

Technical Notes

Teachers' Use of Educational Technology in U.S. Public Schools, 2009

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Data perturbations were conducted on some background data to preclude identification of individuals and institutions.

Fast Response Survey System

The Fast Response Survey System (FRSS) was established in 1975 by the National Center for Education Statistics (NCES), U.S. Department of Education. FRSS is designed to collect issue-oriented data within a relatively short time frame. FRSS collects data from state education agencies, local education agencies, public and private elementary and secondary schools, public school teachers, and public libraries. To ensure minimal burden on respondents, the surveys are generally limited to three pages of questions, with a response burden of about 30 minutes per respondent. Sample sizes are relatively small (usually about 1,000 to 1,500 respondents per survey) so that data collection can be completed quickly. Reported data are weighted to produce national estimates of the sampled education sector. The sample size permits limited breakouts by classification variables. However, as the number of categories within the classification variables increases, the sample size within categories decreases, which results in larger sampling errors for the breakouts by classification variables.

Sample and Response Rates

The sample for the FRSS 2009 teacher survey on educational technology consisted of 4,133 teachers from public schools in the 50 states and the District of Columbia. This survey was one of three related FRSS surveys conducted under a nested design involving a sample of schools, districts that administer the sampled schools, and teachers within the sampled schools. The selection of teachers included two stages.

For the first stage, a nationally representative sample of 2,005 regular U.S. public schools was selected from the 2005–06 NCES Common Core of Data (CCD) Public School Universe file, which was the most current file available at the time of selection. The sampling frame included 85,719 regular schools. Excluded from the sampling frame were schools with a high grade of prekindergarten or kindergarten and ungraded schools, along with special education, vocational, and alternative/other schools; schools outside the 50 states and the District of Columbia; and schools with zero or missing enrollment. To select the sample, the public school sampling frame was stratified by level (elementary or secondary/combined), categories of enrollment size, and categories for percent of students eligible for free/reduced-price lunch. To improve the representativeness of the sample, an implicit stratification was induced by sorting the schools within each stratum by type of locale¹ and region prior to sampling. Within each stratum, schools were sampled systematically and with equal probabilities at predetermined rates that varied from stratum to stratum.

For the second stage, a nationally representative sample of teachers was selected from lists provided by participating schools. The sampling frame included full-time teachers teaching at least one regularly scheduled class (other than physical education) in grades K through 12. Excluded from the sampling frame were administrators, counselors, advisors, and social workers (even if they also taught); teachers who taught only physical education; substitute, itinerant, part-time, and preschool teachers; teacher's aides; and unpaid volunteers. An average of two to three teachers was randomly selected from each participating school at rates that varied by instructional level of the school.

Data collection for the study was conducted in two stages. The first stage was the collection of teacher sampling lists, which coincided with data collection for the school survey.² Materials for the study were mailed to the principal of each sampled school in September 2008. The materials introduced the study and requested that a list of eligible teachers be provided by mail or fax. The package included instructions for preparing the list and a form to be returned with the list of teachers. For confidentiality reasons, this form did not include the name of the survey or the name of the school. It contained a random ID number that allowed authorized staff to identify the school. Telephone follow-up for nonresponse and clarification of information on the lists was initiated in early October 2008 and completed in April 2009.

Of the 2,005 schools in the sample, 56 were found to be ineligible for the survey because they were closed, merged, or did not meet the eligibility requirements for inclusion (e.g., they were special education, vocational, or alternative schools). For the eligible schools, the response rate for the first stage was 80 percent (1,563 schools that provided a teacher sampling list divided by the 1,949 eligible schools in the sample). The weighted list collection response rate was 81 percent.³

¹ The metro-centric locale variable from 2005–06 CCD was used in sampling, weighting, and nonresponse bias analysis. The variable for community type (URBAN) in this data file is based on the urban-centric school locale variable discussed further in the Definitions of Selected Analysis Variables section. This urban-centric locale variable was used as a classification variable in the *First Look* report titled *Teachers' Use of Educational Technology in U.S. Public Schools: 2009* (NCES 2010–040).

² Although collection of school surveys and collection of teacher sampling lists were conducted together, a school could choose to participate in one survey but not the other (i.e., to complete the school questionnaire but not provide a teacher sampling list, or vice versa).

³ The weighted list collection response rate was calculated using the school base weight without nonresponse adjustment.

For the second stage of collection, questionnaires and cover letters for the teacher survey were mailed to sampled teachers at their school addresses. Sampling and mailing was conducted in batches, as teacher lists were collected and processed, beginning in January 2009 and ending in April 2009. Respondents were offered the option of completing the survey by web or mail. Telephone follow-up for survey nonresponse and data clarification was initiated in early February 2009 and completed in July 2009.

Of the 4,133 teachers in the sample, 150 were found to be ineligible for the survey because they did not meet the eligibility requirements for inclusion (e.g., they were physical education, substitute, itinerant, part-time, or preschool teachers). For the eligible teachers, the response rate for the second stage was 79 percent (3,159 responding teachers divided by the 3,983 eligible teachers in the sample). The weighted teacher response rate was 79 percent.⁴ Of the teachers who completed the survey, 63 percent completed it by web, 33 percent completed it by mail, 4 percent completed it by fax, and 1 percent completed it by telephone.

NCES statistical standards and guidelines require a nonresponse bias analysis if the unit response rate at any stage of data collection is less than 85 percent. Therefore, a nonresponse bias analysis was conducted for the survey to inform the nonresponse weight adjustments. The nonresponse bias analysis report is attached and the results are summarized in the Nonsampling Errors, Coding, and Editing section.

