completed** Algebra I?

**Variable: S4ALG1WHEN**

1=8th grade or earlier
2=9th grade
3=10th grade
4=11th grade
5=12th grade
6=You did not complete Algebra I in middle school, junior high school or high school

**Applies to:**
Second follow-up respondents for whom grade level in which Algebra I was taken is not available from previous data collections (i.e., second follow-up respondents for whom S4PRE_02 = 0).

---

**S4 A09**
Question Wording: Which of the following course titles best describes the highest math course you completed in high school?

**Variable: S4HIMATH**

1=Below Algebra 1
2=Algebra 1
3=Geometry
4=Algebra 2
5=Algebra 3, Trigonometry, or Probability and/or Statistics (including AP Statistics)
6=Pre-Calculus
7=Calculus (including AP Calculus)
8=Other
9=None of these

**Applies to:**
Second follow-up respondents for whom highest high school math class taken is not available from previous data collections because they had not yet received a high school diploma or certification of attendance at the time of the high school transcript data collection or their highest high school math class was not indicated on the transcript (i.e., second follow-up respondents for whom X3TOUTCOME not in (1, 2, 3, 4, 5, 6) or X3THIMATH <= 0)

**Notes:**
Some values have been logically inferred based on answers provided to other questions in the survey. In these cases, the respondent was not asked this question. For more information, see S4HIMATH_I in the public-use and/or restricted-use data files.

---

**S4 A10**
Question Wording: Before you graduated, did you ever stop going to high school for a period of 4 weeks or more, not including summer or other school breaks?

(**Include** school expulsions or out-of-school suspensions, but do **not** include school breaks, illness, injury, or vacation.)

**Variable: S4DROPOUTHS**

1=Yes
0=No

**Applies to:**
Second follow-up respondents for whom there is no prior indication of a dropout episode (i.e., second follow-up respondents for whom X3EVERDROP = 0).

**Notes:**
This variable is included in the abbreviated instrument.

Second follow-up respondents for whom X3EVERDROP=1 were not asked this question. This includes cases where X3EVERDROP=1 due to imputation.
Some values have been logically inferred based on answers provided to other questions in the survey. In these cases, the respondent was not asked this question. For more information, see S4DROPOUTHS_I in the public-use and/or restricted-use data files.

---

**S4 A11**
Question Wording: Did you ever transfer from [Base year high school] to another high school either during the school year or between school years?

**Variable: S4TRANSFERHS**

1=Yes
0=No

**Applies to:**
Second follow-up respondents for whom there is no prior indication of high school transfer (i.e., second follow-up respondents for whom S4PRE_03 = 0).

**Notes:**
Some values have been logically inferred based on answers provided to other questions in the survey. In these cases, the respondent was not asked this question. For more information, see S4TRANSFERHS_I in the public-use and/or restricted-use data files.

---

**S4 A12**
Question Wording: By the end of February 2016, had you ever been in an adult high school completion program to prepare you to take the exam for a GED or another high school equivalency (for example, HiSET, TASC, NEDP, or AHSD (Adult High School Diploma))?

**Variable: S4HSPGMEVER**

1=Yes
0=No

**Applies to:**
Second follow-up respondents who, during the second follow-up interview, indicated that they had a GED, other high school equivalency, or no high school credential (i.e., S4HSCRED in (0, 2, 3)).

**Notes:**
This variable is included in the abbreviated instrument.

---

**S4 A13**
Question Wording: Were you enrolled in an adult high school completion program in February 2016?

**Variable: S4HSPGM16FB**

1=Yes
0=No

**Applies to:**
Second follow-up respondents who, during the second follow-up interview, indicated that they had no high school credential and had been in a high school completion program (i.e., S4HSCRED = 0 and S4HSPGMEVER=1).

---

**S4 A14**
Question Wording: By the end of February 2016, had you ever taken the test for the GED or another high school equivalency (for example, HiSET, TASC, NEDP (National External Diploma Program credential), or AHSD (Adult High School Diploma))?

**Variable: S4HSEQUEXAM**

1=Yes
0=No

**Applies to:**
Second follow-up respondents who, during the second follow-up interview, indicated that they had a GED, other high school equivalency, or no high school credential (i.e., S4HSCRED in (0, 2, 3)).

**Notes:**
Some values have been logically inferred based on answers provided to other questions in the survey. In these cases, the respondent was not asked this question. For more information, see S4HSEQUEXAM_I in the public-use and/or restricted-use data files.

---

**S4 A15**
Question Wording: Did you pass all parts of the GED or high school equivalency test the first time you took it?

**Variable: S4HSEQEXAMPASS**

1=Yes
0=No

**Applies to:**
Second follow-up respondents who, during the second follow-up interview, indicated having taken a GED or other high school equivalency exam (i.e., S4HSEQUEXAM=1).

**Notes:**
Some values have been logically inferred based on answers provided to other questions in the survey. In these cases, the respondent was not asked this question. For more information, see S4HSEQUEXAMPASS_I in the public-use and/or restricted-use data files.

---

**S4 A16**
Question Wording: Do you expect to complete a GED or other high school equivalency by the end of 2016?

**Variable: S4HSEQUEXPECT**

1=Yes, you completed a GED or another high school equivalency sometime between February 2016 and today
2=Yes, you expect to complete a GED or another high school equivalency sometime between today and the end of 2016
3=No

**Applies to:**
Second follow-up respondents who, during the second follow-up interview, indicated that they did not have a high school credential (i.e., S4HSCRED=0).

---

**S4 A17**
Question Wording: **Not** including Advanced Placement (AP) or International Baccalaureate (IB) courses, did you earn any college credits from a college or trade school while in high school?

**Variable: S4ANYDUALCRED**

1=Yes
0=No

**Applies to:**
All second follow-up respondents.

---

**S4 I01A – S4 I01F**
Question Wording: What is the full name, city and state of [a/**another**] college or trade school where you earned college credit while in high school?

**Variable: INST_ID**

**Variable: S4ICLGSTATE Variable: S4ICLGLEVEL**

**Variable: S4ICLGCTRL**

**Variable: S4ICLGSECTOR**

**Variable: S4ICLGSELECT**

**Variable: S4IOPENENR**

**Applies to:**
Second follow-up respondents who earned college credits from a college or trade school while in high school (i.e., S4ANYDUALCRED = 1)

**Notes:**
Respondents were given the option to check a box to indicate that they did not know the postsecondary institution where they earned college credits. In these cases, S4ANYDUALCRED=1 and the associated record on the student-institution file will have an INST_ID value of 999999 (uncodable).

Variables on the student-institution data file with prefixes S4 I01A – S4 I01F combine data from all screens with the screen identifier S4 I01A – S4 I01F. Postsecondary institutions collected in this question are those where S4IDUALENROLL = 1.

---

**NOT ON DATA FILE**
Question Wording: So far you have told us about your college credits earned during high school from:

[List of dual enrollment college/trade schools already named in S4 I01A – S4 I01F above]

When you were in high school did you earn college credit at any **other** college or trade school (NOT including AP or IB course credit)?

**Variable: NOT ON DATA FILE**

1=Yes
0=No

**Notes:**
The question's purpose was to determine whether to repeat the previous question.

---

# Section B: Postsecondary Education

**Introduction to Section B**
Question Wording: In the next section we will ask about education **after** high school. [When answering these questions, do **not** include [the college or trade school classes you took while you were still in high school/your adult high school completion program/the college or trade school classes you took while you were still in high school or your adult high school completion program].]

We will use the term "college or trade school" to include colleges and universities as well as any schools that provide occupational training. This includes:

- 4-year colleges and universities
- 2-year colleges, junior colleges, and community colleges
- Trade schools, technical institutes, and vocational schools which usually offer programs that take less than 2 years to complete (for example, culinary institutes and cosmetology schools)

---

**S4 B01**
Question Wording: By the end of February 2016, had you ever applied to or registered at a college or trade school?

[Do **not** include registration [for any college credits you earned during high school/for your adult high school completion program/for any college credits you earned during high school or for your adult high school completion program.]]

**Variable: S4EVERAPPLY**

1=Yes
0=No

**Applies to:**
Second follow-up respondents who were either 2013 Update nonrespondents or 2013 Update respondents who indicated that they had not applied or registered at that time (i.e., second follow-up respondents for whom S4PRE_04 = 1).

**Notes:**
Please note that the series of questions on college applications in the second follow-up was designed to complement college application information collected in the full-length 2013 Update survey. Therefore, in the second follow-up these questions were only asked of respondents who were 2013 Update nonrespondents or who indicated on the 2013 Update full-length survey that they had not applied to college at that time. The 2013 Update asked respondents how many colleges they had applied to or registered at, including the one they planned to attend/were attending on November 1, 2013, if applicable (S3CLGAPPNUM). An answer of zero to this question in the 2013 Update is equivalent to a ‘no’ response to S4EVERAPPLY.

The series of questions on college applications instructed respondents to report postsecondary institutions to which they applied as well as postsecondary institutions at which they registered (e.g., open enrollment institutions).

---

**S4 B02**
Question Wording: When did you apply or register?

[(Do not include registration [for any college credits you earned while in high school/for your adult high school completion program/for any college credits you earned while in high school or for your adult high school completion program.)]]

**Variable: S4WHENAPPLY**

1=While still attending high school
2=Sometime after high school, or
3=Both

**Applies to:**
Second follow-up respondents who, during the second follow-up interview, indicated they had applied to or registered at a college or trade school by the end of February 2016 (i.e., S4EVERAPPLY=1).

**Notes:**
Please note that the series of questions on college applications in the second follow-up was designed to complement college application information collected in the full-length 2013 Update survey. Therefore, in the second follow-up these questions were only asked of respondents who were 2013 Update nonrespondents or who indicated on the 2013 Update full-length survey that they had not applied to college at that time. This question about the timing of applications/registrations was not asked in the 2013 Update.

The series of questions on college applications instructed respondents to report postsecondary institutions to which they applied as well as postsecondary institutions at which they registered (e.g., open enrollment institutions). The questions that follow S4WHENAPPLY pertain only to the first round of applications/registrations the student submitted. This could be during high school or after high school. If a student transferred from one institution to another, the application for the transfer institution would not be considered.

---

**S4 B03**
Question Wording: [For the next questions, we are interested in your **first** applications and registrations to college or trade school, that is, the one(s) that you submitted when you were still attending high school.]

How many colleges or trade schools did you apply to or register for [ **while still attending high school**]?

[(Do **not** include registration [for any college credits you earned while in high school/for your adult high school completion program/for any college credits you earned while in high school or for your adult high school completion program.])]

**Variable: S4CLGAPPNUM**
Item Wording: |  college(s) or trade school(s)

**Applies to:**
Second follow-up respondents who, during the second follow-up interview, indicated they had applied to or registered at a college or trade school by the end of February 2016 (i.e., S4EVERAPPLY=1).

**Notes:**
Please note that the series of questions on college applications in the second follow-up was designed to complement college application information collected in the full-length 2013 Update survey. Therefore, in the second follow-up these questions were only asked of respondents who were 2013 Update nonrespondents or who indicated on the 2013 Update full-length survey that they had not applied to college at that time. X4CLGAPPNUM indicates the number of postsecondary institutions applied to or

registered at as reported in S3CLGAPPNUM in the 2013 Update or S4CLGAPPNUM in the second follow-up.

The series of questions on college applications instructed respondents to report postsecondary institutions to which they applied as well as postsecondary institutions at which they registered (e.g., open enrollment institutions). Also, these questions pertain only to the first round of applications/registrations the student submitted. This could be during high school or after high school. If a student transferred from one institution to another, the application for the transfer institution would not be considered. Note that the wording "For the next questions, we are interested in your **first** applications and registrations to college or trade school, that is, the one(s) that you submitted when you were still attending high school." and "…**while still attending high school**" were displayed only when S4WHENAPPLY=3. Additionally, students could report up to 3 institutions; the institution they attended, if applicable (S4CLGID/S3CLGID), and up to two others (S4CLGAPPID1/S3CLGAPPID1 and S4CLGAPPID2/S3CLGAPPID2). Therefore, for some students the college application data do not reflect all the institutions they first applied to or registered at. In these cases, respondents were instructed to select the ones that they most seriously considered attending. S4ITOP3APP = 1 for the postsecondary institution collected in this question and the other institution(s) the sample member applied to/registered at and most seriously considered.

---

**S4 B04**
Question Wording: As a result of [that application or registration/those [S4CLGAPPNUM] applications or registrations], did you end up attending [that college or trade school/either of those colleges or trade schools/any of those colleges or trade schools] by the end of February 2016?

**Variable: S4ATNDCLGAPP**

1=Yes
0=No

**Applies to:**
Second follow-up respondents who, during the second follow-up interview, indicated they had applied to or registered at a college or trade school by the end of February 2016 (i.e., S4EVERAPPLY=1).

**Notes:**
Please note that the series of questions on college applications in the second follow-up was designed to complement college application information collected in the full-length 2013 Update survey. Therefore, in the second follow-up these questions were only asked of respondents who were 2013 Update nonrespondents or who indicated on the 2013 Update full-length survey that they had not applied to college at that time. Although this question was not asked in the 2013 Update, respondents who participated in that survey and identified a postsecondary institution in S3CLGID planned to be attending that institution on November 1, 2013. Respondents who responded to the 2013 Update after that date were reporting actual attendance. See X3SQDATENOV1 and X3SQDATE for date of response to the 2013 Update.

The series of questions on college applications instructed respondents to report postsecondary institutions to which they applied as well as postsecondary institutions at which they registered (e.g., open enrollment institutions). Also, these questions pertain only to the first round of applications/registrations the student submitted. This could be during high school or after high school. If a student transferred from one institution to another, the application for the transfer institution would not be considered. Additionally, students could report up to 3 institutions; the institution they attended, if applicable (S4CLGID/S3CLGID), and up to two others (S4CLGAPPID1/S3CLGAPPID1 and S4CLGAPPID2/S3CLGAPPID2). Therefore, for some students the college application data do not reflect all the institutions they first applied to or registered at. In these cases, respondents were instructed to select the ones that they most seriously considered attending. S4ITOP3APP = 1 for the postsecondary institution collected in this question and the other institution(s) the sample member applied to/registered at and most seriously considered.

---

**S4 B05 / S4 I01A – S4 I01F**
Question Wording: Was the college or trade school you attended as a result of [that application or registration/those [S4CLGAPPNUM] applications or registrations] ...

**Variable: INPUT TO S4CLGID / INST_ID / S4ICLGSTATE / S4ICLGLEVEL / S4ICLGCTRL / S4ICLGSECTOR / S4ICLGSELECT / S4IOPENENR**

1=[Dual enrollment college/trades school - 1 (from S4 I01A – S4 I01F on page D-12)]
2=[Dual enrollment college/trades school - 2 (from S4 I01A – S4 I01F on page D-12)]
3=[Dual enrollment college/trades school - 3 (from S4 I01A – S4 I01F on page D-12)]
9=or some other college or trade school?

**Applies to:**
Second follow-up respondents who had not provided college application data in the 2013 Update and who attended one of the colleges they applied to in their first round of applications (i.e., S4ATNDCLGAPP = 1)

**Notes:**
Please note that the series of questions on college applications in the second follow-up was designed to complement college application information collected in the full-length 2013 Update survey. Therefore, in the second follow-up these questions were only asked of respondents who were 2013 Update nonrespondents or who indicated on the 2013 Update full-length survey that they had not applied to college at that time. X4ATNDAPPINST indicates the IPEDS ID of the institution attended as reported in S3CLGID in the 2013 Updated or S4CLGID in the second follow-up.

The series of questions on college applications instructed respondents to report postsecondary institutions to which they applied as well as postsecondary institutions at which they registered (e.g., open enrollment institutions). Also, these questions pertain only to the first round of applications/registrations the student submitted. This could be during high school or after high school. If a student transferred from one institution to another, the application for the transfer institution would not be considered. Additionally, students could report up to 3 institutions; the institution they attended, if applicable (S4CLGID/S3CLGID), and up to two others (S4CLGAPPID1/S3CLGAPPID1 and S4CLGAPPID2/S3CLGAPPID2). Therefore, for some students the college application data do not reflect all the institutions they first applied to or registered at. In these cases, respondents were instructed to select the ones that they most seriously considered. S4ITOP3APP = 1 for the postsecondary institution collected in this question and the other institution(s) the sample member applied to/registered at and most seriously considered.

Variables on the student-institution data file with prefixes S4 I01A – S4 I01F combine data from all screens with the screen identifier S4 I01A – S4 I01F.

---

**S4 B05 / S4 I01A – S4 I01F**
Question Wording: What is the name, city and state of the college or trade school you attended as a result of [that application or registration/those [S4CLGAPPNUM] applications or registrations]?

[(If you attended more than one of these colleges or trade schools, tell us about the one you attended first.)]

(Please type in the full name. Do not use abbreviations.)

**Variable: S4CLGID / INST_ID**

**Variable: S4ICLGSTATE**

**Variable: S4ICLGLEVEL**

**Variable: S4ICLGCTRL**

**Variable: S4ICLGSECTOR**

**Variable: S4ICLGSELECT**

**Variable: S4IOPENENR**

**Applies to:**
Second follow-up respondents who had not provided college application data in the 2013 Update and who attended one of the colleges they applied to in their first round of applications (i.e., S4ATNDCLGAPP = 1)

**Notes:**
Please note that the series of questions on college applications in the second follow-up was designed to complement college application information collected in the full-length 2013 Update survey. Therefore, in the second follow-up these questions were only asked of respondents who were 2013 Update nonrespondents or who indicated on the 2013 Update full-length survey that they had not applied to college at that time. X4ATNDAPPINST indicates the IPEDS ID of the institution attended as reported in S3CLGID in the 2013 Updated or S4CLGID in the second follow-up.

The series of questions on college applications instructed respondents to report postsecondary institutions to which they applied as well as postsecondary institutions at which they registered (e.g., open enrollment institutions). Also, these questions pertain only to the first round of applications/registrations the student submitted. This could be during high school or after high school. If a student transferred from one institution to another, the application for the transfer institution would not be considered. Additionally, students could report up to 3 institutions; the institution they attended, if applicable (S4CLGID/S3CLGID), and up to two others (S4CLGAPPID1/S3CLGAPPID1 and S4CLGAPPID2/S3CLGAPPID2). Therefore, for some students the college application data do not reflect all the institutions they first applied to or registered at. In these cases, respondents were instructed to select the ones that they most seriously considered. S4ITOP3APP = 1 for the postsecondary institution collected in this question and the other institution(s) the sample member applied to/registered at and most seriously considered.

Variables on the student-institution data file with prefixes S4 I01A – S4 I01F combine data from all screens with the screen identifier S4 I01A – S4 I01F.

---

**S4 B06 / S4 I01A – S4 I01F**
Question Wording: If S4CLGAPPNUM = 1 fill "Was the college or trade school you applied to or registered at..."

Else if S4CLGAPPNUM = 2 and S4ATNDCLGAPP = 1 fill "Was the other college or trade school you applied to or registered at..."

Else if S4CLGAPPNUM = 3 and S4ATNDCLGAPP = 1 fill "Now, tell us about one of the other colleges or trade schools you applied to or registered at. Was it..."

Else if S4CLGAPPNUM > 3 and S4ATNDCLGAPP = 1 fill "[[If College/trade school applied to/registered at and attended (institution from S4 B05; identified in X4ATNDAPPINST) <> missing: Not including [College/trade school applied to/registered at and attended (institution from S4 B05; identified in X4ATNDAPPINST)], think/ELSE: Think]] about the two [other] colleges or trade schools you most

seriously considered at that time. Choose one of these two to tell us about now. Was it..."

Else if S4CLGAPPNUM = 2 fill "First, tell us about one of the colleges or trade schools you applied to or registered at. Was it..."

Else if S4CLGAPPNUM > 2 fill "Please think about the two colleges or trade schools you most seriously considered at that time. Choose one of these two to tell us about now. Was it..."

Else fill "Tell us about one of the colleges or trade schools you applied to or registered at. Was it..."

**Variable: INPUT TO S4CLGAPPID1 / INST_ID / S4ICLGSTATE / S4ICLGLEVEL / S4ICLGCTRL / S4ICLGSECTOR / S4ICLGSELECT / S4IOPENENR**

1=[Dual enrollment college/trades school - 1 (from S4 I01A – S4 I01F on page D-12)]
2=[Dual enrollment college/trades school - 2 (from S4 I01A – S4 I01F on page D-12)]
3=[Dual enrollment college/trades school - 3 (from S4 I01A – S4 I01F on page D-12)]
9=or some other college or trade school?

**Applies to:**
Second follow-up respondents who had not provided college application data in the 2013 Update and who applied to, but did not attend at least one institution from their first round of applications (i.e., either (a) S4ATNDCLGAPP = 1 and S4CLGAPPNUM > 1 or (b) S4ATNDCLGAPP ^= 1 and S4CLGAPPNUM > 0.)

**Notes:**
Please note that the series of questions on college applications in the second follow-up was designed to complement college application information collected in the full-length 2013 Update survey. Therefore, in the second follow-up these questions were only asked of respondents who were 2013 Update nonrespondents or who indicated on the 2013 Update full-length survey that they had not applied to college at that time. See S3CLGAPPID1 for the comparable institution in the 2013 Update.

The series of questions on college applications instructed respondents to report postsecondary institutions to which they applied as well as postsecondary institutions at which they registered (e.g., open enrollment institutions). Also, these questions pertain only to the first round of applications/registrations the student submitted. This could be during high school or after high school. If a student transferred from one institution to another, the application for the transfer institution would not be considered. Additionally, students could report up to 3 institutions; the institution they attended, if applicable (S4CLGID/S3CLGID), and up to two others (S4CLGAPPID1/S3CLGAPPID1 and S4CLGAPPID2/S3CLGAPPID2). Therefore, for some students the college application data do not reflect all the institutions they first applied to or registered at. In these cases, respondents were instructed to select the ones that they most seriously considered. S4ITOP3APP = 1 for the postsecondary institution collected in this question and the other institution(s) the sample member applied to/registered at and most seriously considered.

Variables on the student-institution data file with prefixes S4 I01A – S4 I01F combine data from all screens with the screen identifier S4 I01A – S4 I01F.

---

**S4 B06 / S4 I01A – S4 I01F**
Question Wording: If S4CLGAPPNUM = 1 fill: What is the name, city and state of the college or trade school you applied to or registered at? (Please type in the full name. Do not use abbreviations.)

Else if S4CLGAPPNUM = 2 and S4ATNDCLGAPP = 1 fill: What is the name, city and state of the other college or trade school you applied to or registered at? (Please type in the full name. Do not use abbreviations.)

Else if S4CLGAPPNUM = 3 and S4ATNDCLGAPP = 1 fill: What is the name, city and state of one of the other colleges or trade schools you applied to or registered at? (Please type in the full name. Do not use abbreviations.)

Else if S4CLGAPPNUM > 3 and S4ATNDCLGAPP = 1 and respondent selected option 9 on previous screen fill: What is the name, city and state of one of the two other colleges or trade schools you most seriously considered at that time? (Please type in the full name. Do not use abbreviations.)

Else if S4CLGAPPNUM > 3 and S4ATNDCLGAPP = 1 fill: [[If College/trade school applied to/registered at and attended (institution from S4 B05; identified in X4ATNDAPPINST) <> missing: Not including [College/trade school applied to/registered at and attended (institution from S4 B05; identified in X4ATNDAPPINST)], think/ELSE: Think]] about the two other colleges or trade schools you most seriously considered at that time. What is the name, city and state of one of those colleges or trade schools? (Please type in the full name. Do not use abbreviations.)

Else if S4CLGAPPNUM = 2 fill: What is the name, city and state of one of the colleges or trade schools you applied to or registered at? (Please type in the full name. Do not use abbreviations.)

Else if S4CLGAPPNUM > 2 and respondent selected option 9 on previous screen fill: What is the name, city and state of one of the two colleges or trade schools you most seriously considered at that time? (Please type in the full name. Do not use abbreviations.)

Else if S4CLGAPPNUM > 2 fill: Think about the two colleges or trade schools you most seriously considered at that time. What is the name, city and state of one of those colleges or trade schools? (Please type in the full name. Do not use abbreviations.)

Else fill: What is the name, city and state of one of the colleges or trade schools you applied to or registered at? (Please type in the full name. Do not use abbreviations.)

**Variable: S4CLGAPPID1 / INST_ID**

**Variable: S4ICLGSTATE**

**Variable: S4ICLGLEVEL**

**Variable: S4ICLGCTRL**

**Variable: S4ICLGSECTOR**

**Variable: S4ICLGSELECT**

**Variable: S4IOPENENR**

**Applies to:**
Second follow-up respondents who had not provided college application data in the 2013 Update and who applied to, but did not attend at least one institution from their first round of applications (i.e., either (a) S4ATNDCLGAPP = 1 and S4CLGAPPNUM > 1 or (b) S4ATNDCLGAPP ^= 1 and S4CLGAPPNUM > 0.)

**Notes:**
Please note that the series of questions on college applications in the second follow-up was designed to complement college application information collected in the full-length 2013 Update survey. Therefore, in the second follow-up these questions were only asked of respondents who were 2013 Update nonrespondents or who indicated on the 2013 Update full-length survey that they had not applied to college at that time. See S3CLGAPPID1 for the comparable institution in the 2013 Update.

The series of questions on college applications instructed respondents to report postsecondary institutions to which they applied as well as postsecondary institutions at which they registered (e.g., open enrollment institutions). Also, these questions pertain only to the first round of applications/registrations the student submitted. This could be during high school or after high school. If a student transferred from one institution to another, the application for the transfer institution would not be considered. Additionally, students could report up to 3 institutions; the institution they attended, if applicable (S4CLGID/S3CLGID), and up to two others (S4CLGAPPID1/S3CLGAPPID1 and S4CLGAPPID2/S3CLGAPPID2). Therefore, for some students the college application data do not reflect all the institutions they first applied to or registered at. In these cases, respondents were instructed to select the ones that they most seriously considered. S4ITOP3APP = 1 for the postsecondary institution collected in this question and the other institution(s) the sample member applied to/registered at and most seriously considered.

Variables on the student-institution data file with prefixes S4 I01A – S4 I01F combine data from all screens with the screen identifier S4 I01A – S4 I01F.

---

**S4 B07 / S4 I01A – S4 I01F**
Question Wording: What is the other college or trade school you [applied to or registered at/most seriously considered at that time]? Was it...

**Variable: INPUT TO S4CLGAPPID2 / INST_ID / S4ICLGSTATE / S4ICLGLEVEL / S4ICLGCTRL / S4ICLGSECTOR / S4ICLGSELECT / S4IOPENENR**

1=[Dual enrollment college/trades school - 1 (from S4 I01A – S4 I01F on page D-12)]
2=[Dual enrollment college/trades school - 2 (from S4 I01A – S4 I01F on page D-12)]
3=[Dual enrollment college/trades school - 3 (from S4 I01A – S4 I01F on page D-12)]
9=or some other college or trade school?

**Applies to:**
Second follow-up respondents who had not provided college application data in the 2013 Update and who applied to, but did not attend at least two institutions from their first round of applications (i.e., either (a) S4ATNDCLGAPP = 1 and S4CLGAPPNUM > 2 or (b) S4ATNDCLGAPP ^= 1 and S4CLGAPPNUM > 1.)

**Notes:**
Please note that the series of questions on college applications in the second follow-up was designed to complement college application information collected in the full-length 2013 Update survey. Therefore, in the second follow-up these questions were only asked of respondents who were 2013 Update nonrespondents or who indicated on the 2013 Update full-length survey that they had not applied to college at that time. See S3CLGAPPID2 for the comparable institution in the 2013 Update.

The series of questions on college applications instructed respondents to report postsecondary institutions to which they applied as well as postsecondary institutions at which they registered (e.g., open enrollment institutions). Also, these questions pertain only to the first round of applications/registrations the student submitted. This could be during high school or after high school. If a student transferred from one institution to another, the application for the transfer institution would not be considered. Additionally, students could report up to 3 institutions; the institution they attended, if applicable (S4CLGID/S3CLGID), and up to two others (S4CLGAPPID1/S3CLGAPPID1 and S4CLGAPPID2/S3CLGAPPID2). Therefore, for some students the college application data do not reflect all the institutions they first applied to or registered at. In these cases, respondents were instructed to select the ones that they most seriously considered. S4ITOP3APP = 1 for the postsecondary institution collected in this question and the other institution(s) the sample member applied to/registered at and most seriously considered.

Variables on the student-institution data file with prefixes S4 I01A – S4 I01F combine data from all screens with the screen identifier S4 I01A – S4 I01F.

---

**S4 B07 / S4 I01A – S4 I01F**
Question Wording: What is the name, city and state of the other school you [applied to or registered at/most seriously considered at that time]?

(Please type in the full name. Do not use abbreviations.)

**Variable: S4CLGAPPID2 / INST_ID**

**Variable: S4ICLGSTATE**

**Variable: S4ICLGLEVEL**

**Variable: S4ICLGCTRL**

**Variable: S4ICLGSECTOR**

**Variable: S4ICLGSELECT**

**Variable: S4IOPENENR**

**Applies to:**
Second follow-up respondents who had not provided college application data in the 2013 Update and who applied to, but did not attend at least two institutions from their first round of applications (i.e., either (a) S4ATNDCLGAPP = 1 and S4CLGAPPNUM > 2 or (b) S4ATNDCLGAPP ^= 1 and S4CLGAPPNUM > 1.)

**Notes:**
Please note that the series of questions on college applications in the second follow-up was designed to complement college application information collected in the full-length 2013 Update survey. Therefore, in the second follow-up these questions were only asked of respondents who were 2013 Update nonrespondents or who indicated on the 2013 Update full-length survey that they had not applied to college at that time. See S3CLGAPPID2 for the comparable institution in the 2013 Update.

The series of questions on college applications instructed respondents to report postsecondary institutions to which they applied as well as postsecondary institutions at which they registered (e.g., open enrollment institutions). Also, these questions pertain only to the first round of applications/registrations the student submitted. This could be during high school or after high school. If a student transferred from one institution to another, the application for the transfer institution would not be considered. Additionally, students could report up to 3 institutions; the institution they attended, if applicable (S4CLGID/S3CLGID), and up to two others (S4CLGAPPID1/S3CLGAPPID1 and S4CLGAPPID2/S3CLGAPPID2). Therefore, for some students the college application data do not reflect all the institutions they first applied to or registered at. In these cases, respondents were instructed to select the ones that they most seriously considered. S4ITOP3APP = 1 for the postsecondary institution collected in this question and the other institution(s) the sample member applied to/registered at and most seriously considered.

Variables on the student-institution data file with prefixes S4 I01A – S4 I01F combine data from all screens with the screen identifier S4 I01A – S4 I01F.

---

**S4 B08A-B / S4 I02**
Question Wording: When you applied or registered, which of the following colleges or trade schools was your **first choice**, not considering the cost? Consider all colleges and trade schools regardless of whether you were accepted or not.

**Variable: S4CHOICEAPP / S4ICHOICEAPP**

1=[College/trade school applied to/registered at and attended (institution from S4 B05; identified in X4ATNDAPPINST)]
2=[Other college/trade school applied to/registered at - 1 (institution from S4 B06)]
3=[Other college/trade school applied to/registered at - 2 (institution from S4 B07)]
9=Don't know

**Applies to:**
Second follow-up respondents who, during the second follow-up interview, reported applying to at least one college (i.e., S4CLGAPPNUM > 0).

**Notes:**
Please note that the series of questions on college applications in the second follow-up was designed to complement college application information collected in the full-length 2013 Update survey. Therefore, in the second follow-up these questions were only asked of respondents who were 2013 Update nonrespondents or who indicated on the 2013 Update full-length survey that they had not applied to college at that time. See S3CHOICEAPP for the comparable institution in the 2013 Update. S4ICHOICEAPP in the student-institution file combines data from S3CHOICEAPP and S4CHOICEAPP. S4IAPPSOURCE indicates the source as the 2013 Update or the second follow-up.

The series of questions on college applications instructed respondents to report postsecondary institutions to which they applied as well as postsecondary institutions at which they registered (e.g., open enrollment institutions). Also, these questions pertain only to the first round of applications/registrations the student submitted. This could be during high school or after high school. If a student transferred from one institution to another, the application for the transfer institution would not be considered. Additionally, students could report up to 3 institutions; the institution they attended, if applicable (S4CLGID/S3CLGID), and up to two others (S4CLGAPPID1/S3CLGAPPID1 and S4CLGAPPID2/S3CLGAPPID2). Therefore, for some students the college application data do not reflect all the institutions they first applied to or registered at. In these cases, respondents were instructed to select the ones that they most seriously considered.

Some values have been logically inferred based on answers provided to other questions in the survey. In these cases, the respondent was not asked this question. For more information, see S4CHOICEAPP_I and S4ICHOICEAPP_I on the public-use and/or restricted-use data files.

---

**S4 B09A-B / S4 I03**
Question Wording: Were you accepted, wait-listed or rejected at [Other college/trade school applied to/registered at - 1 (institution from S4 B06)]? For schools that admit anyone who registers, answer "Accepted."

OR

Were you accepted, wait-listed or rejected at [Other college/trade school applied to/registered at - 2 (institution from S4 B07)]? For schools that admit anyone who registers, answer "Accepted."

OR

For each of the following schools, indicate if you were accepted, wait-listed or rejected. For schools that admit anyone who registers, answer "Accepted."

**Variable: S4APPSTATUS1 / S4IAPPSTATUS**
Item Wording: [Other college/trade school applied to/registered at - 1 (institution from S4 B06)]

**Variable: S4APPSTATUS2 / S4IAPPSTATUS**
Item Wording: [Other college/trade school applied to/registered at - 2 (institution from S4 B07)]

1=Accepted
2=Wait-listed
3=Rejected

**Applies to:**
Second follow-up respondents who had not provided college application data in the 2013 Update and who applied to, but did not attend at least one institution from their first round of applications (i.e., either (a) S4ATNDCLGAPP = 1 and S4CLGAPPNUM > 1 or (b) S4ATNDCLGAPP ^= 1 and S4CLGAPPNUM > 0.)