Although item nonresponse for key items was very low, missing data were imputed for the items with a response rate of less than 100 percent. The missing items included both numerical data such as the number of computers in the classroom every day, as well as categorical data such as whether LCD projectors are available for teachers to use in the classroom every day. The missing data were imputed using a “hot-deck” approach to obtain a “donor” teacher from which the imputed values were derived. Under the hot-deck approach, a donor teacher that matched selected characteristics of the teacher with missing data (the recipient) was identified. The matching characteristics included characteristics of the school and district in which the teacher worked. These included categories of district enrollment size, instructional level of the school, categories of school enrollment size, locale, categories for percent of students in the school eligible for free or reduced-price lunch, the average number of computers per classroom in the school, and whether there were full-time technology staff in the school. In addition, relevant teacher questionnaire items were used to form appropriate imputation groupings. Once a donor was found, it was used to obtain the imputed values for the teacher with missing data. For categorical items, the imputed value was simply the corresponding value from the donor teacher. For numerical items, an appropriate ratio (e.g., proportion of computers in the classroom every day that have Internet access) was calculated for the donor teacher, and this ratio was applied to available data (e.g., reported number of computers in the classroom every day) for the recipient teacher to obtain the corresponding imputed value. Imputation flags are included in the data.

Weighting Procedures and Sampling Errors

The response data were weighted to produce national estimates (see table 1). The weights were designed to adjust for the variable probabilities of selection of the sampled schools and teachers and were adjusted for differential unit (teacher sampling list and questionnaire) nonresponse. FRSS survey data are based on complex sample designs that require the use of weights to compensate for variable probabilities

⁴ The weighted teacher response rate was calculated using a base weight that included the school-level and teacher-level base weights but did not include the school or teacher nonresponse adjustments.

of selection, differential response rates, and possible deficiencies in the sampling frame. The reciprocal of the probability of selection, referred to as the “base weight,” will produce unbiased (or consistent) estimates of population totals and ratios if there is no nonresponse in the survey. For the teacher technology survey, the weights were calculated in the following steps.

Table 1. Number and percent of responding teachers in the study sample, and estimated number and percent of teachers the sample represents, by school and teacher characteristics: 2009

Characteristic	Respondent sample (unweighted)		National estimate (weighted)	
	Number	Percent	Number	Percent
All public school teachers	3,159	100	2,396,300	100
School instructional level¹				
Elementary	1,784	56	1,541,900	64
Secondary	1,286	41	804,600	34
School enrollment size				
Less than 300	382	12	237,200	10
300 to 999	1,923	61	1,516,100	63
1,000 or more	854	27	643,000	27
Community type				
City	678	21	570,200	24
Suburban	1,069	34	915,700	38
Town	450	14	310,100	13
Rural	962	30	600,200	25
Percent of students in the school eligible for free or reduced-price lunch				
Less than 35 percent	1,295	41	966,100	40
35 to 49 percent	523	17	368,800	15
50 to 74 percent	792	25	589,500	25
75 percent or more	549	17	471,900	20
Main teaching assignment				
General education in self-contained classroom	1,030	33	866,600	36
Mathematics/computer science, science	638	20	445,000	19
Other academic subject ²	736	23	526,500	22
Special education, English as a second language	303	10	241,400	10
Other assignment ³	452	14	316,900	13
Elementary/secondary teaching experience				
3 or fewer years	476	15	361,800	15
4 to 9 years	830	26	629,200	26
10 to 19 years	982	31	734,800	31
20 or more years	871	28	670,500	28

¹ Data for combined schools (those with both elementary and secondary grades) are included in the totals and in analyses by other school characteristics but are not shown separately.

² Other academic subjects include English/language arts, foreign languages, and social sciences/social studies.

³ Other assignments include arts and music; health/physical education; vocational, career, or technical education; and other (respondent asked to specify).

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

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), “Teachers’ Use of Educational Technology in U.S. Public Schools,” FRSS 95, 2009; and Common Core of Data, “Public Elementary/Secondary School Universe Survey,” 2005–06.

First, a base weight, w_{hi}^B , was computed for each sampled school as $w_{hi}^B = 1/P_{hi}$, where P_{hi} is the probability of selecting school i in sampling stratum h . Under the sample design, P_{hi} is proportional to the square root of the number of FTE teachers in the school. Next, the school base weights were adjusted for nonresponse to the list collection phase within classes expected to be correlated with response rates.

Thus, the nonresponse-adjusted school weight, w_{ki}^{NR} , for the i th responding school in weighting class k was computed as: $w_{ki}^{NR} = (1/R_k) w_{ki}^B$, where w_{ki}^B is the school base weight for the i th responding school in weighting class k , and R_k is the base-weighted response rate for schools in weighting class k . The resulting nonresponse-adjusted school weights were then used to obtain a “base” weight for the sampled teachers.

Because teachers could only be sampled from schools providing teacher lists, a base weight was assigned to each sampled *teacher* as $w_{kij}^{base} = w_{ki}^{NR} / P_{kij}^{teach}$, where w_{ki}^{NR} is the nonresponse-adjusted weight for school i in weighting class k , and P_{kij}^{teach} is the probability of selecting teacher j in school i in weighting class k . In the calculation of the teacher base weight, the term w_{ki}^{NR} can be viewed as the reciprocal of an “adjusted” school selection probability that incorporates adjustments for the schools that did not provide teacher lists for sampling.

Finally, the teacher base weights were adjusted for teacher-level nonresponse within classes defined by batch (an indicator of how early or late in the field period the teacher lists were received for sampling) and the school-level stratification variables used in the first stage of sampling. Thus, the nonresponse-adjusted teacher weight, w_{kij}^{TNR} , for the j th responding teacher in school i in weighting class k was computed as: $w_{kij}^{TNR} = (1/R_k^T) w_{kij}^{base}$, where w_{kij}^{base} is the base weight for the j th responding teacher in i th responding school in weighting class k , and R_k^T is the base-weighted response rate of the sampled teachers in weighting class k . The resulting nonresponse-adjusted teacher weights are the final weights included in the restricted and public-use data files.