**Notes:**
Please note that the series of questions on college applications in the second follow-up was designed to complement college application information collected in the full-length 2013 Update survey. Therefore, in the second follow-up these questions were only asked of respondents who were 2013 Update nonrespondents or who indicated on the 2013 Update full-length survey that they had not applied to college at that time. See S3APPSTATUS1 and S3APPSTATUS2 for the comparable variables in the 2013 Update data. S4IAPPSTATUS in the student-institution file combines data from S3APPSTATUS1, S3APPSTATUS2, S4APPSTATUS1, and S4APPSTATUS2. S4IAPPSOURCE indicates the source as the 2013 Update or the second follow-up.

The series of questions on college applications instructed respondents to report postsecondary institutions to which they applied as well as postsecondary institutions at which they registered (e.g., open enrollment institutions). Also, these questions pertain only to the first round of applications/registrations the student submitted. This could be during high school or after high school. If a student transferred from one institution to another, the application for the transfer institution would not be considered. Additionally, students could report up to 3 institutions; the institution they attended, if applicable (S4CLGID/S3CLGID), and up to two others (S4CLGAPPID1/S3CLGAPPID1 and S4CLGAPPID2/S3CLGAPPID2). Therefore, for some students the college application data do not reflect all the institutions they first applied to or registered at. In these cases, respondents were instructed to select the ones that they most seriously considered.

Some values have been logically inferred based on answers provided to other questions in the survey. In these cases, the respondent was not asked this question. For more information, see S4IAPPSTATUS_I on the public-use and/or restricted-use data files.

---

**S4 B10A-B / S4 I04**
Question Wording: When you were accepted, which of the following colleges or trade schools was your **first choice**, not considering the cost?

**Variable: S4CHOICEACC / S4ICHOICEACC**

1=[College/trade school applied to/registered at and attended (institution from S4 B05; identified in X4ATNDAPPINST)]
2=[Other college/trade school applied to/registered at - 1 (institution from S4 B06)]
3=[Other college/trade school applied to/registered at - 2 (institution from S4 B07)]
9=Don't know

**Applies to:**

Second follow-up respondents who, during the second follow-up interview, indicated they were accepted at a college or trade school by the end of February 2016 (i.e., S4ATNDCLGAPP = 1 or S4APPSTATUS1 = 1 or S4APPSTATUS2 = 1).

**Notes:**
Please note that the series of questions on college applications in the second follow-up was designed to complement college application information collected in the full-length 2013 Update survey. Therefore, in the second follow-up these questions were only asked of respondents who were 2013 Update nonrespondents or who indicated on the 2013 Update full-length survey that they had not applied to college at that time. See S3CHOICEACC for the comparable institution in the 2013 Update. S4ICHOICEACC in the student-institution file combines data from S3CHOICEACC and S4CHOICEACC. S4IAPPSOURCE indicates the source as the 2013 Update or the second follow-up.

The series of questions on college applications instructed respondents to report postsecondary institutions to which they applied as well as postsecondary institutions at which they registered (e.g., open enrollment institutions). Also, these questions pertain only to the first round of applications/registrations the student submitted. This could be during high school or after high school. If a student transferred from one institution to another, the application for the transfer institution would not be considered. Additionally, students could report up to 3 institutions; the institution they attended, if applicable (S4CLGID/S3CLGID), and up to two others (S4CLGAPPID1/S3CLGAPPID1 and S4CLGAPPID2/S3CLGAPPID2). Therefore, for some students the college application data do not reflect all the institutions they first applied to or registered at. In these cases, respondents were instructed to select the ones that they most seriously considered.

Some values have been logically inferred based on answers provided to other questions in the survey. In these cases, the respondent was not asked this question. For more information, see S4CHOICEACC_I on the student file and S4ICHOICEACC_I on the public-use and/or restricted-use data files

---

**S4 B11A-C**
Question Wording: How important to you was each of the following characteristics when choosing to attend [College/trade school applied to/registered at and attended (institution from S4 B05; identified in X4ATNDAPPINST)]?

**Variable: S4REPUTATION**
Item Wording: Academic quality or reputation

**Variable: S4COSTATTEND**
Item Wording: Cost of attendance

**Variable: S4OFFERSFIELD**
Item Wording: [College/trade school applied to/registered at and attended (institution from S4 B05; identified in X4ATNDAPPINST)] offered a particular program of study

1=Very important
2=Somewhat important
3=Not at all important
4=Don't know

**Applies to:**
Second follow-up respondents who indicated, during the second follow-up interview, that they were accepted to more than one institution and attended an institution other than their first choice among those where they were accepted (i.e., S4ATNDCLGAPP = 1 and S4CHOICEACC in (2,3)).

**Notes:**

Please note that the series of questions on college applications in the second follow-up was designed to complement college application information collected in the full-length 2013 Update survey. Therefore, in the second follow-up these questions were only asked of respondents who were 2013 Update nonrespondents or who indicated on the 2013 Update full-length survey that they had not applied to college at that time. S3REPUTATION, S3COSTATTEND, and S3OFFERSFIELD collect the same data as S4REPUTATION, S4COSTATTEND, and S4OFFERSFIELD, but for a more inclusive set of respondents. In the 2013 Update these variables applied to all respondents who were planning to attend/were attending a postsecondary institution as of November 1, 2013 whereas in the second follow-up they were only asked of those who chose to attend an institution other than their first choice among those where accepted.

The series of questions on college applications instructed respondents to report postsecondary institutions to which they applied as well as postsecondary institutions at which they registered (e.g., open enrollment institutions). Also, these questions pertain only to the first round of applications/registrations the student submitted. This could be during high school or after high school. If a student transferred from one institution to another, the application for the transfer institution would not be considered. Additionally, students could report up to 3 institutions; the institution they attended, if applicable (S4CLGID/S3CLGID), and up to two others (S4CLGAPPID1/S3CLGAPPID1 and S4CLGAPPID2/S3CLGAPPID2). Therefore, for some students the college application data do not reflect all the institutions they first applied to or registered at. In these cases, respondents were instructed to select the ones that they most seriously considered.

---

**S4 B12**
Question Wording: Did you **attend** any college or trade school between the time you **[received your high school diploma/received your GED/received your high school equivalency/received your certificate of attendance or completion/last attended high school] and February 2016**?

Please be sure to include:
• Colleges and trade schools where you were just taking classes.
• Online only colleges and trade schools.

Do **not** include:
• Any colleges or trade schools you started attending after February 2016
• [Your/Any college or trade school enrollment during high school.]
• [Your adult high school completion program.]
• A foreign college or trade school that you attended through a study abroad program.

**Variable: S4EVRATNDCLG**

1=Yes
0=No

**Applies to:**
All second follow-up respondents.

**Notes:**
This variable is included in the abbreviated instrument.

Some values have been logically inferred based on answers provided to other questions in the survey. In these cases, the respondent was not asked this question. For more information, see S4EVRATNDCLG_I on the public-use and/or restricted-use data files.

---

**S4 B13A-E**
Question Wording: Generally, which of the following reasons describe why you had not attended college or trade school by the end of February 2016?

(Please choose all that apply)

**Variable: S4NOENRACAD**
Item Wording: Academic reasons

**Variable: S4NOENRFAM**
Item Wording: Personal or family reasons

**Variable: S4NOENRFIN**
Item Wording: Financial reasons

**Variable: S4NOENRWRK**
Item Wording: Work, military or career-related reasons

**Variable: S4NOENRNONE**
Item Wording: None of these

**Applies to:**
Second follow-up respondents who had not attended college or trade school by the end of February 2016 (i.e., S4EVRATNDCLG=0).

**Notes:**
These variables are included in the abbreviated instrument.

---

**S4 B14**
Question Wording: [Including [College/trade school applied to/registered at and attended (institution from S4 B05; identified in X4ATNDAPPINST)], how/How] many colleges or trade schools did you **attend** between the time you **[received your high school diploma/received your GED/received your high school equivalency/received your certificate of attendance or completion/last attended high school] and February 2016**?

(Please be sure to count:
• [College/trade school applied to/registered at and attended (institution from S4 B05; identified in X4ATNDAPPINST)]
• Colleges and trade schools where you were just taking classes.
• Online only colleges and trade schools.

Do **not** count:
• Any colleges or trade schools you started attending after February 2016
• [Your college or trade school enrollment during high school.]
• [Your adult high school completion program.]
• A foreign college or trade school that you attended through a study abroad program.)

**Variable: S4CLGATNDNUM**
Item Wording: | college(s) or trade school(s)

**Applies to:**
Second follow-up respondents who had attended college or trade school by the end of February 2016 (i.e., S4EVRATNDCLG=1).

**Notes:**
This variable is included in the abbreviated instrument.

---

**S4 I01A – S4 I01F**
Question Wording: [if iteration = 1 then display:]
Now we would like to find out about the [college or trade school/colleges or trade schools] you have attended since you [received your high school diploma/received your GED/received your high school equivalency/received your certificate of attendance or completion/last attended high school][, **starting with the one you attended first**].

[If iteration 1 display:]
Is the [**first** ]college or trade school you attended...

[else display:]
(You've already told us about:
--COLLEGE/TRADE SCHOOL REPORTED ON IN ITERATION 1
--COLLEGE/TRADE SCHOOL REPORTED ON IN ITERATION 2
--etc. )

[If 1 < iteration number < S4CLGATNDNUM]
Think about one of the other colleges or trade schools you attended after you [received your high school diploma/received your GED/received your high school equivalency/received your certificate of attendance or completion/last attended high school]. Was it...

[Else display:]

What was the other college or trade school you attended after you [received your high school diploma/received your GED/received your high school equivalency/received your certificate of attendance or completion/last attended high school]? Was it...

**Variable: INPUT TO INST_ID / S4ICLGSTATE / S4ICLGLEVEL / S4ICLGCTRL / S4ICLGSECTOR / S4ICLGSELECT / S4IOPENENR**

1=[College/trade school planned to attend in November 2013 (S3CLGID from 2013 Update)]
2=[Other college/trade school applied to/registered at - 1 (S3CLGAPPID1 from 2013 Update)]
3=[Other college/trade school applied to/registered at - 2 (S3CLGAPPID2 from 2013 Update)]
4=[College/trade school applied to/registered at and attended (institution from S4 B05; identified in X4ATNDAPPINST)]
5=[Other college/trade school applied to/registered at - 1 (institution from S4 B06)]
6=[Other college/trade school applied to/registered at - 2 (institution from S4 B07)]
9=or some other college or trade school?

**Applies to:**
Second follow-up respondents who had attended college or trade school by the end of February 2016 (i.e., S4EVRATNDCLG=1).

**Notes:**
Variables on the student-institution data file with prefixes S4 I01A – S4 I01F combine data from all screens with the screen identifier S4 I01A – S4 I01F. S4IPS1=1 for the postsecondary institution collected in this question. S4IPOSTHSENR = 1 or 2 for the postsecondary institution collected in this question.

---

**S4 I01A – S4 I01F**
Question Wording:

[If iteration =1 and respondent did not select option 9 in previous question and S4CLGATNDNUM < > 1]
Now we would like to find out about the [college or trade school/colleges or trade schools] you have attended after you [received your high school diploma/received your GED/received your high school equivalency/received your certificate of attendance or completion/last attended high school][, starting with the one you attended first].

[Else if iteration = 1 and respondent did not select option 9 in previous question]
Now we would like to find out about the college or trade school you have attended after you [received your high school diploma/received your GED/received your high school equivalency/received your certificate of attendance or completion/last attended high school]

[else if iteration > 1]
(You've already told us about:
--COLLEGE/TRADE SCHOOL REPORTED ON IN ITERATION 1
--COLLEGE/TRADE SCHOOL REPORTED ON IN ITERATION 2
--etc. )

[All iterations]
What is the full name, city and state of [the college or trade school you attended/the **first** college or trade school you attended/the other college or trade school you attended/one of the other colleges or trade schools you attended]?

(Please type in the **full name**. Do **not** use abbreviations.)

**Variable: INST_ID**

**Variable: S4ICLGSTATE**

**Variable: S4ICLGLEVEL**

**Variable: S4ICLGCTRL**

**Variable: S4ICLGSECTOR**

**Variable: S4ICLGSELECT**

**Variable: S4IOPENENR**

**Applies to:**
Second follow-up respondents who had attended college or trade school by the end of February 2016 (i.e., S4EVRATNDCLG=1).

**Notes:**
This variable is included in the abbreviated instrument.

Variables on the student-institution data file with prefixes S4 I01A – S4 I01F combine data from all screens with the screen identifier S4 I01A – S4 I01F. S4IPOSTHSENR = 1 or 2 for the postsecondary institution collected in this question.

---

**S4 I05**

Question Wording: In what month and year did you first start attending [College/trade school attended] (after you [received your high school diploma/received your GED/received your high school equivalency/received your certificate of attendance or completion/last attended high school])?

**Variable: COMBINED WITH YEAR INTO S4ICLGSTART**
Item Wording: 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

**Variable: COMBINED WITH MONTH INTO S4ICLGSTART**
Item Wording: Year:

2010=2010 or earlier
2011=2011
2012=2012
2013=2013
2014=2014
2015=2015
2016=2016

**Applies to:**
Second follow-up respondents who had attended college or trade school by the end of February 2016 (i.e., S4EVRATNDCLG=1).

**Notes:**
These variables are included in the abbreviated instrument.

---

**S4 B15A-E**
Question Wording: Based on when you [received your high school diploma/received your GED/received your high school equivalency/received your certificate of attendance or completion/last attended high school], it looks like you took a break from school before starting at [College/trade school attended].

Generally, which of the following reasons describe why you decided to take a break after high school?

(Please choose all that apply)

**Variable: S4BREAKACAD**
Item Wording: Academic reasons

**Variable: S4BREAKFAM**
Item Wording: Personal or family reasons

**Variable: S4BREAKFIN**
Item Wording: Financial reasons

**Variable: S4BREAKWRK**
Item Wording: Work, military or career-related reasons

**Variable: S4BREAKNONE**
Item Wording: None of these

**Applies to:**
Second follow-up respondents who began their postsecondary education more than 1 year after earning their high school credential or, if no credential, more than 1 year after last attending high school (i.e., X4HS2PSMOS > 12 and X4HS2PSMOS_IM = 0).

**Notes:**
The length of time between high school and first postsecondary attendance is based on the high school completion date (S4HSCREDDATE) or the high school exit date (S4LASTHSDATE) and the start date (S4ICLGSTART) at the first postsecondary institution reported in the survey (X4PS1). For students who have both a high school exit date and a high school completion date (e.g. GED recipients), the length of time between high school and first postsecondary attendance is calculated using the high school completion date, S4HSCREDDATE, and S4ICLGSTART. Respondents were instructed to report their first institution first followed by any other institutions they attended. Most respondents followed these instructions, but for a small number of respondents their 'first institution' has a later start date than another institution reported.

---

**S4 I06**
Question Wording: Were you attending [College/trade school attended] at any time in February 2016?

**Variable: S4ICLG16FB**

1=Yes
0=No

**Applies to:**
Second follow-up respondents who had attended college or trade school by the end of February 2016 (i.e., S4EVRATNDCLG=1).

**Notes:**
This variable is included in the abbreviated instrument.

---

**S4 I07**
Question Wording: In what month and year did you last attend [College/trade school attended] (before February 2016)?

(If you returned to [College/trade school attended] after February 2016, please report the last month and year you attended [College/trade school attended] before February 2016).

**Variable: COMBINED WITH YEAR INTO S4ICLGEND**
Item Wording: 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

**Variable: COMBINED WITH MONTH INTO S4ICLGEND**
Item Wording: Year:

2010=2010 or earlier
2011=2011
2012=2012
2013=2013
2014=2014
2015=2015
2016=2016

**Applies to:**
Second follow-up respondents who were no longer attending the college or trade school referenced in the current iteration of the postsecondary enrollment loop in February 2016 (i.e., S4ICLG16FB=0).

**Notes:**
These variables are included in the abbreviated instrument.

---

**S4 P01**
Question Wording:

{Iteration 1 of program loop}
When you **first** attended [College/trade school attended] [in [date of first attendance at [college/trade school attended]],] what type of degree or certificate were you working on?

(If you worked on more than one degree or certificate at [College/trade school attended] or if you were in a joint degree program, tell us about only one of these now. You will have an opportunity later to tell us about all other enrollment at [College/trade school attended].)

{Iterations 2, 3 and 4 of program loop}
For [College/trade school attended] you have already told us about your:

{Iteration 2 of the program loop}
- [bachelor's degree program/associate's degree program/certificate program/classes outside of a degree or certificate program/graduate degree]

{Iterations 2 and 3 of the program loop}
- [bachelor's degree program/associate's degree program/certificate program/classes outside of a degree or certificate program/graduate degree]

- {Iterations 3 and 4 of the program loop}
  [bachelor's degree program/associate's degree program/certificate program/classes outside of a degree or certificate program/graduate degree]

What[ other] degree or certificate did you work on at [College/trade school attended]?

**Variable: S4PPROGRAM**

1=Bachelor's degree (usually a 4-year degree)
2=Associate's degree (usually a 2-year degree)
3=Certificate or diploma from a school that provides occupational training (usually takes 2 years or less to complete, often leading to a license, such as cosmetology)
4=Not working on a degree or certificate, but taking undergraduate classes
5=Graduate program or classes (for example, Master's or PhD)

**Applies to:**
Second follow-up respondents who had attended college or trade school by the end of February 2016 (i.e., S4EVRATNDCLG=1).

**Notes:**
This variable is included in the abbreviated instrument.
Programs appear in the student-institution-program file in the order in which respondents reported them.

Response option 5 = Graduate program or classes (for example, Master's or PhD) was not shown in the first iteration of the program loop in the first iteration of the postsecondary institution loop. This would be the first program the respondent enrolled in at the first postsecondary institution attended after high school.

---

**S4 P02**
Question Wording:

Were you still [working on this [bachelor's degree/associate's degree/certificate]/taking classes (outside of a degree or certificate program)] at [College/trade school attended] in February 2016?

(If you changed your major or field of study but are still working on your [bachelor's degree/associate's degree/certificate] at [College/trade school attended], answer "Yes.")]

**Variable: S4PPGM16FB**

1=Yes
0=No

**Applies to:**
Second follow-up respondents who worked on an undergraduate degree or certificate or were taking

undergraduate classes at the institution referenced in the current iteration of the postsecondary enrollment loop (i.e., S4PPROGRAM in (1, 2, 3, 4)).

**Notes:**
This variable is included in the abbreviated instrument.

Some values have been logically inferred. For more information, see S4PPGM16FB_I in the public-use and/or restricted-use data files.

---

**S4 P03**
Question Wording:
[When you left [College/trade school attended] in [date of last attendance at [college/trade school attended] (through February 2016)], had you completed this [bachelor's degree/associate's degree/certificate]?/
By the end of February 2016], had you completed this [bachelor's degree/associate's degree/certificate] at [College/trade school attended]?

(Answer "No" if you transferred schools and completed your [bachelor's degree/associate's degree/certificate] at a different school.)

**Variable: S4PCOMPLETEDG**

1=Yes
0=No

**Applies to:**
Second follow-up respondents who worked on an undergraduate degree or certificate at the institution referenced in the current iteration of the postsecondary enrollment loop, but were no longer working on it in February 2016 (i.e., S4PPROGRAM in (1, 2, 3) and S4PPGM16FB = 0).

**Notes:**
This variable is included in the abbreviated instrument.

---

**S4 P04**
Question Wording:
[Do you expect to complete this [bachelor's degree/associate's degree/certificate] at [College/trade school attended]/Do you expect to return to [College/trade school attended] and complete this [bachelor's degree/associate's degree/certificate]/Do you expect to re-enroll in this [bachelor's degree/associate's degree/certificate] program at [College/trade school attended] and complete this [bachelor's degree/associate's degree/certificate]] **by the end of 2016**?

(If you have completed or expect to complete this [bachelor's degree/associate's degree/certificate] at a different college or trade school, or you expect to complete it after 2016, answer "No.")

**Variable: S4PDEGEXPECT**

1=Yes, you **completed** it at [College/trade school attended] sometime between February 2016 and today
2=Yes, you **expect to complete** it at [College/trade school attended] sometime between today and the end of 2016
3=No, you **do not expect to complete** it at [College/trade school attended] by the end of 2016

**Applies to:**
Second follow-up respondents who worked on an undergraduate degree or certificate at the institution referenced in the current iteration of the postsecondary enrollment loop and had not completed it by the end of February 2016 (i.e., S4PPROGRAM in (1, 2, 3) and S4PCOMPLETEDG = 0).

---

**S4 P05**
Question Wording: Which of these reasons describes why you were taking these classes at [College/trade school attended]?

**Variable: S4PCLASSRSN**

1=To prepare for or to transfer credits to a degree or certificate program
2=To prepare for or to maintain a job certification or license
3=To gain job or occupational skills
4=To take courses solely for recreation, self-improvement, or personal interest

**Applies to:**
Second follow-up respondents who took undergraduate classes at the institution referenced in the current iteration of the postsecondary enrollment loop (i.e., S4PPROGRAM = 4).

---

**NOT ON DATA FILE**
Question Wording:

For [College/trade school attended] you have already told us about your:

{end of all iterations of the program loop}
- [bachelor's degree program/associate's degree program/certificate program/classes outside of a degree or certificate program/graduate degree]

{end of 2nd and 3rd iteration of the program loop}
- [bachelor's degree program/associate's degree program/certificate program/classes outside of a degree or certificate program/graduate degree]

{end of 3rd iteration of the program loop}
- [bachelor's degree program/associate's degree program/certificate program/classes outside of a degree or certificate program/graduate degree]

Did you work on any[ other] degrees or certificates at [College/trade school attended] by the end of [February 2016/[date of last attendance at [college/trade school attended] (through February 2016)]][, or take classes at [College/trade school attended] at a time when you were not enrolled in a program]? [(Do

**not** count double majors or changes in your major as a separate degree.)]

**Variable: NOT ON DATA FILE**

1=Yes
0=No

**Notes:**
This question was asked to determine whether to repeat the series of questions on degree and certificate programs.

---

**NOT ON DATA FILE**
Question Wording: So far you have told us about your enrollment at:
[1st college/trade school attended]
[Other college/trade school attended - 1]
[Other college/trade school attended - 2]
[Other college/trade school attended - 3]
[Other college/trade school attended - 4]
[Other college/trade school attended - 5]
[Other college/trade school attended - 6]

Have you attended any other colleges or trade schools between the time you [received your high school diploma/received your GED/received your high school equivalency/received your certificate of attendance or completion/last attended high school] and February 2016?

(Please be sure to include:
• Colleges and trade schools where you were just taking classes.
• Online only colleges and trade schools.

Do **not** include:
• Any colleges or trade schools you started attending after February 2016
• [Your/Any college or trade school enrollment during high school.]
• [Your adult high school completion program.]
• A foreign college or trade school that you attended through a study abroad program.

**Variable: NOT ON DATA FILE**

1=Yes
0=No

**Notes:**
This question was asked to determine whether to repeat the series of questions on postsecondary institutions attended.

---

**NOT ON DATA FILE**
Question Wording: In [date of last postsecondary attendance (through February 2016)], which of the following degrees or certificates were you working on?

(If you were enrolled in two programs at the same time, choose the one you considered your main one.)

**Variable: NOT ON DATA FILE**

[List of eligible institution/degree program combinations]

**Applies to:**
Second follow-up for whom a reference degree could not be determined based on survey responses (e.g., two undergraduate degree or certificate programs at the same institution, incomplete information on enrollment dates).

**Notes:**

These data were used as an input to X4REFDEG and S4PREFDEG.

---

**S4 B16**
Question Wording: When you were attending [[Name of only college/trade school attended/college or trade school] [between [date of first postsecondary attendance] and [February 2016/date last attended reference institution (through February 2016)]/in [date of first postsecondary attendance]], was your enrollment...

**Variable: S4CLGFTPT**

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?

**Applies to:**
Second follow-up respondents who had attended college or trade school by the end of February 2016 (i.e., S4EVRATNDCLG=1).

**Notes:**
This variable is included in the abbreviated instrument.

---

**S4 B17**
Question Wording: By the end of [February 2016/date last attended reference institution (through February 2016)], had you ever left one college with no plans to return to it and then attended another?

**Variable: S4TRANSFERCLG**

1=Yes
0=No

**Applies to:**
Second follow-up respondents who had attended more than one college or trade school by the end of February 2016 (i.e., second follow-up respondents where S4IPOSTHSENR in (1,2) for at least two records on the student-institution file).

---

**S4 B18A-E**
Question Wording: Generally, which of the following reasons describe why you left one college or trade school and attended another?

(If you did this more than once, tell us about the most recent time.)

(Please choose all that apply)

**Variable: S4TRANSFERACAD**
Item Wording: Academic reasons

**Variable: S4TRANSFERFAM**
Item Wording: Personal or family reasons

**Variable: S4TRANSFERFIN**
Item Wording: Financial reasons

**Variable: S4TRANSFERWRK**
Item Wording: Work, military or career-related reasons

**Variable: S4TRANSFERNONE**
Item Wording: None of these

**Applies to:**
Second follow-up respondents who indicated leaving one college with no plans to return to it and then attended another (i.e., S4TRANSFERCLG=1).

---

**S4 B19A-E**
Question Wording: Earlier you indicated that you were no longer attending [Reference institution (see X4REFINST and S4IREFINST)] in February 2016.

Generally, which of the following reasons describe why you left school [in [February 2016/date last attended reference institution (through February 2016)]]?

(Please choose all that apply)

**Variable: S4LEFTACAD**
Item Wording: Academic reasons

**Variable: S4LEFTFAM**
Item Wording: Personal or family reasons

**Variable: S4LEFTFIN**
Item Wording: Financial reasons

**Variable: S4LEFTWRK**
Item Wording: Work, military or career-related reasons

**Variable: S4LEFTNONE**
Item Wording: None of these

**Applies to:**
Second follow-up respondents who were no longer attending their reference institution in February 2016 and had not completed their reference degree (i.e., S4ICLG16FB=0 for the record on the institution file where S4IREFINST=1 and S4PCOMPLETEDG^=1 for the record on the program file where S4PREFDEG=1).

---

**NOT ON DATA FILE**
Question Wording: [You told us that you have attended:
[1st college/trade school attended]
[Other college/trade school attended - 1]
etc.]

At any time **since** February 2016 have you attended a [**different**] college or trade school?

**Variable: NOT ON DATA FILE**

1=Yes
0=No

---

**NOT ON DATA FILE**
Question Wording: [(You told us that you have attended:
[1st college/trade school attended]
[Other college/trade school attended - 1]
etc.
[college/trade school 1st attended between February 2016 and survey date] )]

Do you plan to **begin** attending a [**different**] college or trade school at any time **between now [([survey date]) and the end of December 2016/between now and the end of this month (December 2016)]**?

**Variable: NOT ON DATA FILE**

1=Yes, and you know what college or trade school you will attend
2=Yes, but you do not know yet what college or trade school you will attend
0=No

---

**S4 B20**
Question Wording: Do you plan to enroll in a bachelor's degree program within the next three years?

(A bachelor's degree is usually awarded by a 4-year college or university and usually requires at least 4 years of full-time, college-level work.)

**Variable: S4BACHELOR3YRS**

1=Yes, you have enrolled in a bachelor's degree program sometime between February 2016 and today
2=Yes, you plan to enroll in a bachelor's degree program within the next 3 years
0=No

**Applies to:**

Second follow-up respondents who had not enrolled in a bachelor's degree program by the end of February 2016 (i.e., S4EVRATNDCLG^=1 or S4PPROGRAM ^= 1 for all of the student's programs).

---

**S4 B21**
Question Wording: As things stand now, how far in school do you think you will **ever** go?

**Variable: S4EDUEXP**

1=**Less than high school** completion
2=**Complete high school** diploma, GED, or other high school equivalency
3=**Start certificate or diploma from a school that provides occupational training** (usually takes 2 years or less to complete, often leading to a license, such as cosmetology), but not complete
4=**Complete certificate or diploma from a school that provides occupational training** (usually takes 2 years or less to complete, often leading to a license, such as cosmetology)
5=**Start associate's degree** (usually a 2-year degree), but not complete
6=**Complete associate's degree** (usually a 2-year degree)
7=**Start bachelor's degree** (usually a 4-year degree), but not complete
8=**Complete bachelor's degree** (usually a 4-year degree)
9=**Start master's degree**, but not complete
10=**Complete master's degree**
11=**Start Ph.D., M.D., law degree or other high level professional degree**, but not complete
12=**Complete Ph.D., M.D., law degree, or other high level professional degree**
99=**You don't know**

**Applies to:**
All second follow-up respondents.

**Notes:**
This variable is included in the abbreviated instrument.

---

**S4 B22**
Question Wording: If there were no barriers, how far in school do you think **your parents or guardians** would want you to go?

**Variable: S4EDUEXPPAR**

1=Less than high school completion
2=Complete a high school diploma, GED, or other high school equivalency
3=Complete a certificate or diploma from a school that provides occupational training (usually takes 2 years or less to complete, often leading to a license, such as cosmetology)
4=Complete an associate's degree (usually a 2-year degree)
5=Complete a bachelor's degree (usually a 4-year degree)
6=Complete a master's degree
7=Complete a Ph.D., M.D., law degree, or other high level professional degree
99=You don't know

**Applies to:**
All second follow-up respondents.

---

**S4 B23A-D**
Question Wording: The next series of questions relates to your attitudes and experiences with math, science, and related disciplines.

How much do you agree or disagree with the following statements?

**Variable: S4MLEARN**
Item Wording: Most people can learn to be good at math.

**Variable: S4MBORN**
Item Wording: You have to be born with the ability to be good at math.

**Variable: S4SLEARN**
Item Wording: Most people can learn to be good at science.

**Variable: S4SBORN**
Item Wording: You have to be born with the ability to be good at science.

1=Strongly agree
2=Agree
3=Disagree
4=Strongly disagree

**Applies to:**
All second follow-up respondents.

---

**S4 B24A-D**
Question Wording: (Continued)(How much do you agree or disagree with the following statements?)

**Variable: S4MPERSON1**
Item Wording: You see yourself as a math person.

**Variable: S4MPERSON2**
Item Wording: Others see you as a math person.

**Variable: S4SPERSON1**
Item Wording: You see yourself as a science person.

**Variable: S4SPERSON2**
Item Wording: Others see you as a science person.

1=Strongly agree
2=Agree
3=Disagree
4=Strongly disagree

**Applies to:**
All second follow-up respondents.

---

**S4 B25A-D**
Question Wording: (Continued)(How much do you agree or disagree with the following statements?)

**Variable: S4TPERSON1**
Item Wording: You see yourself as someone who is good at solving problems using computers.

**Variable: S4TPERSON2**
Item Wording: Others see you as someone who is good at solving problems using computers.

**Variable: S4EPERSON1**
Item Wording: You see yourself as someone who is good at figuring out how mechanical and electrical things work.

**Variable: S4EPERSON2**
Item Wording: Others see you as someone who is good at figuring out how mechanical and electrical things work.

1=Strongly agree
2=Agree
3=Disagree
4=Strongly disagree

**Applies to:**
All second follow-up respondents.

---

**S4 B26A-C**
Question Wording: When you **first started** at [first college/trade school attended after high school] in [date of first postsecondary attendance]]/your college or trade school education], what was the major or field of study you were most seriously considering?

**Variable: S4FIELD**

**Variable: S4FIELD2**

**Variable: S4FIELD6**

**Variable: CODED AS 00.0000**
Item Wording: You did not know

**Applies to:**
Second follow-up respondents who had attended college or trade school by the end of February 2016 (i.e., S4EVRATNDCLG=1).

**Notes:**
This variable is included in the abbreviated instrument.

---

**S4 P06**
Question Wording: Was [major or field of study most seriously considered upon postsecondary entry (S4FIELD)] the major or field of study in which you earned your [bachelor's degree/associate's degree/[first/second/etc.] certificate/degree or certificate][ from [college/trade school attended]]?

**Variable: INPUT TO S4PSAMEMAJ**

1=Yes
0=No

**Applies to:**
Second follow-up respondents who (a) specified a major or field of study they were most seriously considering when they first started their postsecondary education and had completed an undergraduate degree or certificate (i.e., respondents who provided a major or field of study in S4FIELD and have at least one record on the student-institution-program file where S4PPROGRAM in (1, 2, 3) and S4PCOMPLETEDG = 1).

**Notes:**
This variable is included in the abbreviated instrument.

The variable on the student-institution-program data file with prefix S4 P06 combines data from all screens with the screen identifier S4 P06. These data appear on the student-institution-program file in the variable S4PSAMEMAJ.

---

**S4 P07A-C**
Question Wording: What was your major or field of study for your [bachelor's degree/associate's degree/[first/second/third etc.]certificate/degree or certificate][ from [college/trade school attended]]?

(If you had two majors or fields of study, please indicate only one here. You will have an opportunity to provide your other one next.)

**Variable: INPUT TO S4PDEGMAJ**

**Variable: INPUT TO S4PDEGMAJ2**

**Variable: INPUT TO S4PDEGMAJ6**

**Applies to:**
Second follow-up respondents who had completed an undergraduate degree or certificate (i.e., respondents who have at least one record on the student-institution-program file where S4PPROGRAM in (1, 2, 3) and S4PCOMPLETEDG = 1).

**Notes:**
These variables are included in the abbreviated instrument.

Variables on the student-institution-program data file with prefixes S4 P07A, S4 P07B, and S4 P07C combine data from all screens with the screen identifier S4 P07A-C. These data appear on the student-institution-program file in the variables S4PDEGMAJ, S4PDEGMAJ2 and S4PDEGMAJ6.

---

**S4 P08**
Question Wording: Besides [major or field of study for completed degree], did you have another major for your [bachelor's degree/associate's degree][ from [college/trade school attended]]?

**Variable: INPUT TO S4POTHDEGMAJ**

1=Yes
0=No

**Applies to:**
Second follow-up respondents who had completed an undergraduate degree (i.e., respondents who have at least one record on the student-institution-program file where S4PPROGRAM in (1, 2) and S4PCOMPLETEDG = 1).

**Notes:**
This variable is included in the abbreviated instrument.

The variable on the student-institution-program data file with prefix S4 P08 combines data from all screens with the screen identifier S4 P08. These data appear on the student-institution-program file in the variable S4POTHDEGMAJ.

---

**S4 P09A-C**
Question Wording: What was your other major for your [bachelor's degree/associate's degree][ from [college/trade school attended]]?

**Variable: INPUT TO S4PDEGDBLMAJ**

**Variable: INPUT TO S4PDEGDBLMAJ2**

**Variable: INPUT TO S4PDEGDBLMAJ6**

**Applies to:**
Second follow-up respondents who completed an undergraduate degree with a double major (i.e., respondents who have at least one record on the student-institution-program file where S4PPROGRAM in (1, 2) and S4PCOMPLETEDG = 1 and S4POTHDEGMAJ = 1).

**Notes:**
These variables are included in the abbreviated instrument.

Variables on the student-institution-program data file with prefixes S4 P09A, S4 P09B, and S4 P09C combine data from all screens with the screen identifier S4 P09A-C. These data appear on the student-institution-program file in the variables S4PDEGDBLMAJ, S4PDEGDBLMAJ2, andS4PDEGDBLMAJ6.

---

**S4 B27 / S4 P08**
Question Wording: [By the end of February 2016/When you last attended [reference institution (see X4REFINST and S4IREFINST)] in [date last attended reference institution (through February 2016)]/], had you declared a major for your [reference bachelor’s or associate’s degree ] at [reference institution]]?

**Variable: S4DECLAREMAJ / INPUT TO S4POTHDEGMAJ**

0=No
1=Yes, declared a single major or field of study
2=Yes, declared a double major or field of study

**Applies to:**
Second follow-up respondents whose reference degree was a bachelor's or associate's degree that had not been completed by the end of February 2016 (X4REFDEGTYPE in (1, 2) and X4RFDGCOMP ^= 1).

**Notes:**
This variable is included in the abbreviated instrument.

The reference degree is the undergraduate degree or certificate that was being pursued in February 2016 or most recently before then. See X4REFDEG and S4PREFDEG.

The variable on the student-institution-program data file with prefix S4 P08 combines data from all screens with the screen identifier S4 P08. These data appear on the student-institution-program file in the variable S4POTHDEGMAJ.

---

**S4 B28 / S4 P08**
Question Wording: Even though you had not formally declared your major, had you decided what your major would be for your [reference bachelor's or associate's degree] at [reference institution]] (by the end of [February 2016/date last attended reference institution (through February 2016)])?

**Variable: S4DECIDMAJ / INPUT TO S4POTHDEGMAJ**

0=No
1=Yes, decided upon a single major or field of study
2=Yes, decided upon a double major or field of study

**Applies to:**
Second follow-up respondents who had not declared a major for their reference degree which was a bachelor's or associate's degree that had not been completed by the end of February 2016 (S4DECLAREMAJ not in (1,2) and X4REFDEGTYPE in (1, 2) and X4RFDGCOMP ^= 1).

**Notes:**
This variable is included in the abbreviated instrument.

The reference degree is the undergraduate degree or certificate that was being pursued in February 2016 or most recently before then. See X4REFDEG and S4PREFDEG.

The variable on the student-institution-program data file with prefix S4 P08 combines data from all screens with the screen identifier S4 P08. These data appear on the student-institution-program file in the variable S4POTHDEGMAJ.

---

**S4 P06**
Question Wording: Was [major or field of study most seriously considered upon postsecondary entry (S4FIELD)] [your major/one of your majors/your field of study/your major or field of study] for your [bachelor's degree/associate's degree/certificate at [reference institution]] [in [February 2016/date last attended reference institution (through February 2016)]/when you last attended in [February 2016/date last attended reference institution (through February 2016)]/when you last attended (through February 2016)]?

**Variable: INPUT TO S4PSAMEMAJ**

1=Yes
0=No

**Applies to:**
Second follow-up respondents who (a) specified a major or field of study they were most seriously considering when they first started their postsecondary education and (b) had declared or decided upon a major or field of study for their incomplete reference degree (i.e., a major or field of study is specified in S4FIELD and S4DECLAREMAJ in (1, 2) or S4DECIDMAJ in (1, 2)).

**Notes:**
This variable is included in the abbreviated instrument.

The variable on the student-institution-program data file with prefix S4 P06 combines data from all screens with the screen identifier S4 P06. These data appear on the student-institution-program file in the variable S4PSAMEMAJ.

---

**S4 P07A-C**
Question Wording: What was[ one of] your [major(s)/field of study] for your [bachelor's degree/associate's degree/certificate at [reference institution]] [in [February 2016/date last attended reference institution (through February 2016)]/when you last attended in [February 2016/date last attended reference institution (through February 2016)]/when you last attended (through February 2016)]?

[(Since you had two majors, please indicate **only one** major here. You will have an opportunity to provide your other one next.)]

**Variable: INPUT TO S4PDEGMAJ**

**Variable: INPUT TO S4PDEGMAJ2**

**Variable: INPUT TO S4PDEGMAJ6**

**Applies to:**
Second follow-up respondents who had declared or decided upon a major or field of study for their incomplete reference degree (i.e., S4DECLAREMAJ in (1, 2) or S4DECIDMAJ in (1, 2)).

**Notes:**
These variables are included in the abbreviated instrument.

Variables on the student-institution-program data file with prefixes S4 P07A, S4 P07B, and S4 P07C combine data from all screens with the screen identifier S4 P07A-C. These data appear on the student-institution-program file in the variables S4PDEGMAJ, S4PDEGMAJ2, and S4PDEGMAJ6.

---

**S4 P09A-C**
Question Wording: What was your second major for your [bachelor's degree/associate's degree] at [reference institution] [in [February 2016/date last attended reference institution (through February 2016)]?

(Please do **not** include a minor.)

**Variable: INPUT TO S4PDEGDBLMAJ**

**Variable: INPUT TO S4PDEGDBLMAJ2**

**Variable: INPUT TO S4PDEGDBLMAJ6**

**Applies to:**
Second follow-up respondents who had declared or decided upon a double major for their incomplete reference degree (i.e., S4DECLAREMAJ =2 or S4DECIDMAJ =2).

**Notes:**
These variables are included in the abbreviated instrument.

Variables on the student-institution-program data file with prefixes S4 P09A, S4 P09B, and S4 P09C combine data from all screens with the screen identifier S4 P09A-C. These data appear on the student-institution-program file in the variables S4PDEGDBLMAJ, S4DEGDBLMAJ2,and S4PDEGDBLMAJ6.

---

**S4 B29A-G**
Question Wording: Why did you choose [major or field of study for reference degree]? Was it...

**Variable: S4MAJENJOY**
Item Wording: Because you enjoy the courses in [major or field of study for reference degree]?

**Variable: S4MAJDOWELL**
Item Wording: Because you do well in the courses in [major or field of study for reference degree]?

**Variable: S4MAJEARNING**
Item Wording: Because graduates in [major or field of study for reference degree] tend to have jobs with high earning potential?

**Variable: S4MAJBALANCE**
Item Wording: Because graduates in [major or field of study for reference degree] tend to have jobs that allow them to balance their work and personal life?

**Variable: S4MAJEMPLOY**
Item Wording: Because there are a lot of jobs available for graduates in [major or field of study for reference degree]?

**Variable: S4MAJCONTRIB**
Item Wording: Because graduates in [major or field of study for reference degree] tend to have jobs that contribute to society?

**Variable: S4MAJENCRG**
Item Wording: Because someone encouraged it?

1=Yes
0=No

**Applies to:**
Second follow-up respondents who had enrolled in an undergraduate degree or certificate program, and either (a) had completed their reference degree, (b) had declared or decided upon their major for their reference degree which was an associate's or a bachelor's degree, or (c) whose reference degree was a certificate (i.e., (a) X4RFDGCOMP = 1 or (b) X4REFDEGTYPE in (1, 2) and (S4DECLAREMAJ in (1, 2) or S4DECIDMAJ in (1, 2)) or (c) X4REFDEGTYPE = 3).

**Notes:**
These variables are included in the abbreviated instrument.

This question refers to the reasons the respondent chose their major for their reference degree. If the respondent had a double major for the reference degree, this question refers to the first major reported

(X4RFDGMJ16 / X4RFDGMJ12).

The reference degree is the undergraduate degree or certificate that was being pursued in February 2016 or most recently before then. See X4REFDEG and S4PREFDEG.

---

**S4 B30**
Question Wording: What is the main reason you chose [major or field of study for reference degree]?

**Variable: S4MAJMAINRSN**

1=Because you enjoy the courses in [major or field of study for reference degree]
2=Because you do well in courses in [major or field of study for reference degree]
3=Because graduates in [major or field of study for reference degree] tend to have jobs with high earning potential
4=Because graduates in [major or field of study for reference degree] tend to have jobs that allow them to balance their work and personal life
5=Because there are a lot of jobs available for graduates in [major or field of study for reference degree]
6=Because graduates in [major or field of study for reference degree] tend to have jobs that contribute to society
7=Because someone encouraged it

**Applies to:**
Second follow-up respondents who had enrolled in an undergraduate degree or certificate program, and satisfied at least one of the following three conditions: (a) they had completed their reference degree (i.e. X4RFDGCOMP = 1); (b) they had declared or decided upon their major for their reference degree which was an associate's or a bachelor's degree (i.e. X4REFDEGTYPE in (1, 2) and (S4DECLAREMAJ in (1, 2) or S4DECIDMAJ in (1, 2))); or (c) their reference degree was a certificate (i.e. X4REFDEGTYPE = 3) and (d) they indicated at least one reason for choosing their reference degree major (i.e., S4MAJENJOY = 1 or S4MAJDOWELL = 1 or S4MAJEARNING = 1 or S4MAJBALANCE = 1 or S4MAJEMPLOY = 1 or S4MAJCONTRIB = 1 or S4MAJENCRG = 1).

**Notes:**
This question refers to the main reason the respondent chose their major for their reference degree. If the respondent had a double major for the reference degree, this question refers to the first major reported (X4RFDGMJ16 / X4RFDGMJ12).

The reference degree is the undergraduate degree or certificate that was being pursued in February 2016 or most recently before then. See X4REFDEG and S4PREFDEG.

Some values have been logically inferred based on answers provided to other questions in the survey. In these cases, the respondent was not asked this question. For more information, see S4MAJMAINRSN_I in the public-use and/or restricted-use data files.

---

**S4 B31A - L**
Question Wording: Why did you decide not to [major in/study] [major or field of study most seriously considered upon postsecondary entry (S4FIELD)]? Was it...

**Variable: S4CHGNAVAIL**
Item Wording: Because a program for a degree or certificate in [major or field of study most seriously considered upon postsecondary entry (S4FIELD)] was not available at your college or trade school?

**Variable: S4CHGNENJOY**

Item Wording: Because you did not enjoy the courses in [major or field of study most seriously considered upon postsecondary entry (S4FIELD)]?

**Variable: S4CHGNDOWELL**
Item Wording: Because you were not doing well in the courses in [major or field of study most seriously considered upon postsecondary entry (S4FIELD)]?

**Variable: S4CHGNEARNING**
Item Wording: Because graduates in [major or field of study most seriously considered upon postsecondary entry (S4FIELD)] tend to have jobs with low earning potential?

**Variable: S4CHGNBALANCE**
Item Wording: Because graduates in [major or field of study most seriously considered upon postsecondary entry (S4FIELD)] tend to have jobs that make it hard to balance their work and personal life?

**Variable: S4CHGNEMPLOY**
Item Wording: Because there are not enough jobs available for graduates in [major or field of study most seriously considered upon postsecondary entry (S4FIELD)]?

**Variable: S4CHGNCONTRIB**
Item Wording: Because graduates in [major or field of study most seriously considered upon postsecondary entry (S4FIELD)] are not likely to have jobs that contribute to society?

**Variable: S4CHGNENCRG**
Item Wording: Because someone discouraged you?

**Variable: S4CHGNFITIN**
Item Wording: Because you did not fit in with people in your [major or field of study most seriously considered upon postsecondary entry (S4FIELD)] courses?

**Variable: S4CHGNSCHED**
Item Wording: Because the schedule for courses in [major or field of study most seriously considered upon postsecondary entry (S4FIELD)] got in the way of your other responsibilities?

**Variable: S4CHGINTEREST**
Item Wording: Because you became more interested in [major or field of study for reference degree]?

**Variable: S4CHGJOBRSN**
Item Wording: Because you liked the jobs or job opportunities for graduates in [major or field of study for reference degree] better?

1=Yes
0=No

**Applies to:**
Second follow-up respondents who had enrolled in an undergraduate degree or certificate program, but (a) had not completed a credential in their intended major and (b) whose reference degree major was different from their intended major (i.e., S4PSAMEMAJ ^= 1 for every program where S4PCOMPLETEDG = 1 and X4RFDGSAMEMAJ = 0).

**Notes:**
These variables are included in the abbreviated instrument.

This question refers to the reasons the respondent did not major in his/her intended major (S4ENTRYMAJ6 / S4ENTRYMAJ2), but rather their reference degree major. If the respondent had a

double major for the reference degree, this question refers to the first major reported (X4RFDGMJ16 / X4RFDGMJ12).

The reference degree is the undergraduate degree or certificate that was being pursued in February 2016 or most recently before then. See X4REFDEG and S4PREFDEG.

---

**S4 B32**
Question Wording: What is the main reason you decided not to [major in/study] [major or field of study most seriously considered upon postsecondary entry (S4FIELD)]?

**Variable: S4CHGMAINRSN**

1=Because a program for a degree or certificate in [major or field of study most seriously considered upon postsecondary entry (S4FIELD)] was not available at your college or trade school
2=Because you did not enjoy the courses in [major or field of study most seriously considered upon postsecondary entry (S4FIELD)]
3=Because you were not doing well in the courses in [major or field of study most seriously considered upon postsecondary entry (S4FIELD)]
4=Because graduates in [major or field of study most seriously considered upon postsecondary entry (S4FIELD)] tend to have jobs with low earning potential
5=Because graduates in [major or field of study most seriously considered upon postsecondary entry (S4FIELD)] tend to have jobs that make it hard to balance their work and personal life
6=Because graduates in [major or field of study most seriously considered upon postsecondary entry (S4FIELD)] are not likely to have jobs that contribute to society
7=Because there are not enough jobs available for graduates in [major or field of study most seriously considered upon postsecondary entry (S4FIELD)]
8=Because someone discouraged you
9=Because you did not fit in with people in your [major or field of study most seriously considered upon postsecondary entry (S4FIELD)] courses
10=Because the schedule for courses in [major or field of study most seriously considered upon postsecondary entry (S4FIELD)] got in the way of your other responsibilities?
11=Because you became more interested in [major or field of study for reference degree]?
12=Because you liked the jobs or job opportunities for graduates in [major or field of study for reference degree] better?

**Applies to:**
Second follow-up respondents who had enrolled in an undergraduate degree or certificate program, but (a) had not completed a credential in their intended major and (b) whose reference degree major was different from their intended major and (c) indicated at least one reason for leaving their reference degree program (i.e., S4PSAMEMAJ ^= 1 for every program where S4PCOMPLETEDG = 1 and X4RFDGSAMEMAJ = 0 and (S4CHGNAVAIL = 1 or S4CHGNENJOY = 1 or S4CHGNDOWELL = 1 or S4CHGNEARNING = 1 or S4CHGNBALANCE = 1 or S4CHGNEMPLOY = 1 or S4CHGNCONTRIB = 1 or S4CHGNENCRG = 1 or S4CHGNFITIN = 1 or S4CHGNSCHED = 1 or S4CHGINTEREST = 1 or S4CHGJOBRSN = 1)).

**Notes:**
This question refers to the reasons the respondent did not major in his/her intended major (S4ENTRYMAJ6 / S4ENTRYMAJ2), but rather their reference degree major. If the respondent had a double major for the reference degree, this question refers to the first major reported (X4RFDGMJ16 / X4RFDGMJ12).

The reference degree is the undergraduate degree or certificate that was being pursued in February 2016 or most recently before then. See X4REFDEG and S4PREFDEG.

Some values have been logically inferred based on answers provided to other questions in the survey. In these cases, the respondent was not asked this question. For more information, see S4CHGMAINRSN_I in the public-use and/or restricted-use data files.

---

**S4 B33**
Question Wording: You indicated that you were working on a [bachelor's degree/associate's degree] in [major or field of study for reference degree] in [February 2016/date last attended reference institution (through February 2016)]. Up until that point, how many times had you formally changed your major for your [bachelor's degree/associate's degree]?

[(If you worked on this [bachelor's degree/associate's degree] at more than one college, add up the number of times you formally changed your major at each school.)]

**Variable: S4MAJCHGNUM**

0=Never
1=Once
2=More than once

**Applies to:**
Second follow-up respondents who had declared a major for their reference degree which was a bachelor's or associate's degree, but not yet completed the degree by the end of February 2016 (S4DECLAREMAJ in (1, 2) and X4REFDEGTYPE in (1, 2) and X4RFDGCOMP ^= 1).

---

**S4 B34A-D**
Question Wording: Did you take any of the following courses at [[college/trade school attended]/any college or trade school you attended] between the time you [received your high school diploma/received your GED/received your high school equivalency/received your certificate of attendance or completion/last attended high school] and [February 2016/date last attended reference institution (through February 2016)]?

**Variable: S4MTHCOURSE**
Item Wording: Course(s) in the math department

**Variable: S4SCICOURSE**
Item Wording: Course(s) in the natural sciences (such as life science, biology, astronomy, chemistry, geology, or physics, but **not** computer science or the social sciences)

**Variable: S4CSICOURSE**
Item Wording: Course(s) in the computer science or technology department

**Variable: S4ENGCOURSE**
Item Wording: Course(s) in the engineering department

1=Yes
0=No
9=No department or courses offered

**Applies to:**

Second follow-up respondents who had attended college or trade school by the end of February 2016 (i.e., S4EVRATNDCLG=1).

---

**S4 B35A-D**
Question Wording: How much do you agree or disagree that your instructor(s) in the following course(s) treated **male and female students** differently?

**Variable: S4MTHMF**
Item Wording: Math department courses

**Variable: S4SCIMF**
Item Wording: Natural science courses

**Variable: S4CSIMF**
Item Wording: Computer science or technology department courses

**Variable: S4ENGMF**
Item Wording: Engineering department courses

1=Strongly agree
2=Agree
3=Disagree
4=Strongly disagree
9=Not applicable or Don't know

**Applies to:**
S4MTHMF applies to second follow-up respondents who took a postsecondary course in a math department by the end of February 2016 (i.e., S4MTHCOURSE=1).

S4SCIMF applies to second follow-up respondents who took a postsecondary course in the natural sciences by the end of February 2016 (i.e., S4SCICOURSE=1).

S4CSIMF applies to second follow-up respondents who took a postsecondary course in a computer science or technology department by the end of February 2016 (i.e., S4CSICOURSE=1).

S4ENGMF applies to second follow-up respondents who took a postsecondary course in an engineering department by the end of February 2016 (i.e., S4ENGCOURSE=1).

---

**S4 B36A-D**
Question Wording: How much do you agree or disagree that your instructor(s) in the following course(s) treated **students of different races** differently?

**Variable: S4MTHRC**
Item Wording: Math department courses

**Variable: S4SCIRC**
Item Wording: Natural science courses

**Variable: S4CSIRC**
Item Wording: Computer science or technology department courses

**Variable: S4ENGRC**
Item Wording: Engineering department courses

1=Strongly agree
2=Agree
3=Disagree
4=Strongly disagree
9=Not applicable or Don't know

**Applies to:**
S4MTHRC applies to second follow-up respondents who took a postsecondary course in a math department by the end of February 2016 (i.e., S4MTHCOURSE=1).

S4SCIRC applies to second follow-up respondents who took a postsecondary course in the natural sciences by the end of February 2016 (i.e., S4SCICOURSE=1).

S4CSIRC applies to second follow-up respondents who took a postsecondary course in a computer science or technology department by the end of February 2016 (i.e., S4CSICOURSE=1).

S4ENGRC applies to second follow-up respondents who took a postsecondary course in an engineering department by the end of February 2016 (i.e., S4ENGCOURSE=1).

---

**S4 B37**
Question Wording: Remedial or developmental courses are used to strengthen students' skills before they take their first college-level course in math, reading, or other subjects. Students are usually assigned to these courses on the basis of a placement test taken before the school year begins. Often, these courses do not count for credit toward graduation.

Did you take any remedial or developmental courses to improve your basic skills in math, reading, or writing between the time you [received your high school diploma/received your GED/received your high school equivalency/received your certificate of attendance or completion/last attended high school] and [February 2016/date last attended reference institution (through February 2016)]?

**Variable: S4REMEDIAL**

1=Yes
0=No

**Applies to:**
Second follow-up respondents who had attended college or trade school by the end of February 2016 (i.e., S4EVRATNDCLG=1).

---

**S4 B38**
Question Wording: Between the time you [received your high school diploma/received your GED/received your high school equivalency/received your certificate of attendance or completion/last attended high school] and [February 2016/date last attended reference institution (through February 2016)], had you ever sought help for a course such as by participating in a study group, going to office hours, or requesting tutoring?

**Variable: S4HELPCRSEVER**

1=Yes
0=No

**Applies to:**
Second follow-up respondents who had attended college or trade school by the end of February 2016 (i.e., S4EVRATNDCLG=1).

---

**S4 B39A-F**
Question Wording: In which course subjects did you seek help?

(Please choose all that apply)

**Variable: S4HELPCRSMTH**
Item Wording: Courses in a math department

**Variable: S4HELPCRSSCI**
Item Wording: Courses in the natural sciences

**Variable: S4HELPCRSCSI**
Item Wording: Courses in a computer science or technology department

**Variable: S4HELPCRSENG**
Item Wording: Courses in an engineering department

**Variable: S4HELPCRSENGL**
Item Wording: Courses in English, reading, or writing

**Variable: S4HELPCRSOTH**
Item Wording: Other courses

**Applies to:**
S4HELPCRSMTH applies to second follow-up respondents who had taken a postsecondary course in a math department and sought help for postsecondary coursework in general (i.e., S4MTHCOURSE=1 and S4HELPCRSEVER=1).

S4HELPCRSSCI applies to second follow-up respondents who had taken a postsecondary course in the natural sciences and sought help for postsecondary coursework in general (i.e., S4SCICOURSE=1 and S4HELPCRSEVER=1).

S4HELPCRSCSI applies to second follow-up respondents who had taken a postsecondary course in a computer science or technology department and sought help for postsecondary coursework in general (i.e., S4CSICOURSE=1 and S4HELPCRSEVER=1).

S4HELPCRSENG applies to second follow-up respondents who had taken a postsecondary course in an engineering department and sought help for postsecondary coursework in general (i.e., S4ENGCOURSE=1 and S4HELPCRSEVER=1).

S4HELPCRSENGL and S4HELPCRSOTH apply to second follow-up respondents who had sought help for a postsecondary course (i.e., S4HELPCRSEVER=1).

---

**S4 B40A-D**
Question Wording: By the end of [February 2016/date last attended reference institution (through

February 2016)], which of the following college or trade school services had you used?

(Visiting, emailing, or in any way communicating with and receiving information or help from a school office or department that offers a particular service counts as use of that service.)

(Please choose all that apply)

**Variable: S4SRVFINAID**
Item Wording: Advice or counseling about financial aid

**Variable: S4SRVACAD**
Item Wording: Academic support services (for example, tutoring or writing centers)

**Variable: S4SRVCAREER**
Item Wording: Career planning or job placement services

**Variable: S4SRVNONE**
Item Wording: Did not use any of these services

**Applies to:**
Second follow-up respondents who had attended college or trade school by the end of February 2016 (i.e., S4EVRATNDCLG=1).

---

**S4 B41A-C**
Question Wording: By the end of [February 2016/date last attended reference institution (through February 2016)], did you participate in any of the following as a part of your college or trade school education?

**Variable: S4RESEARCH**
Item Wording: Research project with a faculty member

**Variable: S4STUDYABROAD**
Item Wording: Study abroad

**Variable: S4COMMSRV**
Item Wording: Community-based project as part of a course (for example, service learning)

1=Yes
0=No

**Applies to:**
Second follow-up respondents who had attended college or trade school by the end of February 2016 (i.e., S4EVRATNDCLG=1).

---

**S4 B42**
Question Wording:
[Was your [bachelor's degree program/associate's degree program/certificate program] at [college/trade school attended] entirely online?

[Do **not** include any online adult high school completion programs that you may have attended.]

OR

Between the time you [received your high school diploma/received your GED/received your high school equivalency/received your certificate of attendance or completion/last attended high school] and [February 2016/date last attended reference institution (through February 2016)]], had you ever been enrolled in a degree or certificate program that was entirely online?

[Do **not** include any online adult high school completion programs that you may have attended.]

**Variable: S4ONLINEPGM**

1=Yes
0=No

**Applies to:**
Second follow-up respondents who had enrolled in an undergraduate degree or certificate program (i.e., second follow-up respondents with at least one record on the HSLS F2 student-institution-program file where S4PPROGRAM in (1, 2, 3)).

---

**S4 B43**
Question Wording: Where were you living in [February 2016/date last attended reference institution (through February 2016)][, that is, when you last attended [Reference institution (see X4REFINST and S4IREFINST)] (before February 2016)]?

(If you were studying abroad at that time, please answer whether you were living on or off the campus of your study abroad college or trade school.)

**Variable: S4ONCAMPUS**

1=On campus or in college-owned housing (for example, a dorm or residence hall)
2=Off campus (not college-owned housing)

**Applies to:**
Second follow-up respondents who had attended college or trade school by the end of February 2016 (i.e., S4EVRATNDCLG=1).

**Notes:**
Some values have been logically inferred based on answers provided to other questions in the survey. In these cases, the respondent was not asked this question. For more information, see S4ONCAMPUS_I in the public-use and/or restricted-use data files.

---

**S4 B44**
Question Wording: By the end of [February 2016/date last attended reference institution (through February 2016)], had you ever taken out any **private student loans** from a private lender for your college or trade school education? Do **not** include any money borrowed in federal loans or any money borrowed from family or friends in your answer.

(Private student loans are borrowed from a private lender, such as a bank, credit union, or state, usually require a co-signer and have market interest rates based on credit history. Click here for examples of private loans.)

**Variable: S4PRVLOAN**

1=Yes
0=No

**Applies to:**
Second follow-up respondents who had attended college or trade school by the end of February 2016 (i.e., S4EVRATNDCLG=1).

**Notes:**
This variable is included in the abbreviated instrument.

---

**S4 B45**
Question Wording: What is the **total amount** that you had borrowed in **private loans** for your college or trade school education by the end of [February 2016/date last attended reference institution (through February 2016)]? (Do **not** include any money borrowed in federal loans or any money borrowed from family or friends in your answer.)

(If you are unsure of the amount of your private loans, please provide your best guess.)

**Variable: S4PRVLOANAMT**
Item Wording: $|.00

**Applies to:**
Second follow-up respondents who had attended college or trade school by the end of February 2016 and had taken out a private student loan (i.e., S4EVRATNDCLG=1 and S4PRVLOAN=1).

---

**S4 B46**
Question Wording: Please indicate the range for the total amount you had borrowed in private loans for your college or trade school education (by the end of [February 2016/date last attended reference institution (through February 2016)]). Would you say it was...

**Variable: S4PRVLOANEST**

1=$2,500 or less
2=$2,501 - $5,000
3=$5,001 - $10,000
4=$10,001 - $20,000
5=$20,001 - $30,000
6=$30,001 - $45,000
7=$45,000 or more
8=Don't know

**Applies to:**
Second follow-up respondents who had attended college or trade school by the end of February 2016 and had taken out a private student loan (i.e., S4EVRATNDCLG=1 and S4PRVLOAN=1).

**Notes:**
Some values have been logically inferred based on answers provided to other questions in the survey. In these cases, the respondent was not asked this question. For more information, see S4PRVLOANEST_I in the public-use and/or restricted-use data files.

---

**S4 B47A-C**
Question Wording: By the end of [February 2016/date last attended reference institution (through February 2016)], did you receive any of the following types of scholarships or benefits for your college or trade school education?

(Do not include scholarships from any school or state.)

**Variable: S4VETEDBEN**
Item Wording: Veteran's education benefits

**Variable: S4EMPSCHLSHIP**
Item Wording: Scholarships or tuition reimbursement from your employer or from your parents' or guardians' employer

**Variable: S4PRVSCHLSHIP**
Item Wording: Scholarships from a private organization such as a church, PTA, fraternity or sorority, or foundation

1=Yes
0=No

**Applies to:**
Second follow-up respondents who had attended college or trade school by the end of February 2016 (i.e., S4EVRATNDCLG=1).

---

**S4 B48**
Question Wording: How much do you agree or disagree that your college or trade school education will be a good financial investment?

**Variable: S4GOODINVEST**

1=Strongly agree
2=Agree
3=Disagree
4=Strongly disagree

**Applies to:**
Second follow-up respondents who had attended college or trade school by the end of February 2016 (i.e., S4EVRATNDCLG=1).

---

# Section C: Employment

**Introduction to Section C**
Question Wording: Now we are interested in learning about your work experiences between [date received [high school diploma/certificate of attendance] or date last attended high school] and February 2016.

---

**S4 C01**
Question Wording: Between the time you [received your high school diploma/received your certificate of attendance or completion/last attended high school] and February 2016, did you ever participate in a work experience program, that is, an internship, co-op, practicum, externship, apprenticeship, or a similar program?

**Variable: S4WRKPGM**

2=Yes, more than one program
1=Yes, one program
0=No

**Applies to:**
All second follow-up respondents.

---

**S4 C02**
Question Wording: Were you paid or unpaid in your [last ]work experience program (before the end of February 2016)?

**Variable: S4WRKPGMPAID**

1=Paid
2=Unpaid

**Applies to:**
Second follow-up respondents who participated in a work experience program (i.e., S4WRKPGM in (1, 2)).

---

**S4 C03**
Question Wording: A professional certification, state or industry license shows you are qualified to perform a specific job.

At any time between when you [received your high school diploma/received your certificate of attendance or completion/last attended high school] and February 2016, did you have a professional certification or a state or industry license?

(Examples include Certified Mechanic, Certified Medical Assistant, Licensed Realtor, or Licensed Plumber. Do not include business licenses, such as a liquor license or vending license.)

**Variable: S4PROFCERT**

1=Yes
0=No

**Applies to:**
All second follow-up respondents.

**Notes:**
Some values have been logically inferred based on answers provided to other questions in the survey. In these cases, the respondent was not asked this question. For more information, see S4PROCERT_I on the public-use and/or restricted-use data files.

---

**TRANSITION SCREEN**
Question Wording: For the rest of the questions about your work experience, we are interested in all **paid** work you had between [date received [high school diploma/certificate of attendance] or date last attended high school] and February 2016, including continuing in any jobs you started before you [received your high school diploma/received your certificate of attendance or completion/last attended high school].

**Please be sure to include** part-time work, temporary and odd jobs, paid work experience programs (such as internships, apprenticeships, co-ops), work-study jobs as well as self-employment and military service.

---

**S4 C04A-D**
Question Wording: Did you ever work **for pay** during weeks you were **also attending [[Name of only college/trade school attended/college or trade school]** in the following time period(s)?

(Do **not** count jobs you held when you were not attending school, such as jobs held only during summer break.)

**Variable: S4WRK1213**
Item Wording: [start date between July 2012 and June 2013] - [end date between July 2012 and June 2013] (when you were attending in the 2012-2013 school year)

**Variable: S4WRK1314**
Item Wording: [start date between July 2013 and June 2014] - [end date between July 2013 and June 2014] (when you were attending in the 2013-2014 school year)

**Variable: S4WRK1415**
Item Wording: [start date between July 2014 and June 2015] - [end date between July 2014 and June 2015] (when you were attending in the 2014-2015 school year)

**Variable: S4WRK1516**
Item Wording: [start date between July 2015 and February 2016] - [end date between July 2015 and February 2016] (when you were attending in the 2015-2016 school year through February 2016)

1=Yes
0=No

**Applies to:**
S4WRK1213 applies to second follow-up respondents who had attended college or trade school sometime between July 2012 and June 2013.

S4WRK1314 applies to second follow-up respondents who had attended college or trade school sometime between July 2013 and June 2014.

S4WRK1415 applies to second follow-up respondents who had attended college or trade school sometime between July 2014 and June 2015.

S4WRK1516 applies to second follow-up respondents who had attended college or trade school sometime between July 2015 and February 2016.

S4ICLGSTART and S4ICLGEND are used to determine whether a student was attending during the academic years in question.

**Notes:**
These variables are included in the abbreviated instrument.

---

**S4 C05A-D**
Question Wording: How many **hours per week** did you usually work **while attending [[Name of only college/trade school attended/college or trade school]** in the following time period(s)?

**Variable: S4WRKHRS1213**
Item Wording: [start date between July 2012 and June 2013] - [end date between July 2012 and June 2013] (2012-2013 school year)

**Variable: S4WRKHRS1314**
Item Wording: [start date between July 2013 and June 2014] - [end date between July 2013 and June 2014] (2013-2014 school year)

**Variable: S4WRKHRS1415**
Item Wording: [start date between July 2014 and June 2015] - [end date between July 2014 and June 2015] (2014-2015 school year)

**Variable: S4WRKHRS1516**
Item Wording: [start date between July 2015 and February 2016] - [end date between July 2015 and February 2016]

**Applies to:**
S4WRK1213 applies to second follow-up respondents who had worked while attending college or trade school sometime between July 2012 and June 2013 (i.e., S4WRK1213=1).

S4WRK1314 applies to second follow-up respondents who had worked while attending college or trade school sometime between July 2013 and June 2014 (i.e., S4WRK1314=1).

S4WRK1415 applies to second follow-up respondents who had worked while attending college or trade school sometime between July 2014 and June 2015 (i.e., S4WRK1415=1).

S4WRK1516 applies to second follow-up respondents who had worked while attending college or trade school sometime between July 2015 and February 2016 (i.e., S4WRK1516=1).