The survey findings are presented in a forthcoming *First Look* report titled *Teachers’ Use of Educational Technology in U.S. Public Schools: 2009* (NCES 2010–040). The reported findings are estimates based on the sample selected and, consequently, are subject to sampling variability. The standard error is a measure of the variability of an estimate due to sampling. It indicates the variability of a sample estimate that would be obtained from all possible samples of a given design and size. Standard errors are used as a measure of the precision expected from a particular sample. If all possible samples were surveyed under similar conditions, intervals of 1.96 standard errors below to 1.96 standard errors above a particular statistic would include the true population parameter being estimated in about 95 percent of the samples. This is a 95 percent confidence interval. For example, the estimated percent of teachers who have computers in the classroom every day is 96.8 percent, and the standard error is 0.3 percent. The 95 percent confidence interval for the statistic extends from $96.8 - (0.3 \times 1.96)$ to $96.8 + (0.3 \times 1.96)$, or from 96.2 to 97.4 percent. The coefficient of variation (“c.v.,” also referred to as the “relative standard error”) of an estimate (y) is defined as $c.v. = (s.e. / y) \times 100$, where s.e. is the standard error of the estimate y .

Because the data from the FRSS educational technology survey of teachers were collected using a complex sampling design, the variances of the estimates from this survey (e.g., estimates of proportions) are typically different from what would be expected from data collected with a simple random sample. Not taking the complex sample design into account can lead to an underestimation of the standard errors associated with such estimates. Estimates of standard errors were computed using a technique known as jackknife replication. As with any replication method, jackknife replication involves constructing a number of subsamples (replicates) from the full sample and computing the statistic of interest for each

replicate. The mean square error of the replicate estimates around the full sample estimate provides an estimate of the variance of the statistic. To construct the replications, 50 stratified subsamples of the full sample were created and then dropped one at a time to define 50 jackknife replicates. A computer program (WesVar) was used to calculate the estimates of standard errors using the JK1 option.

Nonsampling Errors, Coding, and Editing

The survey estimates are also subject to nonsampling errors that can arise because of nonobservation (nonresponse or noncoverage) errors, errors of reporting, and errors that occurred in data collection. These errors can sometimes bias the data. Nonsampling errors may include such problems as misrecording of responses; incorrect editing, coding, and data entry; differences related to the particular time the survey was conducted; or errors in data preparation. While general sampling theory can be used to determine how to estimate the sampling variability of a statistic, nonsampling errors are not easy to measure and, for measurement purposes, usually require that an experiment be conducted as part of the data collection procedures or that data external to the study be used.

To minimize the potential for nonsampling error, the questionnaire was pretested with public school teachers. During the design of the survey and the survey pretest, an effort was made to check for consistency of interpretation of questions and definitions and to eliminate ambiguous items. The questionnaire and instructions were extensively reviewed by NCES and the data requester at the Office of Educational Technology.

Editing of the questionnaire responses was conducted to check the data for accuracy and consistency. Cases with missing or inconsistent items were recontacted by telephone. A coding source file and editing specifications were used to produce the codebook. The codebook served as the main tool for coding, editing, and processing completed questionnaires. Coders used the codebook to identify cases requiring data retrieval or clarification and prepare cases for entry into the web application. The source file served as a data dictionary and included the data file layout, a description of each data item, a list of valid response codes or range formats with codes for nonresponse and inapplicable, and defined skip patterns.

Logics, ranges, and validation checks were prepared prior to data collection and included online edit checks, manual logic checks, and automated checks using SAS. Online checks were incorporated into the web application and manual edits were conducted to process cases received by mail, fax, or telephone. Steps were taken to ensure that the method of entering data from web and hardcopy questionnaires was the same, regardless of mode. For example, to enter survey data received by mail, fax, or telephone, the data processing staff accessed the survey website as “respondents” and “completed” the survey using the responses on the hardcopy survey. Subjecting all survey responses to the same set of built-in logics, ranges, and validation checks helps to ensure that data entry does not produce systematic differences in the survey data. In addition, all hardcopy data were subject to 100 percent verification using “doublekeying.”

One potential source of nonsampling error is nonresponse bias. For this survey, unit nonresponse occurred when an eligible sampled school did not provide a teacher sampling list or an eligible sampled teacher did not complete the questionnaire. The unweighted and weighted list collection response rates are 80 and 81 percent, respectively. The corresponding teacher response rates are both 79 percent, resulting in unweighted and weighted overall response rates of 64 percent and 65 percent, respectively. An analysis was conducted for the survey to look for potential nonresponse biases and examine whether any additional weighting adjustments for nonresponse should be considered. The nonresponse bias analysis report is attached and the results are summarized below.

The analysis included an examination of the impact of school-level nonresponse (i.e., schools that did not provide a teacher list for sampling) and the impact of teacher-level nonresponse within responding schools. For each type of nonresponse, an examination of response rates by school characteristics and a comparison of the base-weighted distributions of characteristics for the total sample versus the respondents were conducted. School characteristics used in the analysis were based on data available on the frame at the time of sampling and may differ from data included in the survey data files. School characteristics where the response rates varied significantly for subgroups were identified. Next, comparisons were made of data before and after the standard FRSS nonresponse adjustments were made to the weights. These comparisons involved distributions of respondents by school characteristics, estimates of CCD data items, and selected survey results.

The analysis found that school and teacher response rates generally varied by locale, region, minority status (defined by percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students), and enrollment size of school. Teacher response rates also varied significantly by sampling batch, which is an indicator of how early or late in the data collection period the teacher sampling list was received. To compensate for the differential response rates, weight adjustments were used to derive adjusted teacher weights for analysis purposes. These adjustments were made in two stages. First, adjustments were made to the school component of the teacher weight to compensate for nonresponse during list collection. The nonresponse-adjusted school weights were used to compute the teacher base weights, which were then adjusted for teacher nonresponse. In general, such weight adjustments will reduce nonresponse bias if the variables used in forming the weight adjustment classes are correlated with response propensity (the probability that a sampled school or teacher will respond to the survey) and with the characteristics obtained from the survey.