**Notes:**
These variables are included in the abbreviated instrument.

---

**S4 C06**
Question Wording: When you were working and attending [[Name of only college/trade school attended/college or trade school] at the same time, would you say you were primarily...

**Variable: S4STUDOREMP**

1=A student who worked, or
2=An employee who decided to enroll in school?

**Applies to:**
Second follow-up respondents who worked for pay while attending college or trade school sometime between July 2012 and February 2016 (i.e., S4WRK1213=1 or S4WRK1314=1 or S4WRK1415=1 or S4WRK1516=1).

---

**S4 C07**
Question Wording: How much do you agree or disagree that your work schedule interfered with your academic performance in college or trade school?

**Variable: S4WRKINTERFERE**

1=Strongly agree
2=Agree
3=Disagree
4=Strongly disagree

**Applies to:**
Second follow-up respondents who worked for pay while attending college or trade school sometime between July 2012 and February 2016 (i.e., S4WRK1213=1 or S4WRK1314=1 or S4WRK1415=1 or S4WRK1516=1).

---

**S4 C08**
Question Wording: By the end of February 2016, had you ever served in the United States Armed Forces?

**Variable: S4EVRMILITARY**

1=Yes
0=No

**Applies to:**
All second follow-up respondents.

---

**S4 C09A-B**
Question Wording: In what month and year did your first military service begin?

**Variable: S4MLTSTARTM**
Item Wording: 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

**Variable: S4MLTSTARTY**
Item Wording: Year:

2010=2010 or earlier
2011=2011
2012=2012
2013=2013
2014=2014
2015=2015
2016=2016

**Applies to:**
Second follow-up respondents who had served in the U.S. Armed Forces (i.e., S4EVRMILITARY=1).

---

**S4 C10**
Question Wording: Were you serving in the military in February 2016?

**Variable: S4MLT16FB**

1=Yes
0=No

**Applies to:**
All second follow-up respondents.

**Notes:**
Some values have been logically inferred based on answers provided to other questions in the survey. In these cases, the respondent was not asked this question. For more information, see S4MLT16FB_I on the public-use and/or restricted-use data files.

---

**S4 C11A-B**

Question Wording: In what month and year did your most recent military service end?

(If you returned to military service after February 2016, please report the last month and year you served in the military before February 2016).

**Variable: S4MLTENDM**
Item Wording: 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

**Variable: S4MLTENDY**
Item Wording: Year:

2010=2010 or earlier
2011=2011
2012=2012
2013=2013
2014=2014
2015=2015
2016=2016

**Applies to:**
Second follow-up respondents who had served in the U.S. Armed Forces, but were not serving in February 2016 (i.e., S4EVRMILITARY=1 and S4MLT16FB^=1).

---

**S4 C12**
Question Wording: In [date last served in military (through February 2016)] were you serving...

**Variable: S4MLTCOMP**

1=On active duty (Exclude initial entry training such as boot camp or basic training.)
2=In the Reserves, or
3=In the National Guard?

**Applies to:**
Second follow-up respondents who had served in the U.S. Armed Forces (i.e., S4EVRMILITARY=1).

---

**S4 C13**
Question Wording: What was your military pay grade in [date last served in military (through February 2016)]?

**Variable: S4MLTGRADE**

1=E-1
2=E-2
3=E-3
4=E-4
5=E-5
6=E-6
7=O-1
8=O-2
9=O-3
10=W-1
11=W-2
12=W-3
13=Other

**Applies to:**
Second follow-up respondents who had served in the U.S. Armed Forces (i.e., S4EVRMILITARY=1).

---

**S4 C14A-E**
Question Wording: In which branches of the military had you served by the end of [date last served in military (through February 2016)]?

(Please choose all that apply)

**Variable: S4ARMY**
Item Wording: Army

**Variable: S4AIRFORCE**
Item Wording: Air Force

**Variable: S4MARINES**
Item Wording: Marine Corps

**Variable: S4NAVY**
Item Wording: Navy

**Variable: S4COASTGRD**
Item Wording: Coast Guard

**Applies to:**
Second follow-up respondents who had served in the U.S. Armed Forces (i.e., S4EVRMILITARY=1).

---

**S4 C15**
Question Wording: By the end of [date last served in military (through February 2016)] had you ever served on active duty? Exclude initial entry training such as boot camp or basic training.

**Variable: S4ACTIVEDUTY**

1=Yes
0=No

**Applies to:**
Second follow-up respondents who had served in the U.S. Armed Forces (i.e., S4EVRMILITARY=1).

**Notes:**
Some values have been logically inferred based on answers provided to other questions in the survey. In these cases, the respondent was not asked this question. For more information, see S4ACTIVEDUTY_I on the public-use and/or restricted-use data files.

---

**S4 C16**
Question Wording: Had you ever served in a combat zone by the end of [date last served in military (through February 2016)]?

**Variable: S4COMBATZN**

1=Yes
0=No

**Applies to:**
Second follow-up respondents who had served on active-duty in the U.S. Armed Forces (i.e., S4ACTIVEDUTY=1).

---

**S4 C17**
Question Wording: Did you work for pay at any time between [date received [high school diploma/date received certificate of attendance/date last attended high school] and February 2016, including continuing in any jobs started before you [received your high school diploma/received your certificate of attendance or completion/last attended high school]? Include all types of paid employment including part-time work, temporary and odd jobs lasting one month or more, and self-employment.

**Variable: S4ANYJOB**

1=Yes
0=No

**Applies to:**
All second follow-up respondents.

**Notes:**
This variable is included in the abbreviated instrument.

Some values have been logically inferred based on answers provided to other questions in the survey. In these cases, the respondent was not asked this question. For more information, see S4ANYJOB_I on the public-use and/or restricted-use data files.

---

**S4 C18**
Question Wording: [Including but not limited to the [paid work/military service/paid work and military service] you have already mentioned, how/How] many different jobs for pay did you have between the time you [received your high school diploma/received your certificate of attendance or completion/last attended high school] and February 2016?

(Count only paid jobs lasting **one month or more**. For self-employment or odd jobs, count multiple instances of the same type of work as one job.)

**Variable: S4NUMBERJOBS**
Item Wording: | job(s) for pay

**Applies to:**
Second follow-up respondents who worked for pay at any time between high school completion or exit and February 2016 (i.e., S4ANYJOB=1).

**Notes:**
This variable is included in the abbreviated instrument.

---

**S4 C19A-B**
Question Wording: [Based on the answers you have provided, it looks like the military service you reported on earlier is the one job you held between the time you [received your high school diploma/received your certificate of attendance or completion/last attended high school] and February 2016. (If this is correct, please verify your employment dates for this position in the next questions. If this is **not** correct, please back up to the previous screen and count all paid jobs you held during this time, including your military service.)]

In what month and year did you start [this job/the first job you held after you [received your high school diploma/received your certificate of attendance or completion/last attended high school]]?

[(This may be a job you started before you [received your high school diploma/received your certificate of attendance or completion/last attended high school].)]

**Variable: S4WORKSTARTM**

1=January
2=February
3=March
4=April
5=May
6=June
7=July
8=August
9=September
10=October
11=November
12=December

**Variable: S4WORKSTARTY**

2010=2010 or earlier
2011=2011
2012=2012
2013=2013
2014=2014
2015=2015
2016=2016

**Applies to:**
Second follow-up respondents who worked for pay at any time between high school completion or exit and February 2016 (i.e., S4ANYJOB=1).

**Notes:**
These variables are included in the abbreviated instrument.

---

**S4 C20**
Question Wording: Were you working for pay [**in this job/in any job**] in February 2016?

[(Include all types of **paid** employment including part-time work, self-employment, paid internships, apprenticeships, co-ops, work-study jobs, military service, and temporary and odd jobs.)]

**Variable: S4WORKING16FB**

1=Yes
0=No

**Applies to:**
All second follow-up respondents.

**Notes:**
This variable is included in the abbreviated instrument.

Some values have been logically inferred based on answers provided to other questions in the survey. In these cases, the respondent was not asked this question. For more information, see S4WORKING16FB_I on the public-use and/or restricted-use data files.

---

**S4 C21A-B**
Question Wording: Before February 2016, in what month and year did you last work for pay?

**Variable: S4WORKENDM**

1=January
2=February
3=March
4=April
5=May
6=June
7=July

8=August
9=September
10=October
11=November
12=December

**Variable: S4WORKENDY**

2010=2010 or earlier
2011=2011
2012=2012
2013=2013
2014=2014
2015=2015
2016=2016

**Applies to:**
Second follow-up respondents who worked for pay at any time between high school completion or exit and February 2016, but were no longer working for pay in February 2016 (i.e., S4ANYJOB=1 and S4WORKING16FB^=1).

**Notes:**
These variables are included in the abbreviated instrument.

---

**Transition screen**
Question Wording: Now we have some questions about the first job you had after you [received your high school diploma/received your certificate of attendance or completion/last attended high school].

[(If you had more than one job at that time, tell us about the one where you worked the most hours.)]

---

**S4 C22A-D**
Question Wording: What was the title of [this job/the first job you had after you [received your high school diploma/received your certificate of attendance or completion/last attended high school]]?

What did you do in that job?

**Variable: S4JOBTITLE1**

**Variable: S4JOBDUTY1**

**Variable: S4JOB21**

**Variable: S4JOB61**

**Applies to:**
Second follow-up respondents who worked for pay at any time between high school completion or exit and February 2016 (i.e., S4ANYJOB=1).

---

**S4 C23**
Question Wording: What was the name of your employer for this job[ as a(n) [job title for 1st job after high school (S4JOBTITLE1)]]?

(Your employer's name will be used to help personalize the questions to your situation. We will not contact your employer.)

**Variable: INPUT TO S4EMPLOYER01**
Item Wording: Employer name: |

**Variable: S4EMPLOYER01**

1=Self-employed
2=United States military
3=Other employer

**Applies to:**
Second follow-up respondents who worked for pay at any time between high school completion or exit and February 2016 (i.e., S4ANYJOB=1).

**Notes:**
The employer name was collected only as a fill for subsequent question wording about the first job after high school. It is not provided on the data file. S4EMPLOYER01 = 1 for respondents who provided an employer name.

---

**S4 C24**
Question Wording: Were you working [as a(n) [S4JOBTITLE1] for [employer] /for yourself as a(n) [S4JOBTITLE1]/as a(n) [S4JOBTITLE1] for the United States military [in February 2016/in [date last worked for pay (through February 2016)], that is, when you last worked for pay before February 2016]]?

**Variable: S4SAMEJOB1**

1=Yes
0=No

**Applies to:**
Second follow-up respondents who worked for pay at any time between high school completion or exit and February 2016 (i.e., S4ANYJOB=1).

**Notes:**
Some values have been logically inferred based on answers provided to other questions in the survey. In these cases, the respondent was not asked this question. For more information, see S4SAMEJOB1_I on the public-use and/or restricted-use data files.

---

**S4 C25A-B**
Question Wording: In what month and year did you last work [as a(n) [S4JOBTITLE1] for [employer name]/for yourself as a(n) [S4JOBTITLE1]/as a(n) [S4JOBTITLE1] for the United States military]?

(If you returned to this job after February 2016, please report the last month and year you worked [as a(n)

[S4JOBTITLE1] for [employer name]/for yourself as a(n) [S4JOBTITLE1]/as a(n) [S4JOBTITLE1] for the United States military] before February 2016).

**Variable: S4JOBENDM1**

1=January
2=February
3=March
4=April
5=May
6=June
7=July
8=August
9=September
10=October
11=November
12=December

**Variable: S4JOBENDY1**

2010=2010 or earlier
2011=2011
2012=2012
2013=2013
2014=2014
2015=2015
2016=2016

**Applies to:**
Second follow-up respondents who worked for pay at any time between high school completion or exit and February 2016, but were no longer working for pay at their first job after high school in February 2016 (i.e., S4ANYJOB=1).

**Notes:**
Some values have been logically inferred based on answers provided to other questions in the survey. In these cases, the respondent was not asked this question. For more information, see S4JOBENDM1_I and S4JOBENDY1_I on the public-use and/or restricted-use data files.

---

**S4 C26**
Question Wording: Between [date started first job (S4WORKSTARTM/S4WORKSTARTY) ] and [date last worked in first job through February 2016 (S4JOBENDM1/S4JOBENDY1)]], were there any periods of one month or more during which you were not working [as a(n) [S4JOBTITLE1] for [employer name]/for yourself as a(n) [S4JOBTITLE1]/as a(n) [S4JOBTITLE1] for the United States military], not counting time you took off for vacation or sick leave?

**Variable: S4OFFWORK1**

1=Yes
0=No

**Applies to:**
Second follow-up respondents who worked for pay at any time between high school completion or exit and February 2016 (i.e., S4ANYJOB=1).

**Notes:**
Some values have been logically inferred based on answers provided to other questions in the survey. In these cases, the respondent was not asked this question. For more information, see S4OFFWORK1_I on the public-use and/or restricted-use data files.

---

**S4 C27A-B**
Question Wording: When you started this job in [date started first job (S4WORKSTARTM/S4WORKSTARTY)] how much did you make in this job before taxes? Include any tips, bonuses, and commissions in your total earnings amount.

**Variable: S4EARNAMT1**
Item Wording: $ |

**Variable: S4EARNUNIT1**

1=per hour
2=per month
3=per year

**Applies to:**
Second follow-up respondents who worked for pay at any time between high school completion or exit and February 2016 (i.e., S4ANYJOB=1).

---

**S4 C28**
Question Wording: Did you ever work regularly [as a(n) [S4JOBTITLE1] for [employer name]/for yourself as a(n) [S4JOBTITLE1]/as a(n) [S4JOBTITLE1] for the United States military] during weeks in which you were also **attending** [[Name of only college/trade school attended/college or trade school]?

**Variable: S4WORKENR1**

1=Yes
0=No

**Applies to:**
Second follow-up respondents who worked for pay while attending college or trade school sometime between July 2012 and February 2016 (i.e., S4WRK1213=1 or S4WRK1314=1 or S4WRK1415=1 or S4WRK1516=1).

**Notes:**
Some values have been logically inferred based on answers provided to other questions in the survey. In these cases, the respondent was not asked this question. For more information, see S4WORKENR1_I on the public-use and/or restricted-use data files.

---

**S4 C29**
Question Wording: Earlier you provided the number of hours you worked across all of your jobs by school year. Now we would like to know about the hours you worked **[as a(n) [S4JOBTITLE1] for [employer name]/for yourself as a(n) [S4JOBTITLE1]/as a(n) [S4JOBTITLE1] for the United States military]**.

How many hours per week did you usually work [as a(n) [S4JOBTITLE1] for [employer name]/for yourself as a(n) [S4JOBTITLE1]/as a(n) [S4JOBTITLE1] for the United States military] while you were attending [[Name of only college/trade school attended/college or trade school]?

(Provide your best guess if you are unsure.)

**Variable: S4WORKHRENR1**
Item Wording: | hours per week

**Applies to:**
Second follow-up respondents who worked at their first job after high school (i.e., the job reported in S4JOBTITLE1) while attending college or trade school (i.e., S4WORKENR1=1).

**Notes:**
Some values have been logically inferred based on answers provided to other questions in the survey. In these cases, the respondent was not asked this question. For more information, see S4WORKHRENR1_I on the public-use and/or restricted-use data files.

---

**S4 C30**
Question Wording: Did you also work regularly [as a(n) [S4JOBTITLE1] for [employer name]/for yourself as a(n) [S4JOBTITLE1]/as a(n) [S4JOBTITLE1] for the United States military] during weeks when you were **not attending [[Name of only college/trade school attended/college or trade school]**?

**Variable: S4WORKNENR1**

1=Yes
0=No

**Applies to:**
Second follow-up respondents who worked for pay at any time between high school completion or exit and February 2016 (i.e., S4ANYJOB=1).

**Notes:**
Some values have been logically inferred based on answers provided to other questions in the survey. In these cases, the respondent was not asked this question. For more information, see S4WORKNENR1_I on the public-use and/or restricted-use data files.

---

**S4 C31**
Question Wording: How many hours per week did you usually work [as a(n) [S4JOBTITLE1] for [employer name]/for yourself as a(n) [S4JOBTITLE1]/as a(n) [S4JOBTITLE1] for the United States military][ when you were **not attending** [[Name of only college/trade school attended/college or trade school]]? (Provide your best guess if you are unsure.)

**Variable: S4WORKHRNENR1**
Item Wording: | hours per week

**Applies to:**
Second follow-up respondents who worked at their first job after high school (i.e., the job reported in S4JOBTITLE1) while not attending college or trade school (i.e., S4WORKNENR1=1).

**Notes:**
Some values have been logically inferred based on answers provided to other questions in the survey. In these cases, the respondent was not asked this question. For more information, see S4WORKHRNENR1_I on the public-use and/or restricted-use data files.

---

**S4 C32**
Question Wording: Now we are interested in the job you held [in February 2016/in [date last worked for pay through February 2016 (S4WORKENDM/S4WORKENDY)], that is, when you last worked for pay before February 2016]].

(If you had more than one job at that time, tell us about the one where you worked the most hours.)

Were you...

**Variable: S4SAMEJOB2**

1=Working [as a(n) [S4JOBTITLE1]] for a different employer
2=Working in a different job for [employer for 1st job after high school]
3=Working in a different job for a different employer
4=Working [as a(n) [S4JOBTITLE1] for [employer for 1st job after high school/for yourself as a(n) [S4JOBTITLE1]/as a(n) [S4JOBTITLE1] for the United States military]

**Applies to:**
Second follow-up respondents who worked for pay at any time between high school completion or exit and February 2016 (i.e., S4ANYJOB=1).

**Notes:**
Some values have been logically inferred based on answers provided to other questions in the survey. In these cases, the respondent was not asked this question. For more information, see S4SAMEJOB2_I on the public-use and/or restricted-use data files.

---

**S4 C33A-D**
Question Wording: What was the title of the job you had in [date last worked for pay through February 2016 (S4WORKENDM/S4WORKENDY)]?

What did you do in that job?

**Variable: S4JOBTITLE2**

**Variable: S4JOBDUTY2**

**Variable: S4JOB22**

**Variable: S4JOB62**

**Applies to:**
Second follow-up respondents who worked for pay at any time between high school completion or exit and February 2016 (i.e., S4ANYJOB=1).

**Notes:**
These variables are included in the abbreviated instrument.

Some values have been logically inferred based on answers provided to other questions in the survey. In these cases, the respondent was not asked this question. For more information, see S4JOBTITLE2_I, S4JOBDUTY2_I, S4JOB22_I, and S4JOB62_I on the public-use and/or restricted-use data files.

---

**S4 C34**
Question Wording: What was the name of your employer for this job as a(n) [S4JOBTITLE2]?

(Your employer's name will be used to help personalize the questions to your situation. We will not contact your employer)

**Variable: INPUT TO S4EMPLOYER02**
Item Wording: Employer name: |

**Variable: S4EMPLOYER02**

1=Self-employed
2=United States military
3=Other employer

**Applies to:**
Second follow-up respondents who worked for pay at any time between high school completion or exit and February 2016 (i.e., S4ANYJOB=1).

**Notes:**
This variable is included in the abbreviated instrument.

The employer name was collected only as a fill for subsequent question wording about the job held in February 2016 or most recently before that date. It is not provided on the data file. S4EMPLOYER02 = 1 for respondents who provided an employer name.

Some values have been logically inferred based on answers provided to other questions in the survey. In these cases, the respondent was not asked this question. For more information, see S4EMPLOYER02_I on the public-use and/or restricted-use data files.

---

**S4 C35A-B**
Question Wording: In what month and year did you first start working [as a(n) [S4JOBTITLE2] for [employer name]/for yourself as a(n) [S4JOBTITLE2]/as a(n) [S4JOBTITLE2] for the United States military]?

**Variable: S4STARTJOBM2**

1=January
2=February
3=March
4=April
5=May

6=June
7=July
8=August
9=September
10=October
11=November
12=December

**Variable: S4STARTJOBY2**

2010=2010 or earlier
2011=2011
2012=2012
2013=2013
2014=2014
2015=2015
2016=2016

**Applies to:**
Second follow-up respondents who worked for pay at any time between high school completion or exit and February 2016 (i.e., S4ANYJOB=1).

**Notes:**
These variables are included in the abbreviated instrument.

Some values have been logically inferred based on answers provided to other questions in the survey. In these cases, the respondent was not asked this question. For more information, see S4STARTJOBM2_I and S4STARTJOBY2_I on the public-use and/or restricted-use data files.

---

**S4 C36**
Question Wording: Between [date started most recent job through February 2016 (S4STARTJOBM2/S4STARTJOBY2)] and [date last worked for pay through February 2016 (S4WORKENDM/S4WORKENDY)], were there any periods of one month or more during which you were not working in this job [as a(n) [S4JOBTITLE2] for [employer name]/for yourself as a(n) [S4JOBTITLE2]/as a(n) [S4JOBTITLE2] for the United States military], not counting time you took off for vacation or sick leave?

**Variable: S4OFFWORK2**

1=Yes
0=No

**Applies to:**
Second follow-up respondents who worked for pay at any time between high school completion or exit and February 2016 (i.e., S4ANYJOB=1).

**Notes:**
This variable is included in the abbreviated instrument.

Some values have been logically inferred based on answers provided to other questions in the survey. In

these cases, the respondent was not asked this question. For more information, see S4OFFWORK2_I on the public-use and/or restricted-use data files.

---

**S4 C37A-B**
Question Wording: In [**date last worked for pay through February 2016 (S4WORKENDM/S4WORKENDY)**], how much did you make in this job before taxes? Include any bonuses, tips, or commissions in your total earnings amount.

**Variable: S4EARNAMT2**
Item Wording: $ |

**Variable: S4EARNUNIT2**

1=per hour
2=per month
3=per year

**Applies to:**
Second follow-up respondents who worked for pay at any time between high school completion or exit and February 2016 (i.e., S4ANYJOB=1).

**Notes:**
These variables are included in the abbreviated instrument.

---

**S4 C38A-E**
Question Wording: In [your job as a(n) [S4JOBTITLE2] for [employer name]/your self-employment as a(n) [S4JOBTITLE2]/your job as a(n) [S4JOBTITLE2] for the United States military], were you offered any of the following benefits?

**Variable: S4BENHLTH2**
Item Wording: Health insurance

**Variable: S4BENLIFE2**
Item Wording: Life insurance

**Variable: S4BENRET2**
Item Wording: Retirement or other financial benefits, such as a 401(k)/403(b)

**Variable: S4BENEDU2**
Item Wording: Scholarships or tuition reimbursement for school

**Variable: S4BENVACTN2**
Item Wording: Paid vacation, sick, or personal days

1=Yes
0=No

**Applies to:**
Second follow-up respondents who were not enrolled in an undergraduate degree or certificate program in February 2016, worked for pay at any time between high school completion or exit and February 2016,

but were not self-employed in their February 2016 or most recent position (i.e., S4TMP_01 = 1, S4ANYJOB=1, and S4EMPLOYER02 ^= 1).

---

**S4 C39**
Question Wording: Did you ever work regularly [as a(n) [S4JOBTITLE2] for [employer name]/for yourself as a(n) [S4JOBTITLE2]/as a(n) [S4JOBTITLE2] for the United States military] during weeks in which you were also **attending** [[Name of only college/trade school attended/college or trade school]?

**Variable: S4WORKENR2**

1=Yes
0=No

**Applies to:**
Second follow-up respondents who worked for pay while attending college or trade school sometime between July 2012 and February 2016 (i.e., S4WRK1213=1 or S4WRK1314=1 or S4WRK1415=1 or S4WRK1516=1).

**Notes:**
This variable is included in the abbreviated instrument.

---

**S4 C40**
Question Wording: [Earlier you provided the number of hours you worked [across all of your jobs ]by school year. Now we would like to know about the hours you worked **[as a(n) [S4JOBTITLE2] for [employer name]/for yourself as a(n) [S4JOBTITLE2]/as a(n) [S4JOBTITLE2] for the United States military]** across school years.]

How many hours per week did you usually work [as a(n) [S4JOBTITLE2] for [employer name]/for yourself as a(n) [S4JOBTITLE2]/as a(n) [S4JOBTITLE2] for the United States military] while you were attending [[Name of only college/trade school attended/college or trade school]?

(Provide your best guess if you are unsure.)

**Variable: S4WORKHRENR2**
Item Wording: | hours per week

**Applies to:**
Second follow-up respondents who worked at their February 2016/most recent job after high school (i.e., the job reported in S4JOBTITLE2) while attending college or trade school (i.e., S4WORKENR2=1).

**Notes:**
This variable is included in the abbreviated instrument.

---

**S4 C41**
Question Wording: Did you also work regularly [as a(n) [S4JOBTITLE2] for [employer name]/for yourself as a(n) [S4JOBTITLE2]/as a(n) [S4JOBTITLE2] for the United States military] during weeks when you were **not attending** [[Name of only college/trade school attended/college or trade school]?

**Variable: S4WORKNENR2**

1=Yes
0=No

**Applies to:**
Second follow-up respondents who worked for pay at any time between high school completion or exit and February 2016 (i.e., S4ANYJOB=1).

**Notes:**
This variable is included in the abbreviated instrument.

Some values have been logically inferred based on answers provided to other questions in the survey. In these cases, the respondent was not asked this question. For more information, see S4WORKNENR2_I on the public-use and/or restricted-use data files.

---

**S4 C42**
Question Wording: How many hours per week did you usually work [as a(n) [S4JOBTITLE2] for [employer name]/for yourself as a(n) [S4JOBTITLE2]/as a(n) [S4JOBTITLE2] for the United States military][ when you were **not attending** [[Name of only college/trade school attended/college or trade school]? (Provide your best guess if you are unsure.)

**Variable: S4WORKHRNENR2**
Item Wording: | hours per week

**Applies to:**
Second follow-up respondents who worked at their February 2016/most recent job after high school (i.e., the job reported in S4JOBTITLE2) while not attending college or trade school (i.e., S4WORKNENR2=1).

**Notes:**
This variable is included in the abbreviated instrument.

---

**S4 C43**
Question Wording: Would you have preferred to work more hours for pay [as a(n) [S4JOBTITLE2] for [employer name]/for yourself as a(n) [S4JOBTITLE2]/as a(n) [S4JOBTITLE2] for the United States military] in [date last worked for pay through February 2016 (S4WORKENDM/S4WORKENDY)]?

**Variable: S4WANTXHRS2**

1=Yes
0=No

**Applies to:**
Second follow-up respondents who were not enrolled in an undergraduate degree or certificate program in February 2016 and worked for pay at any time between high school completion or exit and February 2016 (i.e., S4TMP_01 = 1 and S4ANYJOB=1).

---

**S4 C44**
Question Wording: How would you rate your overall satisfaction with [your job as a(n) [S4JOBTITLE2] for [employer name]/your self-employment as a(n) [S4JOBTITLE2]/your job as a(n) [S4JOBTITLE2] for the United States military]?

**Variable: S4JOBSAT2**

1=Very satisfied
2=Somewhat satisfied
3=Somewhat dissatisfied
4=Very dissatisfied

**Applies to:**
Second follow-up respondents who were not enrolled in an undergraduate degree or certificate program in February 2016 and worked for pay at any time between high school completion or exit and February 2016 (i.e., S4TMP_01 = 1 and S4ANYJOB=1).

---

**S4 C45**
Question Wording: Was this job a formal apprenticeship that results in journeyman status upon completion?

**Variable: S4APPRENTICE2**

1=Yes
2=No
3=Don't know

**Applies to:**
Second follow-up respondents who were not enrolled in an undergraduate degree or certificate program in February 2016 and worked for pay at any time between high school completion or exit and February 2016 (i.e., S4TMP_01 = 1 and S4ANYJOB=1).

---

**S4 C46**
Question Wording: Did you have a license that was required by a federal, state, or local government agency to work [as a(n) [S4JOBTITLE2] for [employer name]/for yourself as a(n) [S4JOBTITLE2]/as a(n) [S4JOBTITLE2] for the United States military]?

**Variable: S4LCNSE4JOB2**

1=Yes
0=No

**Applies to:**
Second follow-up respondents who were not enrolled in an undergraduate degree or certificate program in February 2016 and had worked for pay at any time between high school completion or exit and February 2016 (i.e., S4TMP_01 = 1 and S4ANYJOB=1).

**Notes:**
Some values have been logically inferred based on answers provided to other questions in the survey. In these cases, the respondent was not asked this question. For more information, see S4LCNSE4JOB2_I on the public-use and/or restricted-use data files.

---

**S4 C47**
Question Wording: [Earlier you indicated that you were **not** working for pay in February 2016.]

Were you actively looking for work in February 2016?

**Variable: S4UNEMP16FB**

1=Yes
0=No

**Applies to:**
Second follow-up respondents who were not working for pay in February 2016 (i.e., S4WORKING16FB=0).

---

**S4 C48**
Question Wording: At any time between when you [received your high school diploma/received your certificate of attendance or completion/last attended high school] ([date received high school diploma/date received certificate of attendance/date last attended high school]) and February 2016, were you unemployed and actively looking for work for a period of one month or more?

**Variable: S4UNEMPEVER**

1=Yes
0=No

**Applies to:**
Second follow-up respondents who were not enrolled in an undergraduate degree or certificate program in February 2016 (S4TMP_01 = 1).

**Notes:**
This variable is included in the abbreviated instrument.

Some values have been logically inferred based on answers provided to other questions in the survey. In these cases, the respondent was not asked this question. For more information, see S4UNEMPEVER_I on the public-use and/or restricted-use data files.

---

**S4 C49**
Question Wording: Between [date received high school diploma/date received certificate of attendance/ date last attended high school] and February 2016, what was the longest period of time (in months) you were unemployed and actively looking for work?

(Please indicate the longest period of time in terms of number of months.)

**Variable: S4UNEMPDUR**
Item Wording: | months

**Applies to:**
Second follow-up respondents who were not enrolled in an undergraduate degree or certificate program in February 2016 (S4TMP_01 = 1).

**Notes:**
Some values have been logically inferred based on answers provided to other questions in the survey. In these cases, the respondent was not asked this question. For more information, see S4UNEMPDUR_I on the public-use and/or restricted-use data files.

---

**S4 C50**
Question Wording: About how many different periods of time were you unemployed and actively looking for work (between [date received high school diploma/date received certificate of attendance/ date last attended high school] and February 2016)? Do **not** count short-term unemployment lasting less than a month.

**Variable: S4UNEMPFREQ**
Item Wording: | period(s) of time

**Applies to:**
Second follow-up respondents who were not enrolled in an undergraduate degree or certificate program in February 2016 (S4TMP_01 = 1).

**Notes:**
Some values have been logically inferred based on answers provided to other questions in the survey. In these cases, the respondent was not asked this question. For more information, see S4UNEMPFREQ_I on the public-use and/or restricted-use data files.

---

**S4 C51**
Question Wording: Between [date received high school diploma/date received certificate of attendance/date last attended high school] and February 2016, had you ever received unemployment compensation, that is, money paid by the government to workers who have lost their job?

**Variable: S4UNEMPCOMP**

1=Yes
0=No

**Applies to:**
Second follow-up respondents who were not enrolled in an undergraduate degree or certificate program in February 2016 (S4TMP_01 = 1).

**Notes:**
Some values have been logically inferred based on answers provided to other questions in the survey. In these cases, the respondent was not asked this question. For more information, see S4UNEMPCOMP_I on the public-use and/or restricted-use data files.

---

**S4 C52**
Question Wording: As things stand now, what is the job or occupation that you expect or plan to have at age 30?

(Please enter a job title in the text box below or select one of the options beneath it.)

**Variable: S4OCC30**

Item Wording: Job title:

**Variable: INPUT TO S4OCC30**

1=[job title (1st job after high school)]
2=[job title (February 2016/most recent job)]
97=You don't know
98=Not planning to work for pay at age 30

**Applies to:**
All second follow-up respondents.

**Notes:**
This variable is included in the abbreviated instrument.

---

**S4 C53**
Question Wording: How certain are you that you will be a(n) [expected job at age 30 (S4OCC30)] at age 30?

**Variable: S4OCC30CERTAIN**

1=Very certain
2=Fairly certain
3=Not certain

**Applies to:**
Second follow-up respondents who specified an expected age-30 occupation (i.e., X4STU30OCC2 not in (97,98))

---

**S4 C54**
Question Wording: How closely related is [your job as a(n) [S4JOBTITLE2] for [employer name]/your self-employment as a(n) [S4JOBTITLE2]/your job as a(n) [S4JOBTITLE2] for the United States military] to a job as a(n) [expected job at age 30 (S4OCC30)]?

**Variable: S4OCC30RELATE**

1=Closely related
2=Somewhat related
3=Not at all related

**Applies to:**
Second follow-up respondents who worked for pay at any time between high school completion or exit and February 2016 and specified an expected age-30 occupation (i.e. S4ANYJOB=1 and (X4STU30OCC2 > 0 and not equal to 97 or 98))

**Notes:**
Some values have been logically inferred based on answers provided to other questions in the survey. In

these cases, the respondent was not asked this question. For more information, see S4OCC30RELATE_I on the public-use and/or restricted-use data files.

---

**S4 C55**
Question Wording: How much do you expect to earn per year (in today's dollars) [as a(n) [expected job at age 30 (S4OCC30)]] at age 30?

**Variable: S4OCC30EARN**
Item Wording: $ |.00 per year

**Applies to:**
All second follow-up respondents except those not planning to work at age 30 (i.e., X4STU30OCC2 ^= 98)

**Note:**

Respondents who did not know what occupation they expected to have at age 30 (i.e., X4STU30OCC2 = 97) were asked this question in general terms, without referencing any particular occupation.

---

**S4 C56A-F**
Question Wording: Salary may be one part of why people choose a job. Compared to the salary, how important is each of the following to you?