There are reasons to believe that the nonresponse-adjusted weights developed for the survey will be reasonably effective in reducing potential biases. First, the school-level weight adjustments removed most of the disparities between the weighted distributions of the responding schools and the distributions of the total school sample. Although some differences were not eliminated completely (i.e., by locale), the differences do not seem to be large enough to have a material impact on the weighted estimates derived from the survey. For example, for elementary schools, the mean absolute relative bias across the categories of variables included in the nonresponse bias analysis went from 4.8 percent before adjustment to 1.9 percent after adjustment. Similarly, for secondary schools, the mean absolute relative bias across all categories went from 5.3 percent before adjustment to 2.2 percent after adjustment. A comparison of weighted estimates of selected school-level characteristics available in the CCD files also seems to support the supposition that the nonresponse adjustments were effective in reducing biases. Except for some district-level attributes (which were not controlled for in the weighting process), the school-level weight adjustment procedures eliminated or reduced the difference between the nonresponse-adjusted estimate for the responding schools and the corresponding base-weighted estimate for the total sample of schools.

Similarly, the second-stage nonresponse adjustment of the teacher weights appeared to be reasonably effective in reducing any residual differences between the distributions of the responding and nonresponding teachers. A comparison of weighted teacher estimates of selected survey items before and after nonresponse adjustment indicated that there generally were no significant differences between the nonresponse-adjusted estimates and the corresponding base-weighted estimates prior to adjustment. This suggests that much of the bias reductions were likely captured in the school-level nonresponse adjustments. The absence of statistically significant differences may also suggest that the correlation between the survey responses and the variables used in the weighting adjustment (which are expected to be among the most important predictors of response propensity) is sufficiently small that any adjustment methodology involving these variables will not have an appreciable impact on the weighted estimates.

Although it is possible to conduct more in-depth analysis and possibly refine the weighting procedures, the results of this analysis suggested that any potential improvements would be modest at best. Therefore, NCES determined that no additional analysis or adjustments to the weights was needed.

Definitions of Selected Analysis Variables

Many of the school and teacher characteristics, described below, may be related to each other. For example, school enrollment size and community type are related, with city schools typically being larger than rural schools. Other relationships between these analysis variables may exist.

School Instructional Level (LEVEL)—This variable is based on the grades reported in question 16 on the FRSS survey *Educational Technology in U.S. Public Schools, Fall 2008*, which was conducted in coordination with the teacher survey using the same sample of schools. There was no item nonresponse for this question. However, for teachers in schools that did not complete a school survey, this variable was based on data from the 2005–06 CCD School Universe file. This variable includes the categories below.

Elementary school—Had grade 6 or lower and no grade higher than grade 8

Secondary school—Had no grade lower than grade 7 and had grade 7 or higher

Combined school—Had both elementary and secondary grades as defined above

School Enrollment Size (SIZE)—This variable indicates the total number of students enrolled in the school based on data from the 2005–06 CCD School Universe file. There were no missing data for the responding teachers. The variable was collapsed into the three categories below.

Less than 300 students

300 to 999 students

1,000 or more students

Community Type (URBAN)—This variable indicates the type of community in which the school is located, as defined in the 2005–06 CCD Public School Locale Code file. These codes identify the geographic status of a school based on a school’s physical address. This classification system is referred to as the “urban-centric” classification system to distinguish it from the previous “metro-centric” classification system. The urban-centric locale codes are assigned through a methodology developed by the U.S. Census Bureau’s Population Division in 2005. This classification system has four major locale categories—city, suburban, town, and rural—each of which is subdivided into three subcategories. These 12 categories are based on several key concepts that Census uses to define an area’s urbanicity: principal city, urbanized area, and urban cluster, as discussed below.

- A principal city is a city that contains the primary population and economic center of a metropolitan statistical area, which, in turn, is defined as one or more contiguous counties that have a “core” area with a large population nucleus and adjacent communities that are highly integrated economically or socially with the core.
- Urbanized areas and urban clusters are densely settled “cores” of Census-defined blocks with adjacent densely settled surrounding areas. Core areas with populations of 50,000 or more are designated as urbanized areas; those with populations between 25,000 and 50,000 are designated as urban clusters. Rural areas are designated by Census as those areas that do not lie inside an urbanized area or urban cluster.

This variable was based on the 12-category urban-centric locale variable from CCD and collapsed into the four categories below. There were no missing data for the responding teachers.

City—Territory inside an urbanized area and inside a principal city

Suburban—Territory outside a principal city and inside an urbanized area

Town—Territory inside an urban cluster

Rural—Territory outside an urbanized area and outside an urban cluster

Percent of Students in the School Eligible for Free or Reduced-Price Lunch (POVST)—This item serves as a measure of the concentration of poverty at the school. This variable is based on responses to question 15 on the FRSS survey *Educational Technology in U.S. Public Schools, Fall 2008*, which was conducted in coordination with the teacher survey using the same sample of schools. If this information was not provided by the school, this variable was obtained from the 2005–06 CCD School Universe file. Data were available for all responding teachers from either question 15 on the school survey or CCD. This variable was collapsed into the four categories below.

Less than 35 percent

35 to 49 percent

50 to 74 percent

75 percent or more

Percent Combined Enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native Students in the School (MINST)—This variable indicates the percentage of students enrolled in the school whose race or ethnicity is classified as one of the categories below based on data in the 2005–06 CCD School Universe file.

- American Indian/Alaska Native is defined in CCD as a person having origins in any of the original peoples of North America and who maintains cultural identification through tribal affiliation or community recognition. American Indian includes Alaska Native.
- Asian/Pacific Islander is defined in CCD as a person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands. This includes, for example, China, India, Japan, Korea, the Philippine Islands, and Samoa. Asian includes Native Hawaiian or other Pacific Islander.
- Black, non-Hispanic is defined in CCD as a person having origins in any of the black racial groups of Africa. Black includes African American.
- Hispanic is defined in CCD as a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race. Hispanic includes Latino.

There were no missing data for the responding teachers. This variable was collapsed into the four categories below.

Less than 6 percent

6 to 20 percent

21 to 49 percent

50 percent or more

Geographic Region (OEREG)—This variable classifies schools into one of the four geographic regions used by the Bureau of Economic Analysis of the U.S. Department of Commerce. Data were obtained from the 2005–06 CCD School Universe file. There were no missing data for the responding teachers. The variable was collapsed into the four categories below.

Northeast—Connecticut, Delaware, District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont

Southeast—Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia

Central—Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin

West—Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oklahoma, Oregon, Texas, Utah, Washington, and Wyoming

Main Teaching Assignment (TEACH)—This variable is based on responses to question 12 on the teacher survey questionnaire, which asks for the main teaching assignment (the field in which the teacher taught the most classes) in the 2008-09 school year. There was no item nonresponse for this question. This variable was collapsed into the categories below.

General education in self-contained classroom—Includes response category “General education in self-contained classroom (*definition on cover*).” The following definition of teacher in a self-contained classroom was given on the cover: teaches all or most academic subjects to the same group of students all or most of the day.

Mathematics/computer science, science—Includes response categories of “Mathematics/computer science” and “Science.”

Other academic subject—Includes response categories of “English/language arts,” “Foreign languages,” and “Social sciences/social studies.”

Special education, English as a second language—Includes response categories of “Special education” and “English as a second language.” These categories were combined to group teachers who provide specialized services to students because they may use educational technology differently than other teachers, and to create a group with sufficient sample size to report findings.

Other assignment—Includes response categories of “Arts and Music,” “Health/physical education,” “Vocational, career, or technical education,” and “Other (specify).”

Elementary/Secondary Teaching Experience (YEARS)—This variable is based on responses to question 15 on the teacher survey questionnaire, which asks how many years (including this school year) the teacher worked as an elementary or secondary teacher, including years spent teaching full and part time and in public and private schools. If question 15 was not answered, this variable was imputed as described in the section above for item nonresponse imputation. The weighted percent that was imputed for this item was 0.12 percent. The categories used in the report are listed below.

3 or fewer years

4 to 9 years

10 to 19 years

20 or more years

District Enrollment Size (DISTSIZ)—This variable indicates the total number of students enrolled in the school district based on data from the 2005–06 CCD Local Education Agency file. There were no missing data for the responding teachers. The variable was collapsed into the three categories below.

Less than 2,500 students
2,500 to 9,999 students
10,000 or more students

District Leadership (DISTLEAD)—This variable indicates whether the school district employs an individual devoted full-time to educational technology leadership. This variable is based on responses to question 14 on the FRSS survey *Educational Technology in Public School Districts, Fall 2008*, which was conducted in coordination with the school and teacher surveys. The district survey included districts that administered one or more schools sampled for the school and teacher surveys. There are some missing data (coded as not ascertained) for this item. This is a result of survey (unit) nonresponse on the district survey (i.e., a sampled teacher completed the teacher survey but the district that administered the school in which the teacher was sampled did not complete the district survey). Item nonresponse for question 14 on the district survey was imputed using hot-deck procedures similar to those described in the section for item nonresponse imputation above. This variable was created by recoding responses to the question below from the district survey.

Does your district employ an individual who is responsible for educational technology leadership (e.g., a Chief Information Officer or comparable role)?

Yes, full-time devoted to this role

Yes, part-time devoted to this role

No

Only responses of “yes, full-time devoted to this role” were recoded to “yes.” The responses of “yes, part-time devoted to this role” were recoded to “no.” The resulting recoded variable and responses are shown below.

Does your district employ an individual who is devoted full-time to educational technology leadership?

Not ascertained

Yes

No

Definitions of Terms

The following is the exact wording of the definitions that were included on the questionnaire.

Technology: Information technology such as computers, devices that can be attached to computers (e.g., LCD projector, interactive whiteboard, digital camera), networks (e.g., Internet, local networks), and computer software. We specifically are not including non-computer technologies such as overhead projectors and VCRs.

Classroom response system: Wireless system allowing a teacher to pose a question and students to respond using “clickers” or hand-held response pads, with responses compiled on a computer.

Document camera: Device that transmits images of 2- or 3-dimensional objects, text, or graphics to a computer monitor or LCD projector.

Blogs: Websites where an individual or group creates a running log of entries that can be read by other users, such as in a journal.

Wikis: Collaborative websites that allow users to freely create and edit web page content (e.g., Wikipedia).

Social networking websites: Online social networks for communities of people who share interests and activities or who are interested in exploring the interests and activities of others (e.g., Facebook, MySpace).

Teacher in a self-contained classroom: Teaches all or most academic subjects to the same group of students all or most of the day.

Descriptions of the acronyms for the following were not included on the questionnaire.

LCD projector: Liquid Crystal Display.

DLP projector: Digital Light Processing.