**Variable: S4JOBCONTRIB**
Item Wording: Making a contribution to society

**Variable: S4JOBBALANCE**
Item Wording: Balancing your work and personal life

**Variable: S4JOBDECISION**
Item Wording: Making your own decisions about how to get your work done

**Variable: S4JOBSECURE**
Item Wording: Having job security

**Variable: S4LOCATION**
Item Wording: Working in a particular geographic location

**Variable: S4JOBTEAMWRK**
Item Wording: Working with a team on tasks or projects

1=More important than salary
2=Equally important
3=Less important than salary

**Applies to:**
All second follow-up respondents.

**Notes:**
These variables are included in the abbreviated instrument.

---

**S4 C57A-B**
Question Wording: Discrimination may happen when people are treated unfairly because they are seen as being different from others based on a personal characteristic (such as your race, color, religion, sex, age, marital status, sexual orientation, gender identity, national origin, creed, citizenship status, disability, veteran status or some other characteristic).

Do you feel discrimination or unfair treatment based on a personal characteristic has...

**Variable: S4DSCRMNTNED**
Item Wording: Limited your educational opportunities?

**Variable: S4DSCRMNTNWK**
Item Wording: Limited your work opportunities?

1=Yes
0=No

**Applies to:**
All second follow-up respondents.

---

# Section D: Family and Community

**Introduction to Section D**
Question Wording: This next section covers topics related to your family [, friends, community involvement, and life experiences through the end of February 2016].

---

**S4 D01**
Question Wording: Do you have any brothers or sisters who [started college or trade school before you did/had started college or trade school by the end of February 2016]?

**Variable: S4SIBCLG**

1=Yes
0=No

**Applies to:**
All second follow-up respondents.

---

**S4 D02**
Question Wording: By the end of February 2016, how many of your **close friends** had started college or trade school?

**Variable: S4FRNDSTARTCLG**

1=All of them
2=More than half of them
3=About half of them
4=Less than half of them
5=None of them

**Applies to:**
All second follow-up respondents.

---

**S4 D03**
Question Wording: Think about just your close friends who had started college or trade school.

By the end of February 2016, how many of them had either taken time off once they started or left before completing a degree or certificate?

**Variable: S4FRNDLEFTCLG**

1=All of them
2=More than half of them
3=About half of them
4=Less than half of them
5=None of them

**Applies to:**
Second follow-up respondents with at least some close friends who had started college or trade school (i.e., S4FRNDSTARTCLG in (1, 2, 3, 4)).

---

**S4 D04**
Question Wording: What was your marital status in February 2016?

**Variable: S4MARITALSTAT**

1=Single and never married
2=Married
3=Separated
4=Divorced
5=Widowed
6=Living with a partner in a marriage-like relationship

**Applies to:**
All second follow-up respondents.

**Notes:**
This variable is included in the abbreviated instrument.

---

**S4 D05A-B**
Question Wording: In what month and year were you married?

(If you have been married more than once, answer for your **first** marriage.)

**Variable: S4MARRIAGEM**
Item Wording: 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

**Variable: S4MARRIAGEY**
Item Wording: Year:

2010=2010 or earlier

2011=2011
2012=2012
2013=2013
2014=2014
2015=2015
2016=2016

**Applies to:**
Second follow-up respondents who had ever been married (i.e., S4MARITALSTAT in (2, 3, 4, 5)).

---

**S4 D06**
Question Wording: Was your [spouse/partner] attending college or a trade school in February 2016?

**Variable: S4SPSCLG**

1=Yes
0=No

**Applies to:**
Second follow-up respondents who were married or living with a partner in a marriage-like relationship in February 2016 (i.e., S4MARITALSTAT in (2, 6)).

---

**S4 D07**
Question Wording: What type of degree or certificate was your [spouse/partner] working on in February 2016?

**Variable: S4SPSDEGPGM**

1=Bachelor's degree (usually a 4-year degree)
2=Associate's degree (usually a 2-year degree)
3=Certificate or diploma from a school that provides occupational training (usually takes 2 years or less to complete, often leading to a license, such as cosmetology)
4=Not working on a degree or certificate, but taking undergraduate classes
5=Graduate program or classes (for example, Master's or PhD)

**Applies to:**
Second follow-up respondents whose spouse/partner was in college or trade school in February 2016 (i.e., S4SPSCLG=1).

---

**S4 D08**
Question Wording: How far in school had your [spouse/partner] gone by the end of February 2016?

**Variable: S4SPOUSEED**

1=**Less than high school** completion
2=**Complete high school** diploma, GED, or other high school equivalency
3=**Start certificate or diploma from a school that provides occupational training** (usually takes 2

years or less to complete, often leading to a license, such as cosmetology), but not complete
4=**Complete certificate or diploma from a school that provides occupational training** (usually takes 2 years or less to complete, often leading to a license, such as cosmetology)
5=**Start associate's degree** (usually a 2-year degree), but not complete
6=**Complete associate's degree** (usually a 2-year degree)
7=**Start bachelor's degree** (usually a 4-year degree), but not complete
8=**Complete bachelor's degree** (usually a 4-year degree)
9=**Start master's degree**, but not complete
10=**Complete master's degree**
11=**Start Ph.D., M.D., law degree or other high level professional degree**, but not complete
12=**Complete Ph.D., M.D., law degree, or other high level professional degree**
99=**You don't know**

**Applies to:**
Second follow-up respondents who were married or living with a partner in a marriage-like relationship in February 2016 (i.e., S4MARITALSTAT in (2, 6)).

---

**S4 D09**
Question Wording: In February 2016, were you a parent or guardian of any children including biological children, children you had adopted, step-children, and foster children?

**Variable: S4CHILDREN**

1=Yes
0=No

**Applies to:**
All second follow-up respondents.

**Notes:**
This variable is included in the abbreviated instrument.

---

**D10A-C**
Question Wording: How many children did you have (in February 2016)?

(Please enter '0' if none.)

**Variable: S4BIOCHILDNUM**
Item Wording: | Biological child(ren)

**Variable: S4ADPTCHILDNUM**
Item Wording: | Adopted child(ren)

**Variable: S4STEPCHILDNUM**
Item Wording: | Stepchild(ren)

**Applies to:**
All second follow-up respondents.

**Notes:**

Some values have been logically inferred based on answers provided to other questions in the survey. In these cases, the respondent was not asked this question. For more information, see S4BIOCHILDNUM_I / S4ADPTCHILDNUM_I / S4STEPCHILDNUM_I on the public-use and/or restricted-use data files.

---

**S4 D11A-B**
Question Wording: In what month and year was your [child/first child/biological child/first biological child] born?

**Variable: S4CHILDBORNM**
Item Wording: 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

**Variable: S4CHILDBORNY**
Item Wording: Year:

2010=2010 or earlier
2011=2011
2012=2012
2013=2013
2014=2014
2015=2015
2016=2016

**Applies to:**
Second follow-up respondents who had at least one biological child in February 2016 (i.e., S4BIOCHILDNUM > 0).

---

**S4 D12A-B**
Question Wording: In what month and year did you [first ]adopt [a child/your child]?

**Variable: S4ADOPTM**
Item Wording: 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

**Variable: S4ADOPTY**
Item Wording: Year:

2010=2010 or earlier
2011=2011
2012=2012
2013=2013
2014=2014
2015=2015
2016=2016

**Applies to:**
Second follow-up respondents who had at least one adopted child in February 2016 (i.e., S4ADPTCHILDNUM > 0).

---

**S4 D13A-B**
Question Wording: In what month and year did you [first ]become a stepparent?

**Variable: S4STEPPARM**
Item Wording: 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

**Variable: S4STEPPARY**
Item Wording: Year:

2010=2010 or earlier
2011=2011
2012=2012
2013=2013
2014=2014
2015=2015
2016=2016

**Applies to:**
Second follow-up respondents who had at least one stepchild in February 2016 (i.e., S4STEPCHILDNUM > 0).

---

**S4 D14**
Question Wording: How much of the time did [your child/your children] live with you in February 2016?

[(If [one/some] lived with you more often than [the other/others], answer for the [child/children] who lived with you most often.)]

**Variable: S4LIVEKIDAMT**

1=All of the time
2=More than half of the time
3=About half of the time
4=Less than half of the time
5=None of the time

**Applies to:**
Second follow-up respondents who were the parent or guardian of at least one child in February 2016 (i.e., X4CHILDNUM > 0).

**Notes:**
This variable is included in the abbreviated instrument.

---

**S4 D15A-F**
Question Wording: [Besides this child, with whom else/Besides these children, with whom else/With whom] did you live in February 2016?

(Please choose all that apply)

**Variable: S4LIVEPARENT**
Item Wording: One or more of your parents or guardians

**Variable: S4LIVESPSPTNR**
Item Wording: [Your spouse/Your partner/A girlfriend or boyfriend/A spouse, partner, girlfriend or boyfriend]

**Variable: S4LIVECLGFRND**
Item Wording: Friends or roommates who attend [Reference institution (see X4REFINST and S4IREFINST)]

**Variable: S4LIVEOTHKIDS**
Item Wording: Children[ other than your own] (such as younger brothers or sisters, nieces, nephews)

**Variable: S4LIVEOTHFRND**
Item Wording: Other friends, roommates, or adult family members

**Variable: S4LIVENONE**
Item Wording: No one

**Applies to:**
S4LIVEPARENT, S4LIVESPSPTNR, S4LIVEOTHKIDS, S4LIVEOTHFRND, and S4LIVENONE apply to all second follow-up respondents. S4LIVECLGFRND applies to second follow-up respondents who attended a reference institution (i.e., second follow-up respondents who have a record on the student-institution file where S4IREFINST = 1).

---

**S4 D16**
Question Wording: What was the 5-digit zip code where you were living in February 2016?

**Variable: S4ZIP16FB**
Item Wording: 5-digit ZIP code:

**Variable: INPUT TO S4ZIP16FB**
Item Wording: (Check here instead if this address is outside the United States)

**Applies to:**
All second follow-up respondents.

---

**S4 D17**
Question Wording: Did you regularly contribute to household expenses where you were living in February 2016, for example, by paying money towards the mortgage or rent, paying certain household bills, or buying things such as groceries?

**Variable: S4CONTRIBUTE**

1=Yes
0=No

**Applies to:**
Second follow-up respondents who live with one or more of their parent(s) or guardian(s) (i.e., S4LIVEPARENT=1).

---

**S4 D18**
Question Wording: How much (on average) was your monthly [rent or mortgage payment or contribution/ contribution to household expenses] in February 2016?

(Please indicate only the amount that you [and your spouse /and your partner ]were responsible for paying. [If someone else paid your rent, room and board, or mortgage for you, please indicate "0."])

**Variable: S4RENTAMT**

Item Wording: $ |.00 per month (Please enter a whole number)

**Applies to:**
All second follow-up respondents, except those who (1) were living with their parents in February 2016 but did not contribute to household expenses (i.e. S4LIVEPARENT=1 and S4CONTRIBUTE=0), or (2) were living on campus or in college-owned housing in February 2016 (i.e. the student file variable S4ONCAMPUS=1, and the student has at least one record on the student-institution file where S4ICLG16FB=1).

---

**S4 D19**
Question Wording: The next set of questions is about your financial situation in calendar year 2015. An important part of this study is understanding how finances affect the decisions young people make about their education and employment.

What was your income for **calendar year 2015**, before taxes and deductions? (Calendar year 2015 includes January 1, 2015 through December 31, 2015. Include all income including work, investment income, and alimony. Do **not** include[ your spouse's income, or][ any grants or loans you may have used to pay for school, or] any money given to you by your family.)

**Variable: S4INCOME**
Item Wording: $ |.00 (Please enter a whole number)

**Applies to:**
All second follow-up respondents.

---

**S4 D20**
Question Wording: We understand that you may not be able to provide an exact number for your income.

However, it would be extremely helpful if you would indicate which of the following ranges best estimates your income for **calendar year 2015**, before taxes and deductions.

(Calendar year 2015 includes January 1, 2015 through December 31, 2015. Include all income including work, investment income, and alimony. Do **not** include[ your spouse's income, or][ any grants or loans you may have used to pay for school, or] any money given to you by your family.)

**Variable: S4INCOMECAT**

1=No income
2=$1,000 or less
3=$1,001-$2,500
4=$2,501-$5,000
5=$5,001-$10,000
6=$10,001-$15,000
7=$15,001-$20,000
8=$20,001-$25,000
9=$25,001-$30,000
10=$30,001-$35,000
11=$35,001-$45,000
12=$45,001-$55,000
13=$55,001-$75,000
14=$75,001 and above
15=Don't know

**Applies to:**
All second follow-up respondents.

**Notes:**
This variable is included in the abbreviated instrument.

Some values have been logically inferred based on answers provided to other questions in the survey. In these cases, the respondent was not asked this question. For more information, see S4INCOMECAT_I on the public-use and/or restricted-use data files.

---

**S4 D21**
Question Wording: What was your spouse's income for **calendar year 2015**, before taxes and deductions?

(Calendar year 2015 includes January 1, 2015 through December 31, 2015. Include all of your spouse's income including work, investment income, and alimony. Do not include any grants or loans your spouse may have used to pay for school, or any money given to your spouse by family.)

**Variable: S4INCOMESPS**
Item Wording: $ |.00 (Please enter a whole number)

**Variable: INPUT TO S4INCOMESPS**
Item Wording: (Check here instead if you were not married to your spouse in 2015)

**Applies to:**
Second follow-up respondents who (1) were married as of February 2016 (i.e., S4MARITALSTAT=2), and (2) were married prior to 2016 (i.e., S4MARRIAGEY < 2016).

---

**S4 D22**
Question Wording: We understand that you may not be able to provide an exact number for your spouse's income.

However, it would be extremely helpful if you would indicate which of the following ranges best estimates your spouse's income for **calendar year 2015**, before taxes and deductions.

(Calendar year 2015 includes January 1, 2015 through December 31, 2015. Include all of your spouse's income including work, investment income, and alimony. Do not include any grants or loans your spouse may have used to pay for school, or any money given to your spouse by family.)

**Variable: S4INCOMESPCAT**

1=No income
2=$1,000 or less
3=$1,001-$2,500
4=$2,501-$5,000
5=$5,001-$10,000
6=$10,001-$15,000
7=$15,001-$20,000
8=$20,001-$25,000
9=$25,001-$30,000
10=$30,001-$35,000
11=$35,001-$45,000

12=$45,001-$55,000
13=$55,001-$75,000
14=$75,001 and above
15=Don't know

**Variable: INPUT TO S4INCOMESPCAT**
Item Wording: (Check here instead if you were not married to your spouse in 2015)

**Applies to:**
Second follow-up respondents who (1) were married as of February 2016 (i.e., S4MARITALSTAT=2), and (2) were married prior to 2016 (i.e., S4MARRIAGEY < 2016).

**Notes:**
Some values have been logically inferred based on answers provided to other questions in the survey. In these cases, the respondent was not asked this question. For more information, see S4INCOMESPCAT_I on the public-use and/or restricted-use data files.

---

**S4 D23**
Question Wording: Did [your child/any of your children] receive more than half of their financial support from you in calendar year 2015?

**Variable: S4DEPCHILD**

1=Yes
0=No

**Applies to:**
Second follow-up respondents who were the parent or guardian of at least one child in February 2016 (i.e., S4CHILDREN=1).

---

**S4 D24**
Question Wording: How many of your children received more than half of their financial support from you in calendar year 2015?

**Variable: S4DEPCHILDNUM**
Item Wording: | child(ren)

**Applies to:**
Second follow-up respondents with at least one dependent child (i.e., S4DEPCHILD=1).

**Notes:**
Some values have been logically inferred based on answers provided to other questions in the survey. In these cases, the respondent was not asked this question. For more information, see S4DEPCHILDNUM_I on the public-use and/or restricted-use data files.

---

**S4 D25**
Question Wording: [Other than your spouse, did anyone else/Other than your spouse and child, did anyone else/Other than your spouse and children, did anyone else/Other than your child, did anyone else/Other than your children, did anyone else/Did anyone] live with you and receive more than half of

their financial support from you **in calendar year 2015**?

**Variable: S4DEPOTH**

1=Yes
0=No

**Applies to:**
All second follow-up respondents.

---

**S4 D26**
Question Wording: [Other than your spouse, how/Other than your spouse and child, how/Other than your spouse and children, how/Other than your child, how/Other than your children, how/How] many others **lived with you and received more than half of their financial support from you** in calendar year 2015?

**Variable: S4DEPOTHNUM**
Item Wording: | other dependent(s)

**Applies to:**
Second follow-up respondents with dependents other than their spouse and/or child(ren) (i.e. , S4DEPOTH=1).

---

**S4 D27**
Question Wording: In calendar year 2015, did you [or anyone in your household/or anyone in your parents' household] receive any of the following benefits?

Supplemental Security Income (SSI)
SNAP (the Food Stamp Program)
TANF (the Temporary Assistance for Needy Families Program)
[If has dependent children]The Free and Reduced Price School Lunch Program
[If has dependent children]WIC (the Special Supplemental Nutrition Program for Women, Infants, and Children)

**Variable: S4GOVTBEN**

1=Yes
0=No

**Applies to:**
All second follow-up respondents.

**Notes:**

Respondents who were married or who had dependents (i.e., S4MARITALSTAT = 2 or (S4DEPCHILD = 1 and S4DEPCHILDNUM > 1) or (S4DEPOTH = 1 and S4DEPOTHNUM > 1) were asked about their own household. All other respondents were asked about their parents' household unless their parents were deceased. Respondents who were unmarried, had no dependents, and had no living parents were asked about their own receipt of benefits.

---

**S4 D28A-E**
Question Wording: In calendar year 2015, how regularly did your parents or guardians contribute to or pay for any of the following for you?

**Variable: S4PARCHILDCR**
Item Wording: Expenses for your [child/children] or provided childcare

**Variable: S4PARHOUSING**
Item Wording: Rent, room and board, or mortgage

**Variable: S4PARHEALTH**
Item Wording: Health care expenses such as insurance payments, medical, vision, or dental expenses, or prescription costs

**Variable: S4PAREDFEE**
Item Wording: Education expenses such as tuition, fees, or books

**Variable: S4PARBILLS**
Item Wording: Your monthly bills such as utilities, car payments, or credit card bills

1=Regularly
2=Occasionally
3=Never

**Applies to:**
S4PARHOUSING, S4PARHEALTH, and S4PARBILLS apply to all second follow-up respondents. S4PARCHILDCR applies to second follow-up respondents who were the parent or guardian of at least one child in calendar year 2015 (i.e., X4CHILDNUM > 0 and ((S4BIOCHILDNUM > 0 and S4CHILDBORNY < 2016) or (S4ADPTCHILDNUM > 0 and S4ADOPTY < 2016) or (S4STEPCHILDNUM > 0 and S4STEPPARY < 2016))). S4PAREDFEE applies to second follow-up respondents who were enrolled in college or trade school during calendar year 2015 (S4ICLGSTART and S4ICLGEND are used to determine whether the respondent was enrolled in college or trade school during calendar year 2015).

---

**S4 D29A-D**
Question Wording: In calendar year 2015, did you ever...

**Variable: S4EVERWRYMNY**
Item Wording: Worry about having enough money for regular expenses?

**Variable: S4EVERCRDBAL**
Item Wording: Owe an amount on your credit card bill that was carried over from a prior month?

**Variable: S4EVERBRWMORE**
Item Wording: Increase your borrowing or use of credit cards to pay expenses?

**Variable: S4EVERWRKMORE**
Item Wording: Increase the number of hours you work to pay for expenses?

1=Yes
0=No

**Applies to:**
All second follow-up respondents.

---

**S4 D30**
Question Wording: How much do you agree or disagree that you could have paid for an unexpected expense of $500 in calendar year 2015?

**Variable: S4EXPENSE500**

1=Strongly agree
2=Agree
3=Disagree
4=Strongly disagree

**Applies to:**
All second follow-up respondents.

---

**S4 D31**
Question Wording: Now we have some questions about your community involvement.

In calendar year 2015, about how many hours per month (on average) did you volunteer or perform community service that was not required by[ a college, trade school,][an employer,][ or] the criminal justice system?

(Please enter 0 if you did not volunteer or perform any community service in 2015.)

**Variable: S4HRSVOLUNTR**
Item Wording:

| hour(s) per month (on average)

**Applies to:**
All second follow-up respondents.

---

**S4 D32**
Question Wording: Were you registered to vote **in February 2016**?

**Variable: S4REGVOTE**

1=Yes
2=No
3=You were not eligible to vote

**Applies to:**
All second follow-up respondents.

---

**S4 D33**
Question Wording: Were you born in...

**Variable: S4USBORN**

1=the United States
2=Puerto Rico or another U.S. territory, or
3=Another country?

**Applies to:**
Second follow-up respondents for whom country of birth is not available from previous data collections (i.e., second follow-up respondents for whom P1USBORN9 < 0 and P2USBORNT < 0).

---

**S4 D34**
Question Wording: Were you a U.S. citizen in February 2016?

**Variable: S4CITIZEN**

1=Yes, you were a U.S. citizen in February 2016
2=No, but you held a permanent resident card (Green Card), temporary resident's card, or a student visa
3=No, you were a non-U.S. citizen under other circumstances

**Applies to:**
Second follow-up respondents who, in either the second follow-up or in a previous data collection, indicated they were not born in the United States, Puerto Rico, or another U.S. territory (i.e., P1USBORN9 = 3 or P2USBORNT = 3 or S4USBORN=3).

---

**S4 D35**
Question Wording: These next few questions will help us better understand the experiences of young people of all sexual orientations and gender identities.

What sex were you assigned at birth (what the doctor put on your birth certificate)?

**Variable: S4BIRTHSEX**

1=Male
2=Female

**Applies to:**
All second follow-up respondents.

**Notes:**
Please note that this variable is different from S1SEX and S2SEX on which X1SEX and X2SEX are based. For S1SEX and S2SEX, the survey question was "Are you male or female?" When the interview was conducted over the telephone (i.e., Computer Assisted Telephone Interviewing) the interviewer was instructed to code a response without asking the question if the sample member's sex was 'known or

obvious.' The question wording for BIRTHSEX differs from S1SEX and S2SEX (as shown above) and was asked of all respondents regardless of mode of survey administration.

---

**S4 D36A-F**
Question Wording: What is your gender? Your gender is how you feel inside and can be the same or different than your biological or birth sex.

(Please choose all that apply)

**Variable: S4MALE**
Item Wording: Male

**Variable: S4FEMALE**
Item Wording: Female

**Variable: S4TRANSMTF**
Item Wording: Transgender, male-to-female

**Variable: S4TRANSFTM**
Item Wording: Transgender, female-to-male

**Variable: S4OTHGENDER**
Item Wording: Genderqueer or gender nonconforming, or some other gender

**Variable: S4DKGENDER**
Item Wording: You are not sure

**Applies to:**
All second follow-up respondents.

---

**S4 D37_SELF**
Question Wording: Do you think of yourself as:

**Variable: INPUT TO S4ORIENTATION**

1=Lesbian or gay, that is, homosexual
2=Straight, that is, heterosexual
3=Bisexual
4=Don't know, or
5=Another sexual orientation?

**Applies to:**
Second follow-up respondents who self-administered survey via Web.

**Notes:**
Data from this question are combined with data from S4 D37_INT in S4ORIENTATION.

---

**S4 D37_INT**
Question Wording: Now I will read a list of terms people sometimes use to describe how they think of themselves.

Lesbian or gay, that is, homosexual
Straight, that is, heterosexual
Bisexual
Don't know, or
Another sexual orientation

Question Wording: As I read the list again, please say 'Yes' when you hear the option that best describes how you think of yourself.

**Variable: INPUT TO S4ORIENTATION**

1=Lesbian or gay, that is, homosexual
2=Straight, that is, heterosexual
3=Bisexual
4=Don't know, or
5=Another sexual orientation?

**Applies to:**
Second follow-up respondents who responded via telephone or in person.

**Notes:**
Data from this question are combined with data from S4 D37_SELF in S4ORIENTATION.

---

**S4 D38**
Question Wording: These next few questions will help us better understand the educational and employment experiences of people with disabilities and special needs.

At any time before the end of February 2016, did you have serious difficulty concentrating, remembering, or making decisions?

**Variable: S4DIFCONC**

1=Yes
0=No

**Applies to:**
All second follow-up respondents.

---

**S4 D39**
Question Wording: Was that difficulty related to an emotional or mental health issue?

**Variable: S4MHDISBL**

1=Yes
0=No

**Applies to:**

Second follow-up respondents who indicated they had ever had a serious difficulty concentrating, remembering, or making decisions (i.e., S4DIFCONC=1).

---

**S4 D40**
Question Wording: At any time before the end of February 2016, did a health or education professional tell you that you had ADHD or ADD (Attention Deficit Hyperactivity Disorder or Attention Deficit Disorder)?

**Variable: S4ADHD**

1=Yes
0=No

**Applies to:**
All second follow-up respondents.

---

**S4 D41**
Question Wording: At any time before the end of February 2016, did you have a learning disability[, **not** including ADHD or ADD]?

**Variable: S4LEARNDISBL**

1=Yes
0=No

**Applies to:**
All second follow-up respondents.

---

**S4 D42A-B**
Question Wording: At any time before the end of February 2016, were you...

**Variable: S4DEAF**
Item Wording: deaf or did you have a serious difficulty hearing?

**Variable: S4BLIND**
Item Wording: blind or did you have serious difficulty seeing even when wearing glasses?

1=Yes
0=No

**Applies to:**
All second follow-up respondents.

---

**S4 D43**
Question Wording: At any time before the end of February 2016, did you have any other disability or special need?

**Variable: S4OTHDISBL**

1=Yes
0=No

**Applies to:**
All second follow-up respondents.

---

**S4 D44**
Question Wording: At any time before the end of [February 2016/date last attended reference institution (through February 2016)], did you inform [[[name of only college/trade school attended]/any college or trade school you attended since you [received your high school diploma/received your certificate of attendance or completion/last attended high school]]] that you have a disability or special need?

**Variable: S4INFORMEDCLG**

1=Yes
2=No, you did not have a disability or special need when you were attending [[[name of only college/trade school attended]/any college or trade school you attended]]
3=No, you did not inform [[[name of only college/trade school attended]/any college or trade school you attended]] of your disability or special need

**Applies to:**
Second follow-up respondents who (1) had attended a postsecondary institution, and (2) indicated having one or more disability (i.e., S4EVRATNDCLG = 1 and (S4DIFCONC=1 or S4ADHD=1 or S4LEARNDISBL=1 or S4DEAF=1 or S4BLIND=1 or S4OTHDISBL=1)).

---

**S4 D45**
Question Wording: At any time before the end of [February 2016/date last attended reference institution (through February 2016)], did you receive accommodations or services for [your disability or special need/either of your disabilities or special needs/any of your disabilities or special needs] from [[[name of only college/trade school attended]/any college or trade school you attended since you [received your high school diploma/received your certificate of attendance or completion/last attended high school]]], such as early registration, test taking accommodations, or counseling?

**Variable: S4ACCOMODATION**

1=Yes
0=No

**Applies to:**
Second follow-up respondents who informed their attended postsecondary institution of their disability or special need (i.e., S4INFORMEDCLG=1).

---

**S4 D46A-D**
Question Wording: The last questions in this section are about life experiences you may have had.

Between the time you [received your high school diploma/received your certificate of attendance or completion/last attended high school] and February 2016, did any of the following happen to you?

**Variable: S4PARDIVORCE**
Item Wording: Your parents or guardians got divorced or separated

**Variable: S4PARLOSTJOB**
Item Wording: Your parent or guardian[, or your spouse] lost his or her job

**Variable: S4LOSTJOB**
Item Wording: You lost your job

1=Yes
0=No

**Applies to:**
All second follow-up respondents.

---

**S4 D47A-D**
Question Wording: (Continued)(Between the time you [received your high school diploma/received your certificate of attendance or completion/last attended high school] and February 2016, did any of the following happen to you?)

**Variable: S4PARDIED**
Item Wording: Your parent or guardian died

**Variable: S4RELDIED**
Item Wording: A close relative or friend died

**Variable: S4ILLDIS**
Item Wording: You became seriously ill or disabled

**Variable: S4FAMILLDIS**
Item Wording: A parent, guardian[, spouse], or sibling became seriously ill or disabled

1=Yes
0=No

**Applies to:**
All second follow-up respondents.

---

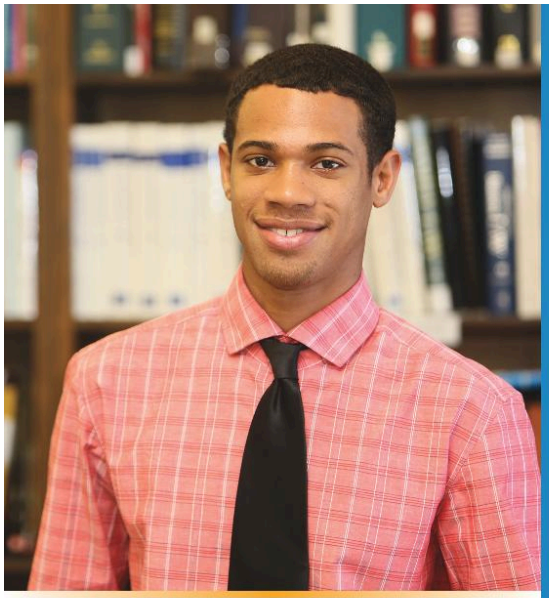
**END**
Question Wording: On behalf of the U.S. Department of Education, thank you for your time and cooperation. We greatly appreciate your participation in this study.

*This page intentionally left blank*

# Appendix E: Notification Materials for Data Collection

*This page intentionally left blank*

# Brochure



## High School Longitudinal Study of 2009

The High School Longitudinal Study of 2009 (HSLS:09) is a national study of young adults' plans and activities beyond high school, including education and employment experiences. HSLS:09 is particularly interested in learning how young adults make choices regarding their education and careers, with a special focus in science, technology, engineering, and mathematics (STEM) education and career choices.

Data collection for the second follow-up of HSLS:09 will begin in spring 2016. We are asking you to complete a 35-minute survey that will focus on your transition from high school to further education and the workforce. In addition to survey responses, we collect financial aid, student data, and related information from institutions and other sources such as admissions testing agencies, student loan databases, and other federal databases.

## How do I participate?

You may complete the HSLS:09 survey online or over the phone.

### Online

Log in to the study website at **https://surveys.nces.ed.gov/hsls/** using your Study ID and password.

### By Telephone

If you prefer to complete the HSLS:09 survey by telephone, call (877) 282-HSLS (877-282-4757) to speak with a professional interviewer.

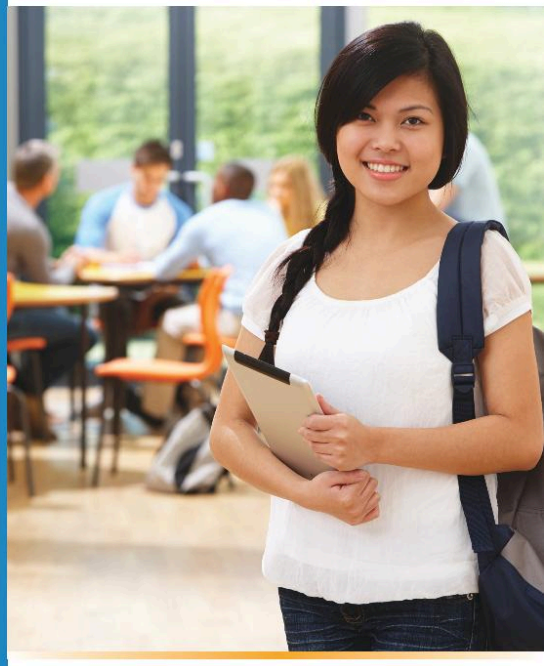
HSLS:09 HELP DESK
1-877-282-HSLS (1-877-282-4757)
hsls@rti.org
https://surveys.nces.ed.gov/hsls/

**If you have questions or concerns, please contact:**

RTI Project Director:
Mr. Dan Pratt at (877) 282-4757

NCES Project Officer:
Dr. Elise Christopher at (202) 245-7098

## HIGH SCHOOL LONGITUDINAL STUDY of 2009



***Conducted by:***
National Center for Education Statistics
U.S. Department of Education
Institute of Education Sciences

***Data collection carried out by:***
RTI International
Research Triangle Park, NC
27709-2194

ies NATIONAL CENTER FOR EDUCATION STATISTICS
Institute of Education Sciences

NCES 2016-126

*Through this survey, you have been chosen to represent your generation. Let your voice be heard!*

## Why am I being asked to participate?

HSLS:09 follows a group of young adults who were enrolled in 9th grade in 2009 in order to understand the wide range of pathways related to education and employment as they move beyond high school.

## Who is conducting the study?

HSLS:09 is conducted by the National Center for Education Statistics (NCES), in the U.S. Department of Education's Institute for Education Sciences, with data collection being carried out under contract by RTI International, a nonprofit research organization based in North Carolina. NCES is authorized to conduct the High School Longitudinal Study of 2009 (HSLS:09) second follow-up by the Education Sciences Reform Act of 2002 (ESRA 2002, 20 U.S.C. § 9543).

Log in to the study website at **https://surveys.nces.ed.gov/hsls/** using your Study ID and password.

## Why is my participation important?

Participation in HSLS:09 is entirely voluntary; however, the participation of every young adult in the sample is important to ensure the completeness and accuracy of results. Your survey responses help educators, researchers, and policymakers at the local, state, and national levels understand the experiences of students after high school. Your experiences are unique, and if you choose not to participate in HSLS:09, no one else can be substituted for you.

The second follow-up of HSLS:09 will help to answer important questions about young adults' pathways after high school, including but not limited to the following:

- What influences young adults to take STEM courses and pursue STEM careers?
- What factors influence whether young adults decide to enroll in college and complete a college degree?
- How do the characteristics of high schools and colleges influence decisions young adults make about their lives?
- How do individual characteristics and background experiences influence success in school and work?

## How will my information be protected?

NCES is required to follow strict procedures to protect personal information in the collection, reporting, and publication of data. All individually identifiable information supplied by individuals or institutions may be used only for statistical purposes and may not be disclosed or used in identifiable form for any other purpose, except as required by law (ESRA 2002, 20 U.S.C. § 9573). The data will be used in analyses to understand young adults' participation in further education and work beyond high school.