Attachment

Nonresponse Bias Analysis Report

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Nonresponse Bias Analysis Report

Teachers' Use of Educational Technology

in U.S. Public Schools, 2009

As required by the 2002 revised statistical standards and guidelines for the National Center for Education Statistics (NCES), a nonresponse analysis was conducted for the 2009 Fast Response Survey System (FRSS) survey, *Teachers' Use of Educational Technology in U.S. Public Schools* (FRSS 95). A nonresponse bias analysis is generally required if the unit response rate at any stage of data collection is less than 85 percent. For FRSS 95, nonresponse to the teacher survey occurred if (a) an eligible sampled school did not provide a usable list of teachers for sampling purposes; or (b) a school did provide a teacher list for sampling, but the selected teacher did not complete the FRSS questionnaire. The unweighted and weighted response rates for list collection are 80.2 and 81.5 percent, respectively, where the weight used in the response rate calculations is the school base weight defined in section 2. Within the set of schools that provided teacher lists, the corresponding (conditional) teacher-level unweighted and weighted response rates are 79.3 and 79.5 percent, respectively. Thus, the overall unweighted and weighted teacher-level response rates for FRSS 95 are 63.6 and 64.8 percent, respectively.

This report summarizes the findings of an initial analysis of nonresponse in FRSS 95. The purpose of the initial analysis is to look for potential nonresponse biases to determine whether more in-depth analysis is required. We will also examine whether any additional weighting adjustments for nonresponse beyond the usual FRSS procedures should be considered.

This report is divided into five sections. Sections 1 and 2 describe the sample design and development of base weights and nonresponse adjustments. The nonresponse adjustments were developed using standard FRSS procedures and are used for comparison purposes in this report. In section 3, we examine the impact of school-level nonresponse (i.e., schools that did not provide a teacher list for sampling). In section 4, we examine the impact of teacher-level nonresponse within responding schools. Section 5 contains a summary and conclusion.

1. Sample Design

A stratified multistage sample design was used to select teachers for FRSS 95. At the first stage of sampling, 2,005 regular public schools were selected from a sampling frame constructed from the 2005–06 Common Core of Data (CCD) Public School Universe file. The first-stage sample included 1,004 elementary schools and 1,001 secondary/combined schools. Within the two instructional levels, the schools were stratified explicitly by enrollment size class and categories of poverty status based on the percent of students eligible for free/reduced-price lunch. A total of 50 sampling strata defined by level, enrollment size (five classes), and poverty status (five categories) were created for sampling purposes. Within the two instructional levels, the school samples were allocated to strata in rough proportion to the sum of the square root of the estimated number of full-time-equivalent (FTE) teachers in the schools in the stratum. Schools were then sampled systematically with probabilities proportionate to the square root of the number of FTE teachers within strata. The use of the square root of the number of FTE teachers in sample selection was designed to control the variation of teacher weights in the subsequent stage of selection. The sampled schools were contacted and requested to provide school-wide lists of teachers from which the samples of teachers would be drawn.

In the second stage of sampling, 4,133 teachers were selected from the 1,563 schools that provided teacher lists. This included 2,188 elementary school teachers (in 802 responding elementary schools) and 1,945 secondary school teachers (in 761 responding secondary/combined schools). Because the sampled schools did not all provide teacher lists at the same time, the sampling of teachers was done on a flow basis in six separate batches. This allowed more time for followup efforts. The initial batch contained over 1,700 of the sampled teachers and the remaining five batches (which were fielded sequentially at roughly one month intervals) contained between 200 and 800 teachers each.

2. Calculation of Weights

In general, weights are required for analysis of the survey results to compensate for variable probabilities of selection and differential response rates. For FRSS 95, the weights were calculated in the following steps. First, a base weight, w_{hi}^B , was computed for each sampled school as $w_{hi}^B = 1/P_{hi}$, where P_{hi} is the probability of selecting school i in sampling stratum h . Under the FRSS 95 sample design, P_{hi} is proportional to the square root of the number of FTE teachers in the school. The school base weights would be statistically unbiased if there were no nonresponse in the list collection phase of data collection.

Next, the school base weights were adjusted for nonresponse within classes defined by the variables used for sample stratification. In addition, other variables expected to be correlated with response rates were used as auxiliary variables to define the weighting cells. The variables used explicitly in stratification included instructional level, enrollment size, and a measure of poverty status defined by the percent of students eligible for free/reduced-price lunch. Locale⁵ was used to define detailed subcells within some (but not all) of the primary weighting cells. Thus, the nonresponse-adjusted school weight, w_{ki}^{NR} , for the i th responding school in weighting class k was computed as: $w_{ki}^{NR} = (1/R_k)w_{ki}^B$, where w_{ki}^B is the school base weight for the i th responding school in weighting class k , and R_k is the base-weighted response rate for schools in weighting class k . The resulting nonresponse-adjusted school weights were then used to obtain a “base” weight for the sampled teachers.

Since teachers could only be sampled from schools providing teacher lists, a base weight was assigned to each sampled *teacher* as $w_{kij}^{base} = w_{ki}^{NR} / P_{kij}^{teach}$, where w_{ki}^{NR} is the nonresponse-adjusted weight for school i in weighting class k , and P_{kij}^{teach} is the probability of selecting teacher j in school i in weighting class k . In the calculation of the teacher base weight, the term w_{ki}^{NR} can be viewed as the reciprocal of an “adjusted” school selection probability that incorporates adjustments for the schools that did not provide teacher lists for sampling.

Finally, the teacher base weights were adjusted for teacher-level nonresponse within classes defined by batch (an indicator of how early or late in the field period the teacher lists were received for sampling) and the school-level stratification variables used in the first stage of sampling. These latter variables included instructional level, enrollment size, and a measure of poverty status defined by the percent of students eligible for free/reduced-price lunch. Locale was also used where possible to define detailed subcells within some (but not all) of the primary weighting cells. Thus, the nonresponse-adjusted

⁵ The metro-centric locale variable from 2005-06 CCD was used in sampling, weighting, and nonresponse bias analysis whereas the urban-centric locale variable was used as a classification variable in the *First Look* report titled *Teachers' Use of Educational Technology in U.S. Public Schools: 2009* (NCES 2010-040).

teacher weight, w_{kij}^{TNR} , for the j th responding teacher in school i in weighting class k was computed as: $w_{kij}^{TNR} = (1/R_k^T) w_{kij}^{base}$, where w_{kij}^{base} is the base weight for the j th responding teacher in i th responding school in weighting class k , and R_k^T is the base-weighted response rate of the sampled teachers in weighting class k . The resulting nonresponse-adjusted teacher weights are the final weights used in the production of the estimates and standard errors for the draft First Look report.

3. Impact of School Nonresponse

Since FRSS 95 used a two-stage sample design, nonresponse to the teacher survey could occur either during the list collection phase of data collection (in which case all teachers in a school were lost to the study), or after school-provided teacher lists were compiled and teachers were subsampled for the study. This section deals with the first component of nonresponse. As indicated earlier, the unweighted and weighted (school-level) response rates for list collection were 80 and 81 percent, respectively, where the weights used in the calculation of the weighted response rate were the school base weights described in Section 2. Within this section, we examine list collection response rates by school characteristics (section 3.1) and present an alternative but equivalent way of examining response by comparing the base-weighted distributions of characteristics for the total sample of schools versus the respondents (section 3.2). We identify school characteristics where the response rates vary significantly for subgroups. Next, we present comparisons before and after the standard FRSS nonresponse adjustments are made to the weights. These comparisons involve distributions of respondents by school characteristics (section 3.3) and estimates of CCD data items (section 3.4).

3.1 School Response Rates by Selected Characteristics

To identify the characteristics associated with school-level (list collection) nonresponse, unweighted and weighted response rates were calculated by instructional level (elementary and secondary/combined); locale (city, urban fringe, town, and rural); region (Northeast, Southeast, Central, and West); categories of poverty status defined by percent of students eligible for free/reduced-price lunch; race/ethnicity status defined by percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students; and enrollment size class. These school characteristics were based on data obtained from the 2005–06 CCD file at the time of sampling. The results are given in table 1a for the total sample and in tables 1b and 1c for elementary and secondary/combined schools, respectively. As indicated in table 1a, 56 (2.8 percent) of the 2,005 sampled schools were determined to be ineligible for the survey (e.g., closed, inactive, or nonregular schools) and are excluded from the calculation of the response rates summarized below. The last column of the tables shows the p-value of a test of association between response status and each of the selected school characteristics. A p-value of 0.05 or less indicates that there is a statistically significant association between the (weighted) response rate and the specified characteristic.

For the total sample (table 1a), locale, region, race/ethnicity status, and enrollment size are all significantly correlated with response rate. By locale, the unweighted and weighted response rates are higher in towns and rural areas (88+ percent) than in urban fringe areas (79-80 percent) and cities (70 percent). By region, the unweighted and weighted response rates are generally higher in the southeast and central regions (82+ percent) than in the northeast (79-81 percent) and west region (76-78 percent). By race/ethnicity status, the unweighted and weighted response rates are higher in the less-than-6 percent group (88+ percent) than in the other race/ethnicity status groups (81 percent or less). By enrollment size

class, schools with less than 300 students had the highest response rates (87 percent) compared with schools with more than 300 students (no more than 82 percent). The unweighted and weighted response rates did not differ significantly by instructional level.

Response rates were also calculated separately for the two instructional levels and are presented in tables 1b and 1c, respectively. Among elementary schools, the characteristic showing the highest correlation with response rate is locale. The unweighted and weighted response rates in towns and rural areas are substantially higher (90+ percent) than the response rates in cities (69-70 percent). The response rates for elementary schools in urban fringe areas (81 percent) fall in between those observed for schools in towns/rural areas and cities. Response rates for elementary schools also varied significantly by race/ethnicity status: schools with low (under 6 percent) minority enrollments generally had higher response rates than those with high (50+ percent) minority enrollments.

Among secondary/combined schools, response rates varied significantly by locale, race/ethnicity status, and enrollment size class. The unweighted and weighted response rates in towns and rural areas are substantially higher (86+ percent) than the response rates in cities and urban fringe areas (69-75 percent). By race/ethnicity status, response rates for secondary/combined schools were higher for the less-than-6 percent group (86+ percent) than for the 50-percent-or higher group (72-75 percent). By enrollment size class, response rates for secondary/combined schools were generally higher for schools with fewer-than-500 students (85+ percent) than for schools with 1,000-or-more students (70-76 percent).

3.2 Comparison of Responding and Nonresponding Schools by Selected Characteristics

Base-weighted distributions of responding and nonresponding schools were calculated for the same categories of school characteristics for which the response rates summarized in section 3.1 were computed. These distributions, which are presented in tables 2a to 2c, provide an alternative but equivalent way of examining response rates within selected subgroups. The base-weighted distributions of responding schools (respondent sample) can be compared with the corresponding base-weighted distributions of the total sample to obtain a measure of the potential impact of list collection nonresponse on the survey-based estimates. For example, the difference between the base-weighted estimate of the percentage of *responding* schools with a particular characteristic and the corresponding base-weighted estimate for all (eligible) sampled schools provides an indication of the bias that might result in the weighted estimates if no weighting adjustments are made to compensate for nonresponse. For each set of base-weighted percentages shown in columns 2-4 of tables 2a to 2c, the relative bias (defined to be the difference between the base-weighted estimate for the respondent sample and the corresponding base-weighted estimate for the total sample, expressed as a percentage of the base-weighted estimate for the total sample) is shown in column 5 of the tables. The p-value shown in column 6 of these tables corresponds to a test of the hypothesis that the weighted distribution of the respondent sample is the same as the distribution of the total sample for the given characteristic. A p-value of 0.05 or less indicates that the two distributions are significantly different, which implies that the distribution of respondents is significantly different from that of the nonrespondents. (The tests associated with the p-values shown in the *last* column of these tables are discussed later in section 3.3.)