## We have implemented strict procedures to protect provided information:

- All electronic data are maintained in secure and protected data files, and all personally identifying information is kept in files separate from the descriptive information.
- No data released to the general public will identify individual respondents.
- All project staff with any access to study data are liable to severe fines and imprisonment for any disclosure of individual responses.
- These procedures comply with all applicable federal laws.

## What happens to the results?

Results from the current study will be posted on the HSLS:09 website as soon as they are available. Results will be presented in summary form only; no individual results will be published. Publications from previous studies are available on the HSLS:09 website at http://nces.ed.gov/surveys/hsls09/.

# Initial Contact Letter—Student

**U.S. DEPARTMENT OF EDUCATION**
INSTITUTE OF EDUCATION SCIENCES

NATIONAL CENTER FOR EDUCATION STATISTICS

March 2, 2016

STU DENT
123 MAIN STREET
WASHINGTON, DC 20202

Dear Stu,

The U.S. Department of Education's National Center for Education Statistics (NCES) is conducting the High School Longitudinal Study of 2009 (HSLS:09). HSLS:09 follows a group of young adults to understand the wide range of pathways related to education and employment as they move beyond high school. You may recall participating in prior rounds of the study in 2012 or 2013. Your continued participation in HSLS:09 is important to the success of the study.

When HSLS:09 data collection begins, we will contact you again with specific information about how to participate. **In the meantime, please help us now by providing your updated mailing address, telephone number, and e-mail address online at the study website below.** You will also find out more about HSLS:09 at this website.

Update your contact information online:
https://surveys.nces.ed.gov/hsls/
Your Study ID number: **12345678**

The enclosed brochure provides more information about HSLS:09. If you have additional questions or concerns about the study after reviewing this material, please call the RTI study director, Dan Pratt at 1-877-282-4757.

We thank you in advance for your participation in this important study. Your cooperation is greatly appreciated.

Sincerely,

Peggy G. Carr, Ph.D.
Acting Commissioner
National Center for Education Statistics

Enclosure

WASHINGTON, D.C. 20006–

NCES is authorized to conduct the High School Longitudinal Study of 2009 (HSLS:09) by the Education Sciences Reform Act of 2002 (ESRA 2002, 20 U.S.C., § 9543). The data are being collected for NCES by RTI International, a nonprofit research organization based in North Carolina. Data collected are used only for statistical purposes and may not be disclosed or used, in identifiable form, for any other purpose except as required by law (ESRA 2002, 20 U.S.C., § 9573).

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this voluntary information collection is 1850-0852. The time required to complete this information collection is estimated to average approximately 5 minutes per response, including the time to review instructions, gather the data needed, and complete and review the information collection. If you have any comments concerning the accuracy of the time estimate, suggestions for improving this information collection, or any comments or concerns regarding the status of your individual submission, please write directly to: The High School Longitudinal Study of 2009 (HSLS:09), National Center for Education Statistics, PCP, 550 12th St., SW, 4th floor, Washington, DC 20202.

# Initial Contact Letter—Parent

**U.S. DEPARTMENT OF EDUCATION**
INSTITUTE OF EDUCATION SCIENCES

NATIONAL CENTER FOR EDUCATION STATISTICS

March 2, 2016

JUDY DENT
123 MAIN STREET
WASHINGTON, DC 20202

Dear Judy Dent:

The U.S. Department of Education's National Center for Education Statistics (NCES) is conducting the High School Longitudinal Study of 2009 (HSLS:09). HSLS:09 follows a group of young adults to understand the wide range of pathways related to education and employment as they move beyond high school. Stu participated in at least one previous round of the HSLS:09 survey, and Stu's answers could contribute to research and influence policymaker's decisions about education in the United States.

Update your contact information online:
https://surveys.nces.ed.gov/hsls/
Stu's Study ID number: **12345678**

We will be contacting Stu to complete the second follow up survey soon. In the meantime, we need your help to update our records. Please take a few minutes to update the contact information online, or complete the enclosed Contact Information Update Form and return it in the enclosed postage-paid envelope.

The enclosed brochure provides more information about HSLS:09. If you have additional questions or concerns about the study after reviewing this material, please call the RTI study director, Dan Pratt at 1-877-282-4757.

We thank you in advance for your participation in this important study. Your cooperation is greatly appreciated.

Sincerely,

Peggy G. Carr, Ph.D.
Acting Commissioner
National Center for Education Statistics

Enclosure

FS190/400977/1022

WASHINGTON, D.C. 20006–

NCES is authorized to conduct the High School Longitudinal Study of 2009 (HSLS:09) by the Education Sciences Reform Act of 2002 (ESRA 2002, 20 U.S.C., § 9543). The data are being collected for NCES by RTI International, a nonprofit research organization based in North Carolina. Data collected are used only for statistical purposes and may not be disclosed or used, in identifiable form, for any other purpose except as required by law (ESRA 2002, 20 U.S.C., § 9573).

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this voluntary information collection is 1850-0852. The time required to complete this information collection is estimated to average approximately 5 minutes per response, including the time to review instructions, gather the data needed, and complete and review the information collection. If you have any comments concerning the accuracy of the time estimate, suggestions for improving this information collection, or any comments or concerns regarding the status of your individual submission, please write directly to: The High School Longitudinal Study of 2009 (HSLS:09), National Center for Education Statistics, PCP, 550 12th St., SW, 4th floor, Washington, DC 20202.

# Data Collection Announcement Letter

**U.S. DEPARTMENT OF EDUCATION**
INSTITUTE OF EDUCATION SCIENCES

NATIONAL CENTER FOR EDUCATION STATISTICS

March 14, 2016

STU DENT
123 MAIN STREET
WASHINGTON, DC 20202

Dear Stu Dent:

Recently, we contacted you about the High School Longitudinal Study of 2009 (HSLS:09), a study of young adults conducted to understand the wide range of pathways related to education and employment as they move beyond high school. Data collection for the second follow up of HSLS:09 is now underway, and we would like to invite you to complete the survey. The survey will take approximately 35 minutes to complete.

To complete the survey, log on to our secure website at https://surveys.nces.ed.gov/hsls/ using the Study ID and password below:

**Study ID** = 12345678
**Password** = p@s$w0rd

You represent many young adults like you who were not selected for HSLS:09 and your participation is important to the success of the study. If you have questions, problems completing your survey online, or prefer to complete the survey over the telephone, simply call the **HSLS:09 Help Desk** at **1-877-282-4757.**

If you have any other questions or concerns about the study, please contact the HSLS:09 Project Director, Dan Pratt, at 877-282-4757, hsls @rti.org, or the NCES Project Officer, Dr. Elise Christopher, at 202-245-7098, Elise.Christopher@ed.gov.

Thank you in advance for making HSLS:09 a success.

Sincerely,

Dan Pratt
HSLS:09 Project Director
RTI International

Elise Christopher, PhD
NCES Project Officer
National Center for Education Statistics
U.S. Department of Education

Enclosure

WASHINGTON, D.C. 20006–

NCES is authorized to conduct the High School Longitudinal Study of 2009 (HSLS:09) by the Education Sciences Reform Act of 2002 (ESRA 2002, 20 U.S.C., § 9543). The data are being collected for NCES by RTI International, a nonprofit research organization based in North Carolina. Data collected are used only for statistical purposes and may not be disclosed or used, in identifiable form, for any other purpose except as required by law (ESRA 2002, 20 U.S.C., § 9573).

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this voluntary information collection is 1850-0852. The time required to complete this information collection is estimated to average approximately 35 minutes per response, including the time to review instructions, gather the data needed, and complete and review the information collection. If you have any comments concerning the accuracy of the time estimate, suggestions for improving this survey, or any comments or concerns regarding the status of your individual submission of this survey, please write directly to: The High School Longitudinal Study of 2009 (HSLS:09), National Center for Education Statistics, PCP, 550 12th St., SW, 4th floor, Washington, DC 20202.

# Data Collection Announcement E-mail

SUBJ: It's time to complete your HSLS:09 survey!

Dear Stu,

Recently, we contacted you about the High School Longitudinal Study of 2009 (HSLS:09), a study that follows a group of young adults to understand the wide range of pathways related to education and employment as they move beyond high school.

Data collection for HSLS:09 has now begun, and we are asking you to take a 35-minute survey. To access the online survey, just **click here** to get started or log in on our secure website:

> **https://surveys.nces.ed.gov/hsls/**
> Study ID: 12345678
> Password: p@s$w0rd

**If you complete your HSLS:09 survey, you will receive $30 as a token of our appreciation, payable by check or Paypal. Please complete the survey by April 4, 2016.**

Your participation, while voluntary, is important to the success of the study. **If you would like to complete the survey over the telephone, please call the HSLS:09 Help Desk at 1-877-282-4757.**

If you have any questions about the study, please contact me at 1-877-282-4757 or hsls@rti.org, or the NCES Project Officer, Dr. Elise Christopher, at 202-245-7098 or Elise.Christopher@ed.gov.

Thank you for helping to make HSLS:09 a success.

Dan Pratt
HSLS:09 Project Director

# Reminder Postcards

National Center for Education Statistics
U.S. Department of Education (ATTN: Data Capture)
5265 Capital Boulevard
Raleigh, NC 27616-2925
RTI Project #0214426.002.484//

ADDRESS SERVICE REQUESTED

**STU DENT**
**123 MAIN STREET**
**WASHINGTON, DC 20202**

www.ed.gov  ies.ed.gov

**Our study is missing something...YOU!**

# Stu,

## HSLS:09 won't be complete without you.

**The HSLS:09 study helps policymakers understand the experiences of students as they transition from high school into adulthood.**

**Don't be the missing piece — complete today! It only takes about 35 minutes, and we'll send you $30 to thank you for your time.**

Go to https://surveys.nces.ed.gov/hsls/

Your Study ID Number: 12345678

Your password: p@s$w0rd

Or call 1-877-282-4757

The High School Longitudinal Study of 2009 (HSLS:09) is a survey of individuals who were in ninth grade in the 2009-2010 school year. RTI international is carrying out data collection for this study on behalf of the National Center for Education Statistics (NCES) in the U.S. Department of Education's Institute of Education Sciences.

National Center for Education Statistics
U.S. Department of Education (ATTN: Data Capture)
5265 Capital Boulevard
Raleigh, NC 27616-2925
RTI Project #0214426.002.484/«PanelInfo»/«ControlID»

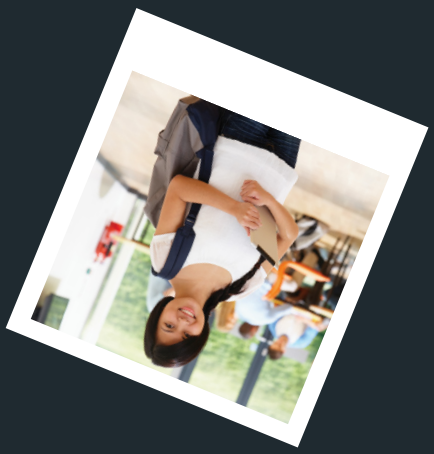
ADDRESS SERVICE REQUESTED

**You have been selected for an important national education study.**

**Find out more inside.**

*STU DENT*
*123 MAIN STREET*
*WASHINGTON, DC 20202*

**You could earn $30 for completing an online survey.**



**Complete today—it's a snap!**

www.ed.gov nces.ed.gov

# Why is HSLS:09 important?

## Stu,

**HSLS:09 is about how high school experiences impact your future decisions, education, and career. Studies like HSLS:09 help researchers and policymakers across the country learn about the factors that influence students' lives after high school.**

**You were selected to represent many other students with similar backgrounds and we need your participation for the study to be a success. No one else can replace you.**

**To thank you for your time, we will send you $30, payable by check or PayPal. It only takes about 35 minutes.**

**To complete the survey online, go to**
**https://surveys.nces.ed.gov/hsls/**
Study ID: 12345678
Password: p@s$w0rd
Or call 1-877-282-4757 to complete by phone.

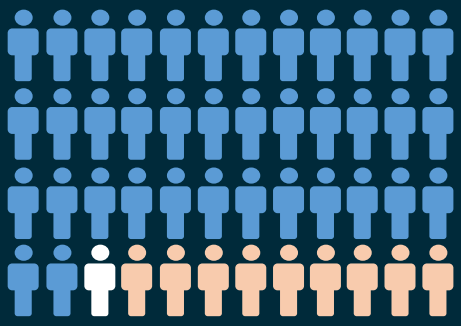
The High School Longitudinal Study of 2009 (HSLS:09) is a survey of individuals who were in ninth grade in the 2009-2010 school year. RTI international is carrying out data collection for this study on behalf of the National Center for Education Statistics (NCES) in the U.S. Department of Education's Institute of Education Sciences.

## Final Flyer

# LAST CALL FOR HSLS:09!

**Stu,**

You represent thousands of other young adults from *across the country* who were not selected for HSLS:09.



**Over 16,000 people have already participated...**

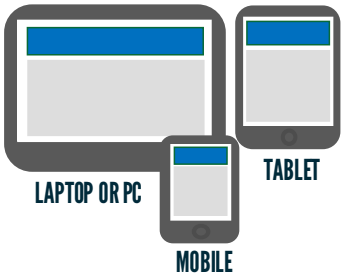
***...but we still need 3,000 to reach our goal.***

**Survey ends *January 31st***

**Participate today and earn $30**

**FIND OUT HOW >**

# PARTICIPATING IS EASY




Complete online using any device

https://surveys.nces.ed.gov/hsls/
Study ID: 12345678
Password: p@s$w0rd

Or complete over the phone

**1-877-282-4757**

**Take 15 minutes**

***Earn $30!***

## Don't delay—HSLS:09 ends January 31!

The High School Longitudinal Study of 2009 (HSLS:09) is a survey of individuals who were in ninth grade in the 2009-2010 school year. RTI international is carrying out data collection for this study on behalf of the National Center for Education Statistics (NCES) in the U.S. Department of Education's Institute of Education Sciences. The survey takes about 15 minutes on average, depending on your particular responses.

# Incentive Letter

April 4, 2016

STU DENT
123 MAIN STREET
WASHINGTON, DC 20202

Dear Stu,

On behalf of the National Center for Education Statistics (NCES) in the U.S. Department of Education's Institute of Education Sciences and the staff of the High School Longitudinal Study of 2009 (HSLS:09), we would like to thank you. Your participation in HSLS:09 is very important in helping to ensure the success of the study.

Enclosed you will find a check for $30 as a token of our appreciation.

If you have any questions, please do not hesitate to contact us at 1-877-282-4757.

Sincerely,

Dan Pratt
HSLS:09 Project Director
RTI International

Elise Christopher, PhD
NCES Project Officer
National Center for Education Statistics
U.S. Department of Education

# Appendix F: Responsive Design Supplement

*This page intentionally left blank*

This appendix provides supplementary details on the development and results of the responsive design approach used in the High School Longitudinal Study of 2009 (HSLS:09) second follow-up main study. This appendix is intended to complement the material in section 4.2 which provides detailed coverage of the data collection design and responsive design strategy implemented in the second follow-up. In this appendix, the following specific sections are provided: section F.1 summarizes the second follow-up responsive design approach used; section F.2 details the development of the two responsive design models employed, the response likelihood model (F.2.1) and the bias likelihood model (F.2.2); section F.3 provides the results of the calibration sample experiments; and section F.4 reports on the effects of the responsive design approach on key survey estimates.

## F.1 Second Follow-up Responsive Design

An advantage of the responsive design approach is that it allowed for periodic assessment, during data collection, of how representative the responding sample was of the total population represented in the study so that efforts and resources could be focused on encouraging participation among the cases that were most needed to achieve representativeness in the responding sample. The approach implemented in the HSLS:09 second follow-up was designed to increase the overall response rate in a cost-sensitive, cost-efficient manner and that also reduces the difference between respondents and nonrespondents among key variables, thereby more effectively reducing the potential for nonresponse bias. An uninformed approach to increase response rates may not successfully reduce nonresponse bias, even if higher response rates are achieved (Curtin, Presser, and Singer 2000; Keeter et al. 2000). Decreasing bias during the nonresponse follow-up depends on the approach selected to increase the response rate (Peytchev, Baxter, and Carley-Baxter 2009). In the current approach, nonresponding sample members who were underrepresented among the respondents were identified using a statistical model (bias likelihood model) which incorporated covariates that were deemed relevant to the reported estimates (e.g., demographic characteristics and key variables measured in prior survey administrations). Once identified, these critical nonrespondents could be targeted for tailored incentives dependent on their respective subgroup.

The second follow-up sample was divided into three subgroups of interest, based on prior experience with the cohort, so that customized interventions could be developed based on patterns of response behavior from prior data collection rounds and applied to each group independently. The subgroups consisted of the following:

1. **Subgroup A** (high school late/alternative/noncompleters [HSNC]) contained the subset of sample members who, as of the 2013 Update, had not completed high school, were still enrolled in high school, received an alternative credential, completed high school late, or experienced a dropout episode with unknown completion status.

2. **Subgroup B** (ultra-cooperative respondents [UC]) consisted of sample members who participated in the base year, first follow-up, and 2013 Update without an incentive offer. These cases were also early web respondents to the 2013 Update and on-time or early regular high school diploma completers.[1]

3. **Subgroup C** (high school completers and unknown high school completion status [HS other]) included cases that, as of the 2013 Update, were known to be on-time or early regular diploma completers (and not identified as ultra-cooperative) and cases with unknown high school completion status that were not previously identified as ever having had a dropout episode.

To determine optimal incentive amounts, a calibration subsample was selected from each of the aforementioned subgroups to begin data collection ahead of the main sample. The experimental sample was treated in advance of the remaining cases. Results from the calibration sample experiments were used to determine the incentive levels – a *baseline* incentive and two subsequent incentive increases, or *boosts* – offered to the remaining (i.e., noncalibration) sample in each of the three subgroups.

The data collection design for the second follow-up included a responsive design with multiple intervention phases. These phases included specific protocols for handling each of the three subgroups of sample members to reduce the potential for biased survey estimates or reduce data collection costs (Peytchev 2013). For more details on the second follow-up data collection design, see section 4.2.1.

## F.2 Responsive Design Model Development

In the HSLS:09 second follow-up, two models were used to help identify, or target, cases for specific interventions. The models consisted of an estimated a priori probability of response for each member (assigned using a *response likelihood* model)

[1] In the spirit of a responsive design, the set of cases to be treated as "ultra-cooperative" was expanded for the main sample (i.e., cases not in the calibration sample) with the goal of maximizing the efficient use of project resources because response rates were reasonably high. See section 4.2.1.6 for further details and for the expanded definition. The definition provided above corresponds to that used for sample members in the calibration sample.

and a *bias likelihood* model to identify nonrespondents in underrepresented groups. The bias likelihood model identified which cases were most needed to balance the responding sample. The response likelihood model helped to determine which cases were optimal for pursuing with targeted interventions so that project resources could be most effectively allocated.

### F.2.1 Response Likelihood Model Development

The response likelihood model was developed using data from earlier rounds, and was designed to predict the a priori likelihood of a case becoming a respondent. The response likelihood model allowed the data collection team to identify cases with a low probability of responding and avoid applying relatively expensive interventions, such as field interviewing, to these cases. To make the interventions more cost efficient, the primary objective of the response likelihood model was to inform decisions about the exclusion of cases that were identified for targeting based on the bias likelihood model but which had extremely low likelihood of participation. From a model-building perspective, the objective was to maximize prediction of participation, regardless of any association between the predictor variables and the HSLS:09 survey variables.

From prior analysis in the base year, first follow-up, and 2013 Update, candidate variables known to be predictive of response behavior (i.e., prior-round response outcomes) were considered for the response likelihood model. To determine which covariates to include in the model, stepwise logistic regression was run with the model entry criteria set to $p = .5$—meaning that any predictor variable with an initial probability value of .5 or less was included in the stepwise regressions—and model retention criteria set to $p = .1$—meaning that any variable with a probability value of .1 or less was retained in the final model. The result of this approach is the retention of a set of covariates capable of predicting a case's likelihood of becoming a respondent. Table F-1 lists all predictor variables considered for inclusion in the response likelihood model and their final inclusion disposition (i.e., which variables were retained and which were released from the final model).

**Table F-1. Candidate variables for the response likelihood model and final retention status: 2016**

| Data source | Variable | Retention status |
|---|---|---|
| **Sampling frame** | Sex | Retained |
| | Race/ethnicity[1] | Retained; no significant differences in likelihood of response between White sample members and Asian sample members. All other race/ethnicity comparisons to White sample members were significant. |
| **Base year** | Response outcome | Retained |
| **First follow-up** | Response outcome | Retained |
| **Panel maintenance updates / Other update activities** | First follow-up panel maintenance response outcome | Retained |
| **2013 Update** | Response mode | Not retained |
| | Ever called in to the help desk | Not retained |
| | Ever agreed to complete web interview | Retained |
| | Ever refused (sample member) | Retained |
| | Ever refused (other contact) | Retained |
| | Phase targeted and incentive amounts | The following variables were retained:<br>1) Case offered a $40 baseline incentive (ever-dropouts)<br>2) Case offered the abbreviated interview<br>3) Case was never targeted with any incentive<br>The incentive boost amounts and the prepaid incentive variables were not included in the final model. |
| | Dual language speaker | Retained |
| | High school diploma status | Retained |
| | Completed high school on time | Retained |

[1] Race categories exclude persons of Hispanic ethnicity.
SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 (HSLS:09), Base Year, First Follow-up, 2013 Update, and Second Follow-up.

**Response likelihood model results.** The odds ratio, confidence interval, and interpretation of each covariate are presented in table F-2. The odds ratios describe how much more likely a case is to be a respondent than a nonrespondent.

**Table F-2. Odds ratios and confidence intervals for variables in the response likelihood model: 2016**

| Data source | Variable | Odds ratio | 95% confidence interval Lower bound | 95% confidence interval Upper bound | Interpretation |
|---|---|---|---|---|---|
| **Sampling frame** | Sex | 1.17 | 1.069 | 1.280 | Females were more likely to respond than males |
| | Race/ethnicity: Hispanic compared to White | 0.74 | 0.645 | 0.854 | Hispanics were less likely to respond than Whites |
| | Race/ethnicity: Black compared to White | 0.80 | 0.682 | 0.913 | Blacks were less likely to respond than Whites |
| | Race/ethnicity: Other compared to White | 0.80 | 0.686 | 0.931 | Other race/ethnicities were less likely to respond than Whites |
| **Base year** | Response outcome | 1.60 | 1.415 | 1.885 | Base-year respondents were more likely to respond than base year nonrespondents |
| **First follow-up** | Response outcome | 3.39 | 3.002 | 3.798 | First follow-up respondents were more likely to respond than first follow-up nonrespondents |
| **Panel maintenance update** | First follow-up panel maintenance response outcome | 1.74 | 1.559 | 1.939 | First follow-up panel maintenance respondents were more likely to respond than first follow-up panel maintenance nonrespondents |
| **2013 Update** | Ever agreed to complete the web survey | 2.66 | 2.196 | 3.227 | Cases that ever agreed to complete the web survey were more likely to respond than those that had not agreed |
| | Ever refused (sample member) | 0.09 | 0.080 | 0.110 | Cases that ever refused were less likely to respond than those that had not refused |
| | Ever refused (other contact) | 0.08 | 0.070 | 0.088 | Refusals by other were less likely to respond than those who never refused |
| | Case offered a $40 baseline incentive (ever-dropout) | 1.89 | 1.611 | 2.217 | Ever-dropout cases offered $40 incentive were more likely to respond than those offered other incentive amounts |
| | Case offered the abbreviated interview | 0.04 | 0.037 | 0.050 | Cases offered the abbreviated interview were less likely to respond than those not offered the abbreviated interview |

See notes at end of table.

**Table F-2. Odds ratios and confidence intervals for variables in the response likelihood model: 2016—Continued**

| Data source | Variable | Odds ratio | 95% confidence interval Lower bound | 95% confidence interval Upper bound | Interpretation |
|---|---|---|---|---|---|
| | Case was never targeted with an incentive offer | 0.44 | 0.386 | 0.490 | Cases never targeted were less likely to respond than those that were targeted |
| | Dual language status | 1.47 | 1.275 | 1.689 | English-only speakers were more likely to respond than those of other languages |
| | High school diploma status | 2.18 | 1.601 | 2.971 | High school diploma recipients were more likely to respond than those that had not earned a high school diploma |
| | Completed high school on time | 3.72 | 2.744 | 5.042 | On-time high school completers were more likely to respond than those who had not completed high school on time |

NOTE: Race categories exclude persons of Hispanic ethnicity.
SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 (HSLS:09), Base Year, First Follow-up, 2013 Update, and Second Follow-up.

**Response likelihood model definition.** Using the final covariates selected (primarily paradata variables), a model was developed to predict the response outcome in the 2013 Update, the last data collection round prior to the second follow-up. The response likelihood model used a logit function to generate, for each case, a continuous probability of response (bounded by 0 and 1), called a response likelihood score, in which a value of 1 indicated a case was predicted to respond and 0 indicated a case was predicted not to respond. Response likelihood values were calculated one time prior to the beginning of data collection.

We label the 2013 Update survey responses, $y_i^{2013\ \text{Update}}$, as 1 for respondents and 0 for nonrespondents and model them with $\Pr(y_i^{2013\ \text{Update}} = 1) = \text{logit}^{-1}(X_i\beta)$. Input variables are modeled as independent and include sex (female), prior-round response status (e.g., base year response), and the remaining retained covariates specified in table F-2. This model, therefore takes the expanded form

$$\Pr(y_i^{2013\ \text{Update}} = 1) = \text{logit}^{-1}(\beta_0 + \beta_1 \bullet \text{female}_i + \beta_2 \bullet \text{base year response}_i + \ldots)$$

From this model, we derive predicted response likelihood scores, $\hat{p}_i^{\text{response}}$, for each case, defined as

$$\hat{p}_i^{\text{response}} = \frac{e^{(\beta_0 + \beta_1 \bullet \text{female}_i + \beta_2 \bullet \text{base year response}_i + \ldots)}}{1 + e^{(\beta_0 + \beta_1 \bullet \text{female}_i + \beta_2 \bullet \text{base year response}_i + \ldots)}} = \Pr(y_i^{2013\ \text{Update}} = 1)$$

**Overall response likelihood distribution.** Across the entire second follow-up fielded sample ($n$ = 23,316)[2], the overall mean response likelihood score was .80. As indicated by this mean, many sample members were clustered at the upper end of the distribution. Within the three subgroups of interest, subgroup A (HSNC; $n$ = 2,545) had a mean response probability of .65. As expected, these cases were found to have the lowest average response likelihood value among all of the subgroups. Conversely, subgroup B (UC; $n$ = 4,144) had a mean response probability of .96, indicating that these cases were highly likely to be respondents per the response likelihood model. Subgroup C cases (HS other; $n$ = 16,627) had a mean response probability of .78, very close to the fielded sample's overall mean.

As noted in section 4.2.1.2, the model-derived response likelihood scores were used to assist in determining intervention resource allocation only in phases 5 and 6 to avoid pursuing cases in field interviewing that were unlikely to respond. Section 4.2.1.4 provides further details on the use of these scores.

### F.2.2 Bias Likelihood Model Development

The goal of the bias likelihood model was to identify cases most likely to contribute to nonresponse bias because their characteristics were underrepresented among the set of respondents. This approach provided an overview of where sample underrepresentation might be occurring in the respondent set. To achieve this goal, the criteria for inclusion of variables in the bias likelihood model differed from the criteria for inclusion in the response likelihood model. Maximizing the prediction of survey participation was not the main objective. In the bias likelihood model, variables of high analytic value were sought for inclusion in the model. Therefore, model fit and statistical significance were not primary determining factors in deciding which variables to include in the bias likelihood model. Rather, variables were selected for inclusion in the bias likelihood model principally due to their analytic importance to the study. Conversely, variables that were highly predictive of participation but not necessarily associated with the survey variables, such as paradata on the ease of obtaining participation on the previous administration, were excluded as they could have a disproportionate influence on the predicted propensities without contributing additional information on bias in the second follow-up. Once the set of key variables was identified, stepwise logistic regression was used to help improve overall model fit. Bias likelihood model variables, and their corresponding level of data requiring imputation, are presented in table F-3. Note that many key survey variables from prior rounds contained missing values which

[2] See section 2.4 for a description of the second follow-up sample design.

required imputation to be included in the bias likelihood model. Further discussion of the imputation process follows in the text below.

**Table F-3. Bias likelihood model variables: 2016**

| Data source | Variable | Percentage of cases requiring imputation |
|---|---|---|
| **Sampling frame** | Sex | No missing data; imputation not required |
| | Race/ethnicity[1] | No missing data; imputation not required |
| | School type | No missing data; imputation not required |
| | School locale (urbanicity) | No missing data; imputation not required |
| **Base Year** | How far in school 9th grader thinks he/she will get | 12.0 |
| | How far in school parent thinks 9th grader will go | 28.4 |
| | 9th grader is taking a math course in the fall 2009 term | 9.5 |
| | 9th grader is taking a science course in the fall 2009 term | 9.5 |
| | Mathematics quintile score | 8.8 |
| **First follow-up** | Teenagers final grade in algebra 1 | 14.3 |
| | How far in school sample member thinks he/she will go | 12.0 |
| | How far in school parent thinks sample member will go | 10.5 |
| | Grade level in spring 2012 or last date of attendance | 12.6 |
| | Student dual language indicator | 0.4 |
| | Socioeconomic status composite | 10.5 |
| | Teenager has repeated a grade | 10.8 |
| | Mathematics quintile score | 12.0 |

See notes at end of table.

**Table F-3. Bias likelihood model variables: 2016—Continued**

| Data source | Variable | Percentage of cases requiring imputation |
|---|---|---|
| **2013 Update and High School Transcript Collection** | Teenager has high school credential | 20.4 |
| | Taking postsecondary classes as of Nov. 1, 2013 | 20.7 |
| | Level of postsecondary institution as of Nov. 1, 2013 | 21.2 |
| | Apprenticing as of Nov. 1, 2013 | 20.8 |
| | Working for pay as of Nov. 1, 2013 | 20.8 |
| | Serving in military as of Nov. 1, 2013 | 21.0 |
| | Starting family/taking care of children as of Nov. 1, 2013 | 20.9 |
| | Number of postsecondary institutions applied to | 22.7 |
| | Currently working for pay | 21.5 |
| | Number of high schools attended | 6.0 |
| | Attended CTE center | 6.0 |
| | English-language learner status | 6.0 |
| | GPA: overall | 6.1 |
| | GPA: English | 6.1 |
| | GPA: mathematics | 6.2 |
| | GPA: science | 6.2 |
| | Total credits earned | 6.0 |
| | Credits earned in academic courses | 6.0 |

[1] Race categories exclude persons of Hispanic ethnicity.
NOTE: GED = general educational development; FAFSA = Free Application for Federal Student Aid; CTE = career and technical education; GPA = grade point average.
SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 (HSLS:09), Base Year, First Follow-up, 2013 Update, High School Transcript Study, and Second Follow-up.

**Imputation process.** Assessment of balance between respondents and nonrespondents required having nonmissing data for both groups. To be used as bias likelihood model covariates, many key survey variables containing missing values required imputation. Missing data were imputed for these survey variables using stochastic imputation. Prior-round nonrespondents were included in imputation since the goal was to achieve a complete dataset for all second follow-up sample members. Specifically, a weighted sequential hot-deck (WSHD) statistical imputation procedure (Cox 1980; Iannacchione 1982), using the student bas e weight[3], was applied to the missing values for the variables. The WSHD procedure replaces missing data with valid data from a donor (i.e., item respondent) within an imputation class, or what is commonly called a donor pool. For nonrespondents with all missing survey data from a prior data collection round (i.e., prior-round

[3] The student base weight was used as it is nonmissing for all sample members. For further details on weights available in the second follow-up, including the student base weight, see chapter 6.

nonrespondents), frame data – available for all sample members – were used to form donor pools which were used to impute missing survey data.

Imputation classes were identified using a recursive partitioning function (also known as a nonparametric classification tree, or classification and regression tree [CART], analysis) through the *tree* (Ripley 2015) package in R (R Core Team 2015). In addition to the survey items used to form imputation classes, sorting variables were used within each class to increase the chance of obtaining a close match between donor and recipient. If more than one sorting variable was chosen, a serpentine sort[4] was performed where the direction of the sort (ascending or descending) changed each time the value of a variable changed. The serpentine sort minimized the change in the respondent characteristics every time one of the variables changed its value. With recursive partitioning, the association of a set of survey items and the variable requiring imputation is statistically tested (Breiman et al. 1984). The result was a set of imputation classes formed by the partition of the survey items that are most predictive of the variable in question. The pattern of missing items within the imputation classes was expected to occur randomly, allowing for the WSHD procedure to be used (note that the WSHD procedure assumes data are missing at random within imputation classes). Input items included the sampling frame variables and survey variables imputed earlier in the ordered sequence, or those that were identified through skip patterns in the instrument, or through literature suggesting an association.

Finally, the student base weight was used to ensure that the population estimates calculated post-imputation did not change significantly from the estimates calculated prior to imputation. Missing values were successfully imputed for the majority of the variables, allowing them to be included in the bias likelihood model.

**Bias likelihood model definition.** As noted in section 4.2.1.3, a logistic regression model was used to estimate bias likelihood. The bias likelihood model scores were calculated at the beginning of phases 3 and 4 for the calibration sample and for the main sample (i.e., prior to each intervention) and at the beginning of phases 5 and 6 for the full fielded sample. The bias likelihood model used the current response status for each sample member as its dependent variable each time the bias likelihood model was run.