Overall, there are highly significant differences between the distributions of the responding and nonresponding schools by locale, race/ethnicity status, and enrollment size class (p-value < 0.01), and to a somewhat lesser extent by region (p-value = 0.04). These are the same results as shown in table 1a. For example, by locale, the respondent sample has a greater percentage of schools in rural areas (35 percent) than the total sample (32 percent) and a smaller percentage of schools in cities (20 percent) than the total sample (23 percent). By race/ethnicity status, the percentage of responding schools in the less-than-6 percent category (23 percent) is higher than for the total sample (21 percent), reflecting the lower

response rates for schools with a large percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students. By enrollment size class, the percentage of responding schools with less than 300 students (26 percent) is higher than for the total sample (24 percent), reflecting the lower response rates among the larger schools.

Base-weighted distributions for selected school characteristics were also calculated separately by instructional level (tables 2b and 2c) and are generally consistent with the information in tables 1b and 1c. From the p-values in column 6 of table 2b, it can be seen that for elementary schools, there are significant differences between the responding schools and the total sample by locale and race/ethnicity status. In table 2c, it can be seen that for secondary/combined schools, there are significant differences between the responding schools and the total sample by locale, race/ethnicity status, and enrollment size class.

3.3 Comparisons Before and After Nonresponse Adjustments for Distributions of Respondents

As noted in the previous section, the base-weighted distribution of the responding schools differed significantly from the total sample for some characteristics. However, the types of weighting adjustments applied to the FRSS samples (as described in Section 2) are designed to compensate for any distributional differences resulting from differential response rates. For example, in column 6 of table 2a, it can be seen that the base-weighted distribution of the respondent sample is significantly different from the corresponding distribution of the total sample by locale, region, race/ethnicity status, and enrollment size class. However, after nonresponse adjustment, the differences by region, race/ethnicity status, and enrollment size class have essentially disappeared as indicated in the last column of the table, which presents the p-value of a test comparing the weighted distribution of the respondent sample using the nonresponse-adjusted weights with the corresponding weighted distribution of the total sample using the base weights. The relative biases resulting from the use of the nonresponse-adjusted weights for the responding schools are presented in the next-to-last column of the table. Since locale could not always be used to form explicit nonresponse-adjustment classes because of small sample sizes, the weight adjustments were less effective in ameliorating differences by locale. However, despite the statistical significance of the test, the differences appear to be tolerably small (e.g., it can be seen in table 2a that the relative bias for city schools went from -14 percent before nonresponse adjustment to -9 percent after nonresponse adjustment, an appreciable reduction in bias). Tables 2b and 2c summarize the corresponding results for elementary and secondary/combined schools respectively, where for each level, only the distributions by locale have significant differences between the estimates using the base weights and the nonresponse-adjusted weights.

3.4 Comparisons Before and After Nonresponse Adjustments for Estimates of CCD Data Items

Another way of gauging the effectiveness of the school-level weighting procedures is to compare weighted estimates of characteristics before and after the nonresponse adjustments. Tables 3a to 3c summarize such comparisons for the total sample and separately for elementary and secondary/combined schools. The variables presented in these tables include a range of school- and district-level characteristics from the 2005–06 CCD file that are available for both responding and nonresponding schools. The p-value given in column 6 of these tables corresponds to a test comparing the base-weighted estimate for respondents with the corresponding base-weighted estimate for the total sample (which is an unbiased estimate of the true population value). The p-value shown in the last column of these tables corresponds to a test comparing the nonresponse-adjusted estimate for respondents with the corresponding base-weighted estimate for the total sample. Also shown are the relative biases corresponding to the base-weighted estimates (column 5) and the nonresponse-adjusted estimates (column 8). In table 3a, for example, estimates of means based on the respondent sample are significantly different from the

corresponding means based on the total sample *prior* to nonresponse adjustment for membership, FTE teachers, students eligible for free/reduced-price lunch, ungraded students, Black students, and Hispanic students. However, after nonresponse adjustment, only the means for membership, students eligible for free/reduced-price lunch, and Hispanic students remain moderately significant; however, the estimates are considerably closer to the total sample mean than the estimate using data from respondents before the nonresponse adjustment. Note that while the estimated mean number of White students increased after the nonresponse adjustment, both the magnitude of the difference and the relative bias appear to be small. For all the means of numeric variables, the nonresponse-adjusted estimate was consistently larger than the corresponding base-weighted estimate (for respondents), suggesting that the nonresponse adjustments will be effective in offsetting a portion of what appears to be a negative bias of the unadjusted estimate.

For elementary schools (table 3b), the estimated mean number of students eligible for free/reduced-price lunch, ungraded students, and Hispanic students based on the respondent sample prior to nonresponse adjustment were significantly different from the corresponding mean based on the total sample, but these differences were eliminated after the nonresponse adjustment. Roughly similar results were observed for secondary/combined schools (table 3c), except that the mean number of Hispanic students remained significant after the nonresponse adjustment. However, the relative bias of the mean number of Hispanic students was reduced from -15 percent to -8 percent after the nonresponse adjustment.

In addition to means of numeric variables, similar comparisons were made for selected attribute variables. Except for two district-level attributes (i.e., whether the school was in a “large” school district or in a district in a core-based statistical area (CBSA) defined by OMB) and one school characteristic for secondary/combined schools (whether the school was a charter school), the differences were not statistically significant. For the two district-level variables, the difference between the estimates was significant both before and after the nonresponse adjustment. For the estimated percentage of secondary/combined schools that are charter schools, the difference remained moderately significant after the nonresponse adjustment, but the relative bias was reduced appreciably. Note that in general, no district-level variables were used in the nonresponse-adjustment weighting process. Despite some statistically significant results, the nonresponse-adjusted estimates were generally closer to the total sample estimates than the pre-adjustment estimates, providing some evidence that the weighting adjustments may be moderately effective for variables