We label second follow-up survey nonresponse, $y_i^{\text{second follow-up}}$, as 1 for current nonrespondents and 0 for current respondents (as of each time the model is run) and

[4] A serpentine sort is a sorting method in which records are ordered in an alternating ascending and descending pattern, thereby causing any two consecutive records in the sorted file to have similar values for the sort variables.

model them with $\Pr(y_i^{\text{second follow-up}} = 1) = \text{logit}^{-1}(X_i\beta)$ to reflect the likelihood of contributing to nonresponse bias if remaining a nonrespondent. Input variables are modeled as independent and include school locale (urbanicity), the student's final grade in algebra 1 (algebra), and the remaining covariates specified in table F-3. This model, therefore takes the expanded form

$$\Pr(y_i^{\text{second follow-up}} = 1) = \text{logit}^{-1}(\beta_0 + \beta_1 \bullet \text{urbanicity}_i + \beta_2 \bullet \text{algebra}_i + \ldots)$$

From this model, we derive predicted bias likelihood scores, $\hat{p}_i^{\text{bias}}$, for each case, defined as the predicted current nonresponse probability, or

$$\hat{p}_i^{\text{bias}} = \left[ \frac{e^{(\beta_0 + \beta_1 \bullet \text{urbanicity}_i + \beta_2 \bullet \text{algebra}_i + \ldots)}}{1 + e^{(\beta_0 + \beta_1 \bullet \text{urbanicity}_i + \beta_2 \bullet \text{algebra}_i + \ldots)}} \right] = \Pr(y_i^{\text{second follow-up}} = 1)$$

## F.3 Calibration Sample and Incentive Experiments

A calibration subsample was selected from each of the three subgroups and was fielded ahead of the main data collection to experimentally determine optimal incentive amounts for each subgroup. The calibration sample was fielded approximately 8 weeks prior to the main sample to allow time to analyze the experiment results and determine the incentive amounts to be implemented for each subgroup in the main sample. Table F-4 shows the sample size of each subgroup and the number of cases selected for the calibration sample.

**Table F-4. Calibration sample sizes, by subgroup**

| Subgroup | Second follow-up | Calibration sample | Main sample |
|---|---|---|---|
| **Total** | 23,316 | 3,300 | 20,016 |
| Subgroup A (high school late/alternative/noncompleters) | 2,545 | 663 | 1,882 |
| Subgroup B (ultra-cooperative respondents) | 4,144 | 663 | 3,481 |
| Subgroup C (all other high school completers and unknown cases) | 16,627 | 1,974 | 14,653 |

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 (HSLS:09) Second Follow-up.

The calibration sample was fielded in advance of the main sample for the first four of the seven data collection phases used in the second follow-up, after which the calibration and main samples' schedules were synchronized. Table F-5 presents the schedule of data collection phases for both the calibration and main samples. Table F-6 summarizes the baseline and boost incentives tested for each subgroup.

**Table F-5. Data collection schedule: 2016**

| Phase | Calibration sample | Main sample |
|---|---|---|
| Phase 1 (baseline incentive) | March 14, 2016 | May 9, 2016 |
| Phase 2 (outbound CATI) | March 21, 2016 (subgroup A) and April 4, 2016 (subgroups B and C) | May 16, 2016 (subgroup A) and May 31, 2016 (subgroups B and C) |
| Phase 3 (incentive boost 1) | May 4, 2016 | June 20, 2016 |
| Phase 4 (incentive boost 2) | June 15, 2016 | August 1, 2016 |
| Phase 5 (field interviewing)[1] | September 12, 2016 | September 12, 2016 |
| Phase 6 (prioritized data collection effort)[1] | November 17, 2016 | November 17, 2016 |
| Phase 7 (abbreviated interview)[1] | December 12, 2016 | December 12, 2016 |
| End of data collection[1] | January 31, 2017 | January 31, 2017 |

[1] Beginning with phase 5, calibration sample and main sample cases were combined for data collection treatments.
NOTE: Subgroup A = high school late/alternative/noncompleters; subgroup B = ultra-cooperative respondents; subgroup C = all other high school completers and unknown cases; CATI = computer-administered telephone interviewing.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 (HSLS:09) Second Follow-up.

**Table F-6. Baseline and incentive boost experiments for calibration sample: 2016**

| Subgroup | Incentive | Amount | Total cumulative incentives offered |
|---|---|---|---|
| Subgroup A (high school late/alternative/noncompleters) | Baseline incentive (all calibration cases) | $0 | $0 to $50 |
| | | $30 | |
| | | $40 | |
| | | $50 | |
| | Incentive boost 1 (all remaining calibration nonrespondents) | $15 | $15 to $75 |
| | | $25 | |
| | Incentive boost 2 (all remaining calibration nonrespondents) | $10 | $25 to $95 |
| | | $20 | |
| Subgroup B (ultra-cooperative respondents) | Baseline incentive (all calibration cases) | $0 | $0 to $50 |
| | | $30 | |
| | | $40 | |
| | | $50 | |
| | Incentive boost 1 (targeted cases only)[1] | $10 | $10 to $20 targeted; $0 to $50 otherwise |
| | | $20 | |
| | Incentive boost 2 (targeted cases only)[1] | $10 | $10 to $40 targeted; $0 to $50 otherwise |
| | | $20 | |
| Subgroup C (all other high school completers and unknown cases) | Baseline incentive (all calibration cases) | $15 | $15 to $40 |
| | | $20 | |
| | | $25 | |
| | | $30 | |
| | | $35 | |
| | | $40 | |
| | Incentive boost 1 (targeted cases only) | $10 | $25 to $60 targeted; $15 to $40 otherwise |
| | | $20 | |
| | Incentive boost 2 (targeted cases only) | $10 | $25 to $80 targeted; $15 to $60 otherwise |
| | | $20 | |

[1] Subgroup B (ultra-cooperative respondents) cases offered a nonzero baseline incentive (i.e., $30, $40, or $50) were not eligible to be targeted to receive subsequent treatments (i.e., incentive boost 1 or boost 2).

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 (HSLS:09) Second Follow-up.

### F.3.1 Phase 1 and Phase 2 (Baseline Incentive) [5]

During this beginning phase of data collection, the survey was open exclusively for self-administered interviews via the web (except for instances when sample members called into the study help desk) and no outbound telephone prompting occurred. Calibration sample members were randomized to different incentive levels within subgroups to identify the optimal baseline amounts to be offered to main sample cases.

After phase 1, telephone interviewers began making outbound calls to prompt sample members to complete the interview over the telephone or by web-based self-administration, as part of phase 2. Outbound computer-assisted telephone interviewing (CATI) began earlier for cases in subgroup A (HSNC) to allow additional time for telephone interviewers to work these high-priority cases. No additional incentives were offered during phase 2.

To assess the efficacy of the baseline incentive amounts offered, chi-square tests were used to perform pairwise comparisons between response rates by incentive levels within each of the three subgroups. Results of these comparisons are shown below for each subgroup.

***Subgroup A (HSNC).*** Table F-7 displays subgroup A response rates by baseline incentive level. About 6 percent of cases in subgroup A who did not receive an incentive offer responded by the end of phase 2. Among this set of cases, unincentivized (i.e., $0 incentive) cases were significantly less likely to respond compared to the next lowest incentive level of $30 ($\chi 2$ (1, $N$ = 324) = 18.72, $p$ < .05). Response rates were highest among cases assigned a baseline incentive of $40 (29 percent). The $40 response rate is about 6 percentage points higher than the $30 rate (23 percent), although not significantly higher at the 0.05 level, ($\chi 2$ (1, $N$ = 340) = 1.84, $p$ = .17). No significant difference was detected between response rates at the $40 incentive level and the $50 level. Given the magnitude of the observed difference between $30 and $40, a baseline incentive of $40 was offered to all cases in the subgroup A main sample.

[5] The calibration HSNC (subgroup A) subsample was intended to receive a baseline incentive offer ($30, $40, or $50) whereas calibration UC (subgroup B) cases were intended not to be offered a baseline incentive. In the original selection of calibration cases, the subgroup A cases and subgroup B cases were misclassified such that 154 subgroup A cases were not offered a baseline incentive while 509 subgroup B cases were offered a baseline incentive ($30, $40, or $50). Upon discovery of this error, 509 additional HSNC and 154 additional UC cases were redrawn for the calibration sample and given an incentive offer (or no incentive offer) as originally intended. The misclassified cases continued to be worked throughout the remainder of data collection, although the incentivized subgroup B cases were not eligible to receive additional incentive boosts.

**Table F-7. Subgroup A response rates by baseline incentive amount as of April 27, 2016**

| Baseline incentive offer | Sample members (*n*) | Respondents (*n*) | Response rate (percent) |
|---|---|---|---|
| **Total** | **663** | **147** | **22.2** |
| $0 | 154 | 9 | 5.8 |
| $30 | 170 | 39 | 22.9 |
| $40 | 170 | 50 | 29.4 |
| $50 | 169 | 49 | 29.0 |

NOTE: Excludes partially completed cases.
SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 (HSLS:09) Second Follow-up.

*Subgroup B (UC).* Table F-8 displays subgroup B response rates, after approximately 5 weeks of data collection, by baseline incentive level. For context, table F-9 presents subgroup B response rates together with response rates for other selected NCES studies. The selected studies include the 2012/14 Beginning Postsecondary Students Longitudinal Study (BPS:12/14), as the BPS:12/14 and HSLS:09 second follow-up sample members are similar in age, and the 2008/12 Baccalaureate and Beyond Longitudinal Study (B&B:08/12), as these sample members are another highly cooperative population. The results shown in table F-9 indicate that the HSLS:09 subgroup of ultra-cooperative calibration sample members responded, with no incentive offer, at a rate similar to that seen among BPS:12/14 calibration sample members with high predicted response likelihood and with a $40 incentive (after 5 weeks of data collection). The unincentivized ultra-cooperative calibration sample response rate of 64 percent is also similar to that seen among B&B:08/12 sample members who had responded during the early response period (i.e., after 4 weeks of data collection) of B&B:08/12 and its first follow-up round of data collection. Given the strong response rate for subgroup B, no baseline incentive was offered to subgroup B cases in the main sample.

**Table F-8. Subgroup B response rates by baseline incentive amount as of April 27, 2016**

| Baseline incentive offer | Sample members (*n*) | Respondents (*n*) | Response rate (percent) |
|---|---|---|---|
| **Total** | **663** | **493** | **74.4** |
| $0 | 154 | 98 | 63.6 |
| $30 | 170 | 127 | 74.7 |
| $40 | 170 | 134 | 78.8 |
| $50 | 169 | 134 | 79.3 |

NOTE: Excludes partially completed cases.
SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 (HSLS:09) Second Follow-up.

**Table F-9. Comparison of subgroup B response rates with response rates from selected studies**

| Study group | Response rate (percent) |
|---|---|
| HSLS:09 second follow-up calibration sample (subgroup B, phases 1 and 2)[1] | |
| No baseline incentive offer | 63.6 |
| $30 baseline incentive offer | 74.7 |
| $40 baseline incentive offer | 78.8 |
| $50 baseline incentive offer | 79.3 |
| BPS:12/14 calibration sample (response likelihood > .9, after 5 weeks) | |
| No incentive offer | 23.5 |
| $10 incentive offer | 29.6 |
| $20 incentive offer | 43.9 |
| $30 incentive offer | 58.8 |
| $40 incentive offer | 61.9 |
| $50 incentive offer | 66.3 |
| B&B:08/12 early response phase[2] respondents, by prior round response status | |
| Base year (NPSAS:08) and first follow-up (B&B:08/09) respondents | 48.1 |
| First follow-up (B&B:08/09) early response phase[2] respondents | 64.5 |
| Base year (NPSAS:08) and first follow-up (B&B:08/09) early response phase[2] respondents | 69.9 |

[1] Excludes partially completed cases.
[2] The B&B:08/08 and the B&B:08/12 early response phases consisted of the first 4 weeks of data collection.
NOTE: HSLS:09 = High School Longitudinal Study of 2009; BPS:12/14 = 2012/14 Beginning Postsecondary Students Longitudinal Study; B&B:08/12 = 2008/12 Baccalaureate and Beyond Longitudinal Study; BPS:08/09 = 2008/2009 Beginning Postsecondary Students Longitudinal Study; NPSAS:08 = 2007–08 National Postsecondary Student Aid Study.
SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 (HSLS:09) Second Follow-up; U.S. Department of Education, National Center for Education Statistics, 2012/14 Beginning Postsecondary Students Longitudinal Study (BPS:12/14); U.S. Department of Education, National Center for Education Statistics, 2008/12 Baccalaureate and Beyond Longitudinal Study (B&B:08/12).

***Subgroup C (HS other).*** Table F-10 provides subgroup C (HS other) response rates by baseline incentive level. Within subgroup C, the highest response rate, 43 percent, was observed among cases assigned a $30 incentive. No significant difference was detected between the response rate associated with the $30 baseline incentive and that of either the $35 incentive or $40 incentive. Response rates among cases assigned the $30 incentive were significantly higher than those for $15 and $20 ($\chi 2$ (1, $N$ = 658) = 17.28, $p < .05$ and $\chi 2$ (1, $N$ = 658) = 6.59, $p < .05$, respectively).

No significant difference was detected at the .05 level between comparisons of response rates for cases assigned $30 (43 percent) and $25 (37 percent) ($\chi 2$ (1, $N$ = 658) = 2.53, $p$ = .11). Given that subgroup C constitutes the largest subgroup in the main sample, with more than 14,000 sample members, a 6 percent difference in

response rate would result in a nontrivial difference in yield; as such, a baseline incentive of $30 was offered to all subgroup C main sample cases.

**Table F-10. Subgroup C response rates by baseline incentive amount as of April 27, 2016**

| Baseline incentive offer | Sample members (*n*) | Respondents (*n*) | Response rate (percent) |
|---|---|---|---|
| **Total** | **1,974** | **733** | **37.1** |
| $15 | 329 | 91 | 27.7 |
| $20 | 329 | 110 | 33.4 |
| $25 | 329 | 122 | 37.1 |
| $30 | 329 | 142 | 43.2 |
| $35 | 329 | 130 | 39.5 |
| $40 | 329 | 138 | 41.9 |

NOTE: Excludes partially completed cases.
SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 (HSLS:09) Second Follow-up.

### F.3.2 Phase 3 (Incentive Boost 1 Offer)

Phase 3 of the calibration study introduced an incentive boost that was offered to a subset of pending nonrespondents in addition to the baseline amount offered in the prior phases. The bias likelihood model was deployed prior to the start of phase 3 and was used to target subgroup B and subgroup C cases to receive an incentive boost (boost 1) in addition to their baseline incentive, should they complete the survey. Given the relative importance of obtaining responses from subgroup A cases, all remaining nonrespondent cases in subgroup A were targeted for an incentive boost offer.

*Subgroup A (HSNC).* Table F-11 displays subgroup A response rates during phase 3 by incentive boost level and baseline incentive level. For subgroup A cases that received no baseline incentive, no significant difference was detected between the response rates of sample members who were offered the $15 (10 percent) and $25 (15 percent) boost 1 incentive. No significant differences were detected between the response rates of sample members who were offered the $15 (17 percent) and $25 (12 percent) boost 1 incentive, when the baseline incentive was $30. Additionally, there was no significant difference detected between the response rates of sample members who were offered the $15 (12 percent) and $25 (19 percent) boost 1 incentive, when the baseline incentive was $40. Lastly, no significant differences were detected between the response rates of sample members who were offered the $15 (12 percent) and $25 (17 percent) boost 1 incentive, when the baseline incentive was $50. Given that no significant differences were found between the $15 and $25 boost

incentives, based on the results available on June 7, 2016, a boost 1 incentive of $15 was offered to all phase 3 cases in the subgroup A main sample.

**Table F-11. Subgroup A response rates in phase 3, by boost 1 incentive amount as of June 7, 2016**

| Boost 1 incentive offer | Sample members (*n*) | Respondents (*n*) | Response rate (percent) |
|---|---|---|---|
| **Total** | 509 | 71 | 13.9 |
| No baseline incentive, $15 boost | 73 | 7 | 9.6 |
| No baseline incentive, $25 boost | 72 | 11 | 15.3 |
| Baseline incentive, $15 boost | 185 | 25 | 13.5 |
| $30 Baseline incentive | 66 | 11 | 16.7 |
| **$40 Baseline incentive** | **59** | **7** | **11.9** |
| $50 Baseline incentive | 60 | 7 | 11.7 |
| Baseline incentive, $25 boost | 179 | 28 | 15.6 |
| $30 Baseline incentive | 61 | 7 | 11.5 |
| **$40 Baseline incentive** | **58** | **11** | **19.0** |
| $50 Baseline incentive | 60 | 10 | 16.7 |

NOTE: Excludes partially completed cases. Bolded text indicates the baseline incentive offered to the main sample.
SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 (HSLS:09) Second Follow-up.

***Subgroup B (UC).*** Table F-12 presents response rates during phase 3 by incentive boost level for subgroup B cases targeted by the bias likelihood model for intervention. Note that most of the ultra-cooperative sample members had previously responded in phases 1 and 2, leaving very few nonrespondents eligible to be targeted for an incentive intervention in phase 3 (18 targeted cases). Additionally, subgroup B sample members assigned a nonzero baseline incentive were not targeted for boost 1 incentives. Given the small number of cases within subgroup B, statistical analysis of the boost 1 incentive was not conducted, and the minimum incentive ($10) was offered to all phase 3 targeted subgroup B main sample cases.

**Table F-12. Subgroup B response rates in phase 3, by boost 1 incentive amount as of June 7, 2016**

| Boost 1 incentive offer | Sample members (*n*) | Respondents (*n*) | Response rate (percent) |
|---|---|---|---|
| **Total** | **18** | **5** | **27.8** |
| No baseline incentive, $10 boost | 9 | 3 | 33.3 |
| No baseline incentive, $20 boost | 9 | 2 | 22.2 |

NOTE: Excludes partially completed cases and subgroup B cases offered a nonzero baseline incentive (i.e., $30, $40, or $50).
SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 (HSLS:09) Second Follow-up.

*Subgroup C (HS other).* Table F-13 displays subgroup C response rates during phase 3 by incentive level, among the 661 cases selected for an incentive boost offer based on the bias likelihood model. No significant difference was detected between the phase 3 response rates of sample members offered $10 (13.9 percent) and $20 (15.5 percent) boost 1 incentives, regardless of the baseline incentive offered. As such, a boost 1 incentive of $10 was offered to all phase 3 targeted cases in the subgroup C main sample.

**Table F-13. Subgroup C response rates in phase 3, by boost 1 incentive amount as of June 7, 2016**

| Boost 1 incentive offer | Sample members (*n*) | Respondents (*n*) | Response rate (percent) |
|---|---|---|---|
| **Total** | **661** | **97** | **14.7** |
| Baseline incentive, $10 boost | 332 | 46 | 13.9 |
| $15 Baseline incentive | 64 | 8 | 12.5 |
| $20 Baseline incentive | 58 | 6 | 10.3 |
| $25 Baseline incentive | 54 | 7 | 13.0 |
| **$30 Baseline incentive** | **45** | **6** | **13.3** |
| $35 Baseline incentive | 55 | 7 | 12.7 |
| $40 Baseline incentive | 56 | 12 | 21.4 |
| Baseline incentive, $20 boost | 329 | 51 | 15.5 |
| $15 Baseline incentive | 61 | 9 | 14.8 |
| $20 Baseline incentive | 61 | 5 | 8.2 |
| $25 Baseline incentive | 52 | 12 | 23.1 |
| **$30 Baseline incentive** | **46** | **8** | **17.4** |
| $35 Baseline incentive | 53 | 9 | 17.0 |
| $40 Baseline incentive | 56 | 8 | 14.3 |

NOTE: Excludes partially completed cases. Bolded text indicates the baseline incentive offered to the main sample.
SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 (HSLS:09) Second Follow-up.

### F.3.3 Phase 4 (Incentive Boost 2 Offer and Adaptive Incentive Boost 2b Offer)

Phase 4 of the calibration study introduced a second incentive boost that was offered to a subset of pending nonrespondents in addition to the baseline amount and first boost, as applicable. The bias likelihood model was deployed again prior to the start of phase 4 and was again used to identify cases in subgroup B and subgroup C for targeted interventions (i.e., to receive an incentive boost offer). Note that cases were selected for the boost 2 offer independently from the selection of cases for boost 1. A case targeted for a boost 1 incentive offer might or might not be selected to receive a boost 2 incentive offer depending on how its bias likelihood score shifted between the phases. As was done in phase 3, all remaining nonrespondent cases in subgroup A were targeted for an incentive boost 2 offer. An initial analysis of the boost 2 incentive was conducted after 4 weeks (July 15, 2016) to determine the optimal incentive amount for the main sample. However, a second analysis after approximately 11 weeks (September 7, 2016) revealed that the results had shifted for subgroups A and C, as detailed below.

***Subgroup A (HSNC)***. Results for the boost 2 incentive offer for subgroup A, assessed after 4 weeks, are presented in table F-14. No significant differences were detected between response rates among cases assigned the $10 and $20 boost incentives. Due to the small number of respondents in phase 4, results are not disaggregated by baseline or boost 1 incentive levels. Therefore, a boost 2 of $10 was initially selected for subgroup A main sample cases.

***Subgroup B (UC)***. Results for the boost 2 incentive for subgroup B are presented in table F-15. As with boost 1, subgroup B sample members assigned a nonzero baseline incentive were not targeted for boost 2 incentives. No statistical comparisons were performed due to the small number of cases in this condition. A boost 2 of $10 was selected for subgroup B main sample cases.

***Subgroup C (HS other).*** Results for the boost 2 incentive for subgroup C are presented in table F-16. Like subgroup A and subgroup B, due to the small number of respondents in phase 4, results are not disaggregated by previous baseline or boost 1 incentive levels. No significant differences in response rates were found between cases assigned the $10 and $20 boost levels. As such, a boost 2 of $10 was initially selected for subgroup C main sample cases.

***Incentive boost 2b.*** While response rates for cases assigned to $10 and $20 boost 2 incentive levels were statistically equivalent (i.e., no significant differences were detected) at 4 weeks for each of the subgroups, when reassessed after about 11 weeks (September 7, 2016) the differences between cases assigned $10 and $20 had

become large and statistically significant for subgroup A ($\chi^2$ (1, $N$ = 310) = 6.38, $p$ < .05) and subgroup C ($\chi^2$ (1, $N$ = 576) = 4.02, $p$ < .05). (Subgroup B had very small numbers and no detectable difference.) The additional time for the calibration sample cases in phase 4 revealed an effect that was not evident at the end of the first 4 weeks of phase 4. In the intervening weeks, staff increased locating, prompting, and case review efforts for all pending cases (regardless of incentive amount assignment). Results after 4 weeks in phase 4 and after 11 weeks in phase 4 are presented below in tables F-14, F-15, and F-16.

**Table F-14. Subgroup A phase 4 calibration results after 4 weeks and after 11 weeks, by boost 2 incentive amount: 2016**

| | | Boost 2 results after 4 weeks | | Boost 2 results after 11 weeks | |
|---|---|---|---|---|---|
| Boost 2 incentive offer | Sample members (*n*) | Respondents (*n*) | Response rate (percent) | Respondents (*n*) | Response rate (percent) |
| **Total** | **310** | **17** | **5.5** | **39** | **12.6** |
| $10 | 154 | 8 | 5.2 | 12 | 7.8 |
| $20 | 156 | 9 | 5.8 | 27 | 17.3 |

NOTE: Excludes partially completed cases.
SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 (HSLS:09) Second Follow-up.

**Table F-15. Subgroup B phase 4 calibration results after 4 weeks and after 11 weeks, by boost 2 incentive amount: 2016**

| | | Boost 2 results after 4 weeks | | Boost 2 results after 11 weeks | |
|---|---|---|---|---|---|
| Boost 2 incentive offer | Sample members (*n*) | Respondents (*n*) | Response rate (percent) | Respondents (*n*) | Response rate (percent) |
| **Total** | **14** | **2** | **14.3** | **4** | **28.6** |
| $10 | 7 | 1 | 14.3 | 2 | 28.6 |
| $20 | 7 | 1 | 14.3 | 2 | 28.6 |

NOTE: Excludes partially completed cases and subgroup B cases offered a nonzero baseline incentive (i.e., $30, $40, or $50).
SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 (HSLS:09) Second Follow-up.

**Table F-16. Subgroup C phase 4 calibration results after 4 weeks and after 11 weeks, by boost 2 incentive amount: 2016**

| Boost 2 incentive offer | Sample members (*n*) | Boost 2 results after 4 weeks: Respondents (*n*) | Boost 2 results after 4 weeks: Response rate (percent) | Boost 2 results after 11 weeks: Respondents (*n*) | Boost 2 results after 11 weeks: Response rate (percent) |
|---|---|---|---|---|---|
| **Total** | **576** | **36** | **6.3** | **81** | **14.1** |
| $10 | 287 | 17 | 5.9 | 32 | 11.1 |
| $20 | 289 | 19 | 6.6 | 49 | 17.0 |

NOTE: Excludes partially completed cases.
SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 (HSLS:09) Second Follow-up.

Based on results after 11 weeks in phase 4, an adaptive component was added to the responsive design protocol in which an additional boost (incentive boost 2b) of $10 was offered to subgroup A main sample nonrespondents and subgroup C main sample boost 2-targeted cases; no additional boost was offered to subgroup B cases.

# F.4 Assessment of Responsive Design Models

This section provides an assessment of the effectiveness and results of the response likelihood model and bias likelihood model.

## *F.4.1 Assessment of Response Likelihood Model on Second Follow-up Response Rates*

As noted previously, the response likelihood model was fit once, prior to the start of the second follow-up data collection, and was designed to predict the likelihood of a case becoming a respondent. To assess the performance of the response likelihood model on realized response rates, response likelihood scores (predicted probabilities from the response likelihood logistic regression model) were ordered into deciles and response rates were examined within those deciles. Deciles were created using the SAS RANK procedure which defaults to placing cases with identical values into the higher ranked category, thereby preventing any two deciles including the same predicted probabilities. Table F-17 shows response rates by response likelihood decile.

**Table F-17. Response rates by response likelihood score deciles: 2016**

| Response likelihood decile | Sample members[1] (*n*) | Respondents | Response rate |
|---|---|---|---|
| **Total** | **23,316** | **17,335** | **74.3** |
| 1 | 2,332 | 1,027 | 44.0 |
| 2 | 2,333 | 1,239 | 53.1 |
| 3 | 2,329 | 1,614 | 69.3 |
| 4 | 2,341 | 1,785 | 76.2 |
| 5 | 2,319 | 1,806 | 77.9 |
| 6 | 2,395 | 1,926 | 80.4 |
| 7 | 2,194 | 1,778 | 81.0 |
| 8 | 2,471 | 2,065 | 83.6 |
| 9 | 2,237 | 1,970 | 88.1 |
| 10 | 2,365 | 2,125 | 89.9 |

[1] Note the total sample (23,316) represents to total fielded sample and excludes sample members that withdrew from the study between the end of the 2013 Update collection and the beginning of the second follow-up data collection or were found to be deceased.
SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 (HSLS:09) Second Follow-up.

Second follow-up response rates increased as the predicted response probability decile increased, indicating that a higher predicted response likelihood was associated with a higher likelihood of becoming a study respondent. The general pattern across all deciles indicates that the response likelihood model was effective in ordinally predicting a case's response outcome.

## F.4.2 Assessment of Bias Likelihood Model on Sample Representativeness

As described in section 4.2.1.3, the bias likelihood model was used to identify cases that were most unlike the set of sample members that had responded at each time-point the model was fit. The model used key survey and frame variables as model covariates with current nonresponse (as of each model run) as the dependent variable to identify nonrespondents most likely to contribute to bias in key survey variables unless converted to respondents. The bias likelihood model was fit at the beginning of phases 3 and 4 for the calibration and main samples (i.e., prior to both boost interventions) and at the beginning of phases 5 and 6[6] for the combined sample.

[6] Beginning with phase 5, calibration sample and main sample cases were combined for data collection treatments. Note that phases 5 and 6 were not part of the calibration experiment, and are therefore not covered in this appendix. For details on these phases, see section 4.2.1.4.

To assess the effectiveness of the bias likelihood model on sample representativeness, *weighted* estimates of key model variables were examined at baseline (i.e., for all sample members) and then throughout the phases of data collection. Weighted estimates were examined to provide information on the values of these important variables in the population of interest, rather than in the sample. Table F-18 shows the weighted estimates of the key analytic variables used in the bias likelihood model at baseline and at the time of selection of targeted cases for each phase.

**Table F-18. Weighted estimates of bias likelihood model variables and other key variables, at baseline, phase target selection, and data collection end**

| Domain category | Baseline | | Phase 3 | | | Phase 4 | | | Phase 5 | | | Phase 6 | | | Data Collection End | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *n* | % | Respondent *n* | Respondent % | Targeted % | Respondent *n* | Respondent % | Targeted % | Respondent *n* | Respondent % | Targeted % | Respondent *n* | Respondent % | Targeted % | *n* | % |
| School Type | | | | | | | | | | | | | | | | |
| Public | 3,007,154 | 92.95 | 1,023,314 | 91.53 | 94.70 | 1,348,003 | 91.83 | 95.39 | 1,604,809 | 91.97 | 97.43 | 1,845,884 | 92.31 | 94.81 | 2,177,263 | 92.43 |
| Catholic | 120,717 | 3.73 | 53,727 | 4.81 | 2.39 | 66,810 | 4.55 | 1.57 | 76,913 | 4.41 | 0.99 | 82,854 | 4.14 | 2.64 | 94,556 | 4.01 |
| Other private | 107,318 | 3.32 | 40,937 | 3.66 | 2.92 | 53,177 | 3.62 | 3.04 | 63,222 | 3.62 | 1.59 | 70,936 | 3.55 | 2.55 | 83,811 | 3.56 |
| Sex | | | | | | | | | | | | | | | | |
| Male | 1,634,337 | 50.52 | 472,687 | 42.28 | 70.16 | 667,454 | 45.47 | 60.22 | 801,376 | 45.93 | 66.60 | 942,856 | 47.15 | 57.24 | 1,124,667 | 47.74 |
| Female | 1,600,852 | 49.48 | 645,291 | 57.72 | 29.84 | 800,537 | 54.53 | 39.78 | 943,568 | 54.07 | 33.40 | 1,056,819 | 52.85 | 42.76 | 1,230,963 | 52.26 |
| Race/ethnicity[1] | | | | | | | | | | | | | | | | |
| American Indian / Alaska Native / Native Hawaiian / Pacific Islander | 39,093 | 1.21 | 10,819 | 0.97 | 0.87 | 13,181 | 0.90 | 1.46 | 16,662 | 0.95 | 1.81 | 19,261 | 0.96 | 1.90 | 24,366 | 1.03 |
| Hispanic | 721,720 | 22.31 | 220,775 | 19.75 | 30.85 | 308,906 | 21.04 | 24.41 | 374,515 | 21.46 | 19.92 | 430,535 | 21.53 | 24.76 | 507,575 | 21.55 |
| Asian | 116,583 | 3.60 | 46,834 | 4.19 | 3.81 | 61,583 | 4.20 | 2.33 | 72,708 | 4.17 | 0.58 | 79,360 | 3.97 | 2.58 | 90,350 | 3.84 |
| Black | 437,312 | 13.52 | 130,779 | 11.70 | 14.11 | 173,042 | 11.79 | 16.14 | 204,000 | 11.69 | 32.59 | 256,686 | 12.84 | 15.02 | 306,216 | 13.00 |
| More than one race | 240,128 | 7.42 | 71,840 | 6.43 | 8.85 | 99,331 | 6.77 | 10.43 | 128,424 | 7.36 | 7.31 | 148,540 | 7.43 | 7.51 | 175,419 | 7.45 |
| White | 1,680,353 | 51.94 | 636,931 | 56.97 | 41.50 | 811,947 | 55.31 | 45.23 | 948,635 | 54.36 | 37.79 | 1,065,294 | 53.27 | 48.23 | 1,251,703 | 53.14 |
| School locale (urbanicity) | | | | | | | | | | | | | | | | |
| City | 947,003 | 29.27 | 331,594 | 29.66 | 34.46 | 441,948 | 30.11 | 29.72 | 525,903 | 30.14 | 30.56 | 604,255 | 30.22 | 27.49 | 702,039 | 29.80 |
| Suburb | 899,197 | 27.79 | 315,818 | 28.25 | 26.23 | 413,595 | 28.17 | 25.60 | 486,237 | 27.87 | 29.61 | 561,049 | 28.06 | 27.48 | 661,567 | 28.08 |
| Town | 416,617 | 12.88 | 136,153 | 12.18 | 10.56 | 177,404 | 12.08 | 14.54 | 214,697 | 12.30 | 10.11 | 240,950 | 12.05 | 14.17 | 291,954 | 12.39 |
| Rural | 972,372 | 30.06 | 334,413 | 29.91 | 28.75 | 435,044 | 29.64 | 30.13 | 518,107 | 29.69 | 29.71 | 593,420 | 29.68 | 30.86 | 700,070 | 29.72 |

See notes at end of table.

**Table F-18. Weighted estimates of bias likelihood model variables and other key variables, at baseline, phase target selection, and data collection end—Continued**

| Domain category | Baseline | | Phase 3 | | | Phase 4 | | | Phase 5 | | | Phase 6 | | | Data Collection End | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *n* | % | Respondent *n* | Respondent % | Targeted % | Respondent *n* | Respondent % | Targeted % | Respondent *n* | Respondent % | Targeted % | Respondent *n* | Respondent % | Targeted % | *n* | % |
| Teenager's final grade in algebra I | | | | | | | | | | | | | | | | |
| A | 1,073,268 | 33.17 | 456,321 | 40.82 | 21.79 | 571,617 | 38.94 | 19.36 | 660,319 | 37.84 | 17.73 | 722,910 | 36.15 | 27.27 | 831,177 | 35.28 |
| B | 1,157,212 | 35.77 | 368,499 | 32.96 | 37.57 | 493,575 | 33.62 | 43.01 | 595,674 | 34.14 | 37.50 | 699,909 | 35.00 | 36.86 | 824,123 | 34.99 |
| C | 659,894 | 20.40 | 195,699 | 17.50 | 24.07 | 265,450 | 18.08 | 25.65 | 327,458 | 18.77 | 31.09 | 385,060 | 19.26 | 23.04 | 465,978 | 19.78 |
| D or lower | 262,124 | 8.10 | 72,319 | 6.47 | 14.63 | 105,597 | 7.19 | 9.39 | 124,537 | 7.14 | 8.73 | 146,179 | 7.31 | 9.60 | 180,025 | 7.64 |
| Ungraded / have not completed class | 82,691 | 2.56 | 25,139 | 2.25 | 1.93 | 31,752 | 2.16 | 2.60 | 36,957 | 2.12 | 4.95 | 45,617 | 2.28 | 3.23 | 54,325 | 2.31 |
| How far in school 9th-grader thinks he/she will go | | | | | | | | | | | | | | | | |
| High school graduate or less | 472,264 | 14.60 | 112,213 | 10.04 | 19.09 | 160,545 | 10.94 | 21.41 | 198,202 | 11.36 | 33.04 | 255,813 | 12.79 | 18.87 | 315,083 | 13.38 |
| Some college | 241,892 | 7.48 | 69,443 | 6.21 | 9.67 | 97,869 | 6.67 | 10.59 | 122,451 | 7.02 | 7.31 | 141,355 | 7.07 | 8.29 | 167,209 | 7.10 |
| College graduate | 554,233 | 17.13 | 213,117 | 19.06 | 13.96 | 275,485 | 18.77 | 16.25 | 325,406 | 18.65 | 10.02 | 361,714 | 18.09 | 14.37 | 415,768 | 17.65 |
| Master's degree | 646,291 | 19.98 | 250,802 | 22.43 | 18.30 | 324,069 | 22.08 | 16.65 | 374,937 | 21.49 | 10.83 | 415,883 | 20.80 | 17.67 | 486,445 | 20.65 |
| Doctor's degree | 613,655 | 18.97 | 235,581 | 21.07 | 20.20 | 308,623 | 21.02 | 14.84 | 370,031 | 21.21 | 9.60 | 410,395 | 20.52 | 16.13 | 471,498 | 20.02 |
| Don't know | 706,854 | 21.85 | 236,822 | 21.18 | 18.78 | 301,399 | 20.53 | 20.27 | 353,918 | 20.28 | 29.20 | 414,515 | 20.73 | 24.68 | 499,626 | 21.21 |

See notes at end of table.

**Table F-18. Weighted estimates of bias likelihood model variables and other key variables, at baseline, phase target selection, and data collection end—Continued**

| Domain category | Baseline | | Phase 3 | | | Phase 4 | | | Phase 5 | | | Phase 6 | | | Data Collection End | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *n* | % | Respondent *n* | Respondent % | Targeted % | Respondent *n* | Respondent % | Targeted % | Respondent *n* | Respondent % | Targeted % | Respondent *n* | Respondent % | Targeted % | *n* | % |
| How far in school parent thinks 9th-grader will go | | | | | | | | | | | | | | | | |
| High school graduate or less | 319,438 | 9.87 | 76,373 | 6.83 | 11.08 | 103,703 | 7.06 | 12.89 | 124,296 | 7.12 | 21.56 | 158,267 | 7.91 | 14.23 | 201,729 | 8.56 |
| Some college | 332,596 | 10.28 | 92,116 | 8.24 | 12.19 | 124,434 | 8.48 | 14.87 | 151,921 | 8.71 | 21.15 | 190,587 | 9.53 | 12.09 | 227,963 | 9.68 |
| College graduate | 935,916 | 28.93 | 344,961 | 30.86 | 26.51 | 448,437 | 30.55 | 27.68 | 530,266 | 30.39 | 18.01 | 594,927 | 29.75 | 26.31 | 688,892 | 29.24 |
| Master's degree | 610,813 | 18.88 | 236,404 | 21.15 | 19.78 | 314,166 | 21.40 | 12.47 | 368,719 | 21.13 | 7.45 | 401,538 | 20.08 | 16.70 | 468,468 | 19.89 |
| Doctor's degree | 661,154 | 20.44 | 251,271 | 22.48 | 17.04 | 320,683 | 21.85 | 17.90 | 381,352 | 21.85 | 19.16 | 434,109 | 21.71 | 18.42 | 500,540 | 21.25 |
| Don't know | 375,273 | 11.60 | 116,853 | 10.45 | 13.40 | 156,568 | 10.67 | 14.19 | 188,391 | 10.80 | 12.67 | 220,247 | 11.01 | 12.25 | 268,036 | 11.38 |
| How far in school sample member thinks he/she will go | | | | | | | | | | | | | | | | |
| High school graduate or less | 560,041 | 17.31 | 145,399 | 13.01 | 21.41 | 199,524 | 13.59 | 22.72 | 239,672 | 13.74 | 33.03 | 294,729 | 14.74 | 22.98 | 362,565 | 15.39 |
| Some college | 375,268 | 11.60 | 112,648 | 10.08 | 13.06 | 151,040 | 10.29 | 14.32 | 183,869 | 10.54 | 14.95 | 211,880 | 10.60 | 13.93 | 262,817 | 11.16 |
| College graduate | 899,602 | 27.81 | 325,828 | 29.14 | 32.13 | 436,090 | 29.71 | 25.13 | 514,611 | 29.49 | 21.22 | 582,519 | 29.13 | 24.45 | 673,694 | 28.60 |
| Master's degree | 653,917 | 20.21 | 264,764 | 23.68 | 14.24 | 336,427 | 22.92 | 15.05 | 399,320 | 22.88 | 12.82 | 440,446 | 22.03 | 16.50 | 506,506 | 21.50 |
| Doctor's degree | 391,499 | 12.10 | 161,066 | 14.41 | 8.57 | 200,647 | 13.67 | 9.97 | 234,405 | 13.43 | 3.61 | 267,852 | 13.39 | 9.09 | 306,256 | 13.00 |
| Don't know | 354,862 | 10.97 | 108,272 | 9.68 | 10.58 | 144,263 | 9.83 | 12.81 | 173,067 | 9.92 | 14.37 | 202,248 | 10.11 | 13.05 | 243,790 | 10.35 |

See notes at end of table.

**Table F-18. Weighted estimates of bias likelihood model variables and other key variables, at baseline, phase target selection, and data collection end—Continued**

| Domain category | Baseline | | Phase 3 | | | Phase 4 | | | Phase 5 | | | Phase 6 | | | Data Collection End | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *n* | % | Respondent *n* | Respondent % | Targeted % | Respondent *n* | Respondent % | Targeted % | Respondent *n* | Respondent % | Targeted % | Respondent *n* | Respondent % | Targeted % | *n* | % |
| How far in school parent thinks sample member will go | | | | | | | | | | | | | | | | |
| High school graduate or less | 486,717 | 15.04 | 142,986 | 12.79 | 18.96 | 198,231 | 13.50 | 17.93 | 235,180 | 13.48 | 21.56 | 282,231 | 14.11 | 16.98 | 339,606 | 14.42 |
| Some college | 334,677 | 10.34 | 103,051 | 9.22 | 9.65 | 134,880 | 9.19 | 11.12 | 159,971 | 9.17 | 16.54 | 193,150 | 9.66 | 12.17 | 232,264 | 9.86 |
| College graduate | 968,389 | 29.93 | 343,589 | 30.73 | 31.61 | 454,749 | 30.98 | 25.53 | 540,208 | 30.96 | 23.54 | 605,843 | 30.30 | 29.01 | 712,360 | 30.24 |
| Master's degree | 579,701 | 17.92 | 223,998 | 20.04 | 16.51 | 292,477 | 19.92 | 15.57 | 347,058 | 19.89 | 11.30 | 388,886 | 19.45 | 15.36 | 451,608 | 19.17 |
| Doctor's degree | 463,243 | 14.32 | 181,734 | 16.26 | 11.25 | 228,935 | 15.60 | 14.46 | 270,807 | 15.52 | 9.73 | 304,400 | 15.22 | 11.88 | 348,169 | 14.78 |
| Don't know | 402,461 | 12.44 | 122,620 | 10.97 | 12.02 | 158,719 | 10.81 | 15.38 | 191,722 | 10.99 | 17.32 | 225,164 | 11.26 | 14.59 | 271,621 | 11.53 |
| Grade level in spring 2012 or last date of attendance | | | | | | | | | | | | | | | | |
| 9th or 10th grade | 83,441 | 2.58 | 22,139 | 1.98 | 3.13 | 29,638 | 2.02 | 2.67 | 33,365 | 1.91 | 4.66 | 42,237 | 2.11 | 3.66 | 52,426 | 2.23 |
| 11th grade | 2,958,759 | 91.46 | 1,046,440 | 93.60 | 92.30 | 1,377,197 | 93.82 | 89.39 | 1,631,816 | 93.52 | 80.64 | 1,854,641 | 92.75 | 87.95 | 2,174,033 | 92.29 |
| 12th grade | 112,609 | 3.48 | 30,207 | 2.70 | 2.63 | 37,001 | 2.52 | 4.96 | 49,549 | 2.84 | 7.58 | 61,870 | 3.09 | 4.58 | 75,944 | 3.22 |
| Ungraded program | 14,957 | 0.46 | 5,295 | 0.47 | 0.22 | 5,855 | 0.40 | 0.37 | 6,435 | 0.37 | 1.52 | 8,264 | 0.41 | 0.59 | 10,712 | 0.45 |
| Not attending high school during 2011–12 school year | 65,423 | 2.02 | 13,897 | 1.24 | 1.72 | 18,300 | 1.25 | 2.61 | 23,779 | 1.36 | 5.61 | 32,662 | 1.63 | 3.21 | 42,515 | 1.80 |

See notes at end of table.

**Table F-18. Weighted estimates of bias likelihood model variables and other key variables, at baseline, phase target selection, and data collection end—Continued**

| Domain category | Baseline | | Phase 3 | | | Phase 4 | | | Phase 5 | | | Phase 6 | | | Data Collection End | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *n* | % | Respondent *n* | Respondent % | Targeted % | Respondent *n* | Respondent % | Targeted % | Respondent *n* | Respondent % | Targeted % | Respondent *n* | Respondent % | Targeted % | *n* | % |
| Student dual first language indicator | | | | | | | | | | | | | | | | |
| First language is English only | 2,668,349 | 82.48 | 933,194 | 83.47 | 77.53 | 1,215,570 | 82.81 | 82.18 | 1,441,246 | 82.60 | 86.84 | 1,654,199 | 82.72 | 81.78 | 1,950,799 | 82.81 |
| First language is non-English only | 374,115 | 11.56 | 114,836 | 10.27 | 16.83 | 163,250 | 11.12 | 12.05 | 195,461 | 11.20 | 10.43 | 226,477 | 11.33 | 12.05 | 265,110 | 11.25 |
| First language is English and non-English | 192,725 | 5.96 | 69,949 | 6.26 | 5.64 | 89,169 | 6.07 | 5.78 | 108,237 | 6.20 | 2.72 | 118,998 | 5.95 | 6.17 | 139,721 | 5.93 |
| 9th-grader is taking math course in fall 2009 term | | | | | | | | | | | | | | | | |
| No | 324,809 | 10.04 | 88,641 | 7.93 | 14.22 | 125,897 | 8.58 | 13.31 | 154,894 | 8.88 | 12.86 | 182,533 | 9.13 | 11.99 | 222,626 | 9.45 |
| Yes | 2,910,380 | 89.96 | 1,029,336 | 92.07 | 85.78 | 1,342,093 | 91.42 | 86.69 | 1,590,051 | 91.12 | 87.14 | 1,817,141 | 90.87 | 88.01 | 2,133,004 | 90.55 |
| 9th-grader is taking science course in fall 2009 term | | | | | | | | | | | | | | | | |
| No | 580,257 | 17.94 | 168,640 | 15.08 | 22.20 | 231,033 | 15.74 | 22.80 | 279,616 | 16.02 | 26.02 | 329,992 | 16.50 | 20.67 | 401,122 | 17.03 |
| Yes | 2,654,932 | 82.06 | 949,338 | 84.92 | 77.80 | 1,236,957 | 84.26 | 77.20 | 1,465,329 | 83.98 | 73.98 | 1,669,682 | 83.50 | 79.33 | 1,954,508 | 82.97 |
| Attended career day or job fair | | | | | | | | | | | | | | | | |
| No | 1,672,362 | 51.69 | 585,001 | 52.33 | 54.74 | 768,946 | 52.38 | 51.40 | 912,402 | 52.29 | 52.61 | 1,041,006 | 52.06 | 50.62 | 1,221,717 | 51.86 |
| Yes | 1,562,827 | 48.31 | 532,977 | 47.67 | 45.26 | 699,045 | 47.62 | 48.60 | 832,543 | 47.71 | 47.39 | 958,668 | 47.94 | 49.38 | 1,133,913 | 48.14 |
| Attended program at or took tour of college campus | | | | | | | | | | | | | | | | |
| No | 1,586,649 | 49.04 | 513,462 | 45.93 | 50.52 | 678,338 | 46.21 | 50.31 | 810,657 | 46.46 | 58.77 | 940,505 | 47.03 | 54.02 | 1,120,284 | 47.56 |
| Yes | 1,648,540 | 50.96 | 604,516 | 54.07 | 49.48 | 789,653 | 53.79 | 49.69 | 934,287 | 53.54 | 41.23 | 1,059,170 | 52.97 | 45.98 | 1,235,346 | 52.44 |

See notes at end of table.

**Table F-18. Weighted estimates of bias likelihood model variables and other key variables, at baseline, phase target selection, and data collection end—Continued**

| Domain category | Baseline | | Phase 3 | | | Phase 4 | | | Phase 5 | | | Phase 6 | | | Data Collection End | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *n* | % | Respondent *n* | Respondent % | Targeted % | Respondent *n* | Respondent % | Targeted % | Respondent *n* | Respondent % | Targeted % | Respondent *n* | Respondent % | Targeted % | *n* | % |
| Repeated grade | | | | | | | | | | | | | | | | |
| No | 3,031,677 | 93.71 | 1,053,164 | 94.20 | 93.27 | 1,384,038 | 94.28 | 93.82 | 1,646,121 | 94.34 | 90.85 | 1,884,315 | 94.23 | 92.29 | 2,213,191 | 93.95 |
| Yes | 203,512 | 6.29 | 64,814 | 5.80 | 6.73 | 83,953 | 5.72 | 6.18 | 98,824 | 5.66 | 9.15 | 115,359 | 5.77 | 7.71 | 142,439 | 6.05 |
| Sat in on or took college class | | | | | | | | | | | | | | | | |
| No | 2,410,326 | 74.50 | 796,871 | 71.28 | 78.62 | 1,063,383 | 72.44 | 77.44 | 1,266,706 | 72.59 | 82.02 | 1,458,016 | 72.91 | 77.44 | 1,730,899 | 73.48 |
| Yes | 824,862 | 25.50 | 321,107 | 28.72 | 21.38 | 404,608 | 27.56 | 22.56 | 478,238 | 27.41 | 17.98 | 541,658 | 27.09 | 22.56 | 624,731 | 26.52 |
| Participated in internship or apprenticeship related to career goals | | | | | | | | | | | | | | | | |
| No | 2,704,701 | 83.60 | 955,413 | 85.46 | 80.62 | 1,244,812 | 84.80 | 80.63 | 1,478,556 | 84.73 | 74.78 | 1,681,671 | 84.10 | 82.31 | 1,977,167 | 83.93 |
| Yes | 530,488 | 16.40 | 162,565 | 14.54 | 19.38 | 223,178 | 15.20 | 19.37 | 266,389 | 15.27 | 25.22 | 318,004 | 15.90 | 17.69 | 378,464 | 16.07 |
| Performed paid/volunteer work in job related to career goals | | | | | | | | | | | | | | | | |
| No | 2,136,745 | 66.05 | 753,875 | 67.43 | 67.88 | 987,985 | 67.30 | 65.23 | 1,171,033 | 67.11 | 66.74 | 1,339,170 | 66.97 | 64.78 | 1,564,290 | 66.41 |
| Yes | 1,098,443 | 33.95 | 364,103 | 32.57 | 32.12 | 480,005 | 32.70 | 34.77 | 573,912 | 32.89 | 33.26 | 660,505 | 33.03 | 35.22 | 791,340 | 33.59 |
| Searched Internet or read college guides for college options | | | | | | | | | | | | | | | | |
| No | 646,273 | 19.98 | 181,737 | 16.26 | 23.80 | 247,005 | 16.83 | 23.45 | 292,824 | 16.78 | 27.39 | 350,260 | 17.52 | 25.46 | 431,026 | 18.30 |
| Yes | 2,588,916 | 80.02 | 936,241 | 83.74 | 76.20 | 1,220,986 | 83.17 | 76.55 | 1,452,120 | 83.22 | 72.61 | 1,649,415 | 82.48 | 74.54 | 1,924,604 | 81.70 |
| Talked w/ high school counselor about options for after high school | | | | | | | | | | | | | | | | |
| No | 1,199,704 | 37.08 | 410,941 | 36.76 | 36.46 | 535,295 | 36.46 | 39.83 | 645,845 | 37.01 | 39.16 | 739,719 | 36.99 | 37.47 | 875,322 | 37.16 |
| Yes | 2,035,485 | 62.92 | 707,037 | 63.24 | 63.54 | 932,695 | 63.54 | 60.17 | 1,099,099 | 62.99 | 60.84 | 1,259,955 | 63.01 | 62.53 | 1,480,309 | 62.84 |

See notes at end of table.

**Table F-18. Weighted estimates of bias likelihood model variables and other key variables, at baseline, phase target selection, and data collection end—Continued**

| Domain category | Baseline | | Phase 3 | | | Phase 4 | | | Phase 5 | | | Phase 6 | | | Data Collection End | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *n* | % | Respondent *n* | Respondent % | Targeted % | Respondent *n* | Respondent % | Targeted % | Respondent *n* | Respondent % | Targeted % | Respondent *n* | Respondent % | Targeted % | *n* | % |
| Talked about options w/ counselor hired to prepare for college admission | | | | | | | | | | | | | | | | |
| No | 2,832,193 | 87.54 | 989,473 | 88.51 | 85.49 | 1,293,087 | 88.09 | 88.58 | 1,541,517 | 88.34 | 84.80 | 1,768,357 | 88.43 | 86.22 | 2,070,848 | 87.91 |
| Yes | 402,996 | 12.46 | 128,505 | 11.49 | 14.51 | 174,903 | 11.91 | 11.42 | 203,428 | 11.66 | 15.20 | 231,317 | 11.57 | 13.78 | 284,782 | 12.09 |
| Took course to prepare for college admission exam | | | | | | | | | | | | | | | | |
| No | 1,936,450 | 59.86 | 637,944 | 57.06 | 62.17 | 842,142 | 57.37 | 63.56 | 1,011,442 | 57.96 | 62.52 | 1,164,338 | 58.23 | 64.27 | 1,379,843 | 58.58 |
| Yes | 1,298,739 | 40.14 | 480,034 | 42.94 | 37.83 | 625,849 | 42.63 | 36.44 | 733,503 | 42.04 | 37.48 | 835,337 | 41.77 | 35.73 | 975,787 | 41.42 |
| Teenager taking math class(es) in spring 2012 | | | | | | | | | | | | | | | | |
| No | 465,128 | 14.38 | 134,842 | 12.06 | 16.32 | 178,707 | 12.17 | 17.01 | 213,083 | 12.21 | 28.37 | 259,973 | 13.00 | 17.07 | 314,935 | 13.37 |
| Yes | 2,770,061 | 85.62 | 983,136 | 87.94 | 83.68 | 1,289,283 | 87.83 | 82.99 | 1,531,861 | 87.79 | 71.63 | 1,739,702 | 87.00 | 82.93 | 2,040,695 | 86.63 |
| Sample member has high school credential | | | | | | | | | | | | | | | | |
| No | 402,808 | 12.45 | 106,479 | 9.52 | 10.95 | 138,178 | 9.41 | 14.28 | 162,597 | 9.32 | 29.88 | 205,999 | 10.30 | 17.18 | 260,443 | 11.06 |
| Yes | 2,832,380 | 87.55 | 1,011,499 | 90.48 | 89.05 | 1,329,812 | 90.59 | 85.72 | 1,582,348 | 90.68 | 70.12 | 1,793,675 | 89.70 | 82.82 | 2,095,187 | 88.94 |
| Taking postsecondary classes as of Nov. 1, 2013 | | | | | | | | | | | | | | | | |
| Yes | 2,175,181 | 67.24 | 849,917 | 76.02 | 59.94 | 1,099,243 | 74.88 | 54.28 | 1,290,075 | 73.93 | 38.01 | 1,444,087 | 72.22 | 55.98 | 1,658,467 | 70.40 |
| No | 685,990 | 21.20 | 171,657 | 15.35 | 28.52 | 241,240 | 16.43 | 30.52 | 300,321 | 17.21 | 36.37 | 361,488 | 18.08 | 27.76 | 452,932 | 19.23 |
| Don't know | 374,018 | 11.56 | 96,404 | 8.62 | 11.54 | 127,507 | 8.69 | 15.20 | 154,548 | 8.86 | 25.62 | 194,100 | 9.71 | 16.25 | 244,230 | 10.37 |

See notes at end of table.

**Table F-18. Weighted estimates of bias likelihood model variables and other key variables, at baseline, phase target selection, and data collection end—Continued**

| Domain category | Baseline | | Phase 3 | | | Phase 4 | | | Phase 5 | | | Phase 6 | | | Data Collection End | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *n* | % | Respondent *n* | Respondent % | Targeted % | Respondent *n* | Respondent % | Targeted % | Respondent *n* | Respondent % | Targeted % | Respondent *n* | Respondent % | Targeted % | *n* | % |
| Level of program enrolled in as of Nov. 1, 2013 | | | | | | | | | | | | | | | | |
| Bachelor's degree | 1,200,395 | 37.10 | 517,218 | 46.26 | 26.29 | 653,967 | 44.55 | 21.71 | 759,748 | 43.54 | 7.57 | 831,692 | 41.59 | 27.62 | 938,948 | 39.86 |
| Associate's degree | 464,242 | 14.35 | 168,589 | 15.08 | 13.95 | 226,023 | 15.40 | 11.85 | 264,683 | 15.17 | 11.62 | 301,250 | 15.06 | 12.79 | 348,568 | 14.80 |
| Certificate or diploma program from school that provides occupational training | 102,564 | 3.17 | 33,801 | 3.02 | 4.83 | 46,267 | 3.15 | 4.34 | 53,729 | 3.08 | 2.79 | 62,068 | 3.10 | 2.82 | 71,586 | 3.04 |
| Other | 1,467,988 | 45.38 | 398,369 | 35.63 | 54.93 | 541,732 | 36.90 | 62.11 | 666,785 | 38.21 | 78.03 | 804,664 | 40.24 | 56.77 | 996,527 | 42.30 |
| Number of postsecondary institutions applied to | | | | | | | | | | | | | | | | |
| 0 | 659,033 | 20.37 | 170,825 | 15.28 | 25.59 | 233,275 | 15.89 | 27.47 | 284,217 | 16.29 | 41.86 | 352,319 | 17.62 | 25.40 | 431,976 | 18.34 |
| 1 | 1,044,881 | 32.30 | 355,085 | 31.76 | 34.04 | 472,397 | 32.18 | 33.08 | 558,337 | 32.00 | 33.95 | 640,410 | 32.03 | 33.07 | 761,735 | 32.34 |
| 2 to 4 | 1,015,962 | 31.40 | 389,446 | 34.83 | 27.30 | 505,638 | 34.44 | 26.98 | 600,234 | 34.40 | 16.56 | 668,626 | 33.44 | 28.12 | 772,301 | 32.79 |
| 5 or more | 515,312 | 15.93 | 202,622 | 18.12 | 13.08 | 256,681 | 17.49 | 12.47 | 302,156 | 17.32 | 7.63 | 338,319 | 16.92 | 13.41 | 389,617 | 16.54 |
| Number of high schools attended | | | | | | | | | | | | | | | | |
| 1 | 2,698,550 | 83.41 | 937,619 | 83.87 | 81.14 | 1,229,148 | 83.73 | 82.20 | 1,460,100 | 83.68 | 76.61 | 1,657,898 | 82.91 | 83.69 | 1,952,812 | 82.90 |
| 2 | 461,858 | 14.28 | 153,920 | 13.77 | 17.39 | 207,581 | 14.14 | 15.38 | 246,552 | 14.13 | 16.65 | 292,413 | 14.62 | 14.04 | 345,589 | 14.67 |
| 3 or more | 74,780 | 2.31 | 26,439 | 2.36 | 1.47 | 31,262 | 2.13 | 2.42 | 38,292 | 2.19 | 6.74 | 49,363 | 2.47 | 2.27 | 57,229 | 2.43 |
| Apprenticing as of Nov. 1, 2013 | | | | | | | | | | | | | | | | |
| Yes | 105,018 | 3.25 | 28,123 | 2.52 | 4.13 | 39,220 | 2.67 | 3.47 | 45,831 | 2.63 | 7.26 | 57,096 | 2.86 | 4.18 | 70,588 | 3.00 |
| No | 2,610,097 | 80.68 | 929,324 | 83.13 | 77.48 | 1,213,378 | 82.66 | 77.89 | 1,436,935 | 82.35 | 69.78 | 1,629,458 | 81.49 | 78.47 | 1,912,562 | 81.19 |
| Don't know | 520,074 | 16.08 | 160,530 | 14.36 | 18.39 | 215,393 | 14.67 | 18.64 | 262,179 | 15.03 | 22.97 | 313,121 | 15.66 | 17.36 | 372,480 | 15.81 |

See notes at end of table.

**Table F-18. Weighted estimates of bias likelihood model variables and other key variables, at baseline, phase target selection, and data collection end—Continued**

| Domain category | Baseline | | Phase 3 | | | Phase 4 | | | Phase 5 | | | Phase 6 | | | Data Collection End | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *n* | % | Respondent *n* | Respondent % | Targeted % | Respondent *n* | Respondent % | Targeted % | Respondent *n* | Respondent % | Targeted % | Respondent *n* | Respondent % | Targeted % | *n* | % |
| Working for pay as of Nov. 1, 2013 | | | | | | | | | | | | | | | | |
| Yes | 1,843,058 | 56.97 | 577,427 | 51.65 | 61.88 | 768,829 | 52.37 | 68.36 | 934,010 | 53.53 | 70.26 | 1,097,524 | 54.89 | 62.02 | 1,304,867 | 55.39 |
| No | 985,264 | 30.45 | 380,603 | 34.04 | 26.87 | 492,995 | 33.58 | 23.30 | 579,220 | 33.19 | 20.02 | 638,388 | 31.92 | 26.70 | 742,472 | 31.52 |
| Don't know | 406,867 | 12.58 | 159,947 | 14.31 | 11.25 | 206,167 | 14.04 | 8.34 | 231,715 | 13.28 | 9.72 | 263,763 | 13.19 | 11.28 | 308,291 | 13.09 |
| Serving in military as of Nov. 1, 2013 | | | | | | | | | | | | | | | | |
| Yes | 127,723 | 3.95 | 32,779 | 2.93 | 6.40 | 48,870 | 3.33 | 6.33 | 59,633 | 3.42 | 6.91 | 74,119 | 3.71 | 4.05 | 85,405 | 3.63 |
| No | 2,971,449 | 91.85 | 1,040,228 | 93.05 | 88.18 | 1,360,446 | 92.67 | 89.28 | 1,616,655 | 92.65 | 83.66 | 1,841,751 | 92.10 | 91.68 | 2,169,712 | 92.11 |
| Don't know | 136,017 | 4.20 | 44,971 | 4.02 | 5.42 | 58,674 | 4.00 | 4.39 | 68,656 | 3.93 | 9.43 | 83,804 | 4.19 | 4.27 | 100,512 | 4.27 |
| Starting family / taking care of children as of Nov. 1, 2013 | | | | | | | | | | | | | | | | |
| Yes | 193,540 | 5.98 | 45,750 | 4.09 | 8.47 | 66,612 | 4.54 | 8.53 | 86,822 | 4.98 | 13.77 | 110,106 | 5.51 | 7.11 | 134,246 | 5.70 |
| No | 2,929,622 | 90.55 | 1,035,030 | 92.58 | 88.20 | 1,354,678 | 92.28 | 87.50 | 1,598,953 | 91.63 | 83.40 | 1,822,092 | 91.12 | 88.95 | 2,140,977 | 90.89 |
| Don't know | 112,027 | 3.46 | 37,198 | 3.33 | 3.33 | 46,700 | 3.18 | 3.97 | 59,169 | 3.39 | 2.82 | 67,476 | 3.37 | 3.94 | 80,406 | 3.41 |
| Completed FAFSA for teenager's education | | | | | | | | | | | | | | | | |
| Yes | 2,189,140 | 67.67 | 813,644 | 72.78 | 62.58 | 1,051,658 | 71.64 | 61.46 | 1,242,985 | 71.23 | 58.87 | 1,408,331 | 70.43 | 62.35 | 1,638,479 | 69.56 |
| No | 727,806 | 22.50 | 213,710 | 19.12 | 25.27 | 291,031 | 19.83 | 25.20 | 347,886 | 19.94 | 27.56 | 407,374 | 20.37 | 26.00 | 490,154 | 20.81 |
| Don't know | 78,758 | 2.43 | 20,122 | 1.80 | 3.11 | 28,405 | 1.93 | 4.52 | 40,397 | 2.32 | 1.94 | 45,370 | 2.27 | 2.81 | 54,897 | 2.33 |
| Don't know if teenager or another family member completed FAFSA | 239,485 | 7.40 | 70,502 | 6.31 | 9.04 | 96,896 | 6.60 | 8.81 | 113,676 | 6.51 | 11.63 | 138,599 | 6.93 | 8.84 | 172,099 | 7.31 |

See notes at end of table.

**Table F-18. Weighted estimates of bias likelihood model variables and other key variables, at baseline, phase target selection, and data collection end—Continued**

| Domain category | Baseline | | Phase 3 | | | Phase 4 | | | Phase 5 | | | Phase 6 | | | Data Collection End | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *n* | % | Respondent *n* | Respondent % | Targeted % | Respondent *n* | Respondent % | Targeted % | Respondent *n* | Respondent % | Targeted % | Respondent *n* | Respondent % | Targeted % | *n* | % |
| Currently working for pay | | | | | | | | | | | | | | | | |
| Yes | 1,610,047 | 49.77 | 558,184 | 49.93 | 51.80 | 735,652 | 50.11 | 47.91 | 874,890 | 50.14 | 49.02 | 992,708 | 49.64 | 49.01 | 1,175,024 | 49.88 |
| No | 1,625,142 | 50.23 | 559,794 | 50.07 | 48.20 | 732,338 | 49.89 | 52.09 | 870,055 | 49.86 | 50.98 | 1,006,966 | 50.36 | 50.99 | 1,180,606 | 50.12 |
| Attended CTE center | | | | | | | | | | | | | | | | |
| No | 3,178,886 | 98.26 | 1,101,854 | 98.56 | 98.05 | 1,445,388 | 98.46 | 98.04 | 1,717,779 | 98.44 | 96.47 | 1,965,969 | 98.31 | 98.06 | 2,314,937 | 98.27 |
| Yes | 56,302 | 1.74 | 16,124 | 1.44 | 1.95 | 22,602 | 1.54 | 1.96 | 27,165 | 1.56 | 3.53 | 33,705 | 1.69 | 1.94 | 40,693 | 1.73 |
| English language learner status | | | | | | | | | | | | | | | | |
| Not English as second language | 3,145,642 | 97.23 | 1,095,680 | 98.01 | 96.58 | 1,435,266 | 97.77 | 96.41 | 1,705,235 | 97.72 | 95.32 | 1,949,382 | 97.48 | 96.50 | 2,297,090 | 97.51 |
| English as a second language | 89,547 | 2.77 | 22,298 | 1.99 | 3.42 | 32,724 | 2.23 | 3.59 | 39,709 | 2.28 | 4.68 | 50,293 | 2.52 | 3.50 | 58,540 | 2.49 |

[1] Race categories exclude persons of Hispanic ethnicity.

NOTE: FAFSA = Free Application for Federal Student Aid; CTE = career and technical education.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 (HSLS:09) Second Follow-up.

***Model effectiveness in targeting underrepresented cases***. The bias likelihood model was designed to identify nonrespondent cases most unlike the respondent set at each phase of data collection Therefore, for a model to be successful in identifying underrepresented cases, the distribution within a variable of cases identified for targeting should differ from the respondent set within that variable, particularly if there is an imbalance from the baseline distribution. As an example, consider the model variable *Sex*. At baseline, the total weighted population consisted of approximately 51 percent male and 49 percent female. At the beginning of phase 3 (the start of responsive design case targeting), the weighted set of respondents was 42 percent male and 58 percent female, indicating an imbalance. Therefore, the targeted set of cases should overrepresent males, as indicated by the phase 3 distribution within the targeted set: 70 percent male and 30 percent female. Many of the model variables listed in table F-18 demonstrate this pattern, suggesting that the bias likelihood model was effective in identifying cases underrepresented on those key variables included in the model.

***Model effectiveness in reducing sample imbalance within key survey variables.*** If the bias likelihood model was effective in targeting underrepresented cases and the interventions were effective, the expectation is to observe a reduction in imbalance, over time, as a result of increasing response among targeted cases. As an example, consider the model variable, *Taking postsecondary classes as of November 1, 2013* (see table F-18). At baseline, 67 percent of the overall sample was taking postsecondary classes while 21, and 12 percent were not or did not know, respectively. The respondent set at the start of phase 3 was 76 percent taking postsecondary classes, while 15 and 9 percent were not and did not know, respectively. Sample imbalance at phase 3 was clearly present with overrepresentation among those taking postsecondary classes. Over the subsequent data collection phases, the percentage of the respondent set taking postsecondary classes decreased (76 to 75 to 74 to 72 percent at the start of phases 3, 4, 5, and 6 and ending at 70 percent at the close of data collection) while the set of those not taking postsecondary classes increased (from 15 to 16 to 17 to 18 percent at the start of phases 3, 4, 5, and 6, and ending at 19 percent the conclusion of data collection). This pattern brought the variable distribution closer to the baseline distribution, addressing some of the imbalance present at the start of phase 3. Changes in this survey estimate between the start of phase 3 and the end of data collection appear to move in the direction of the estimates for the entire sample. The pattern observed in this example is illustrative of the general trend evident across many of the model survey variables.

*This page intentionally left blank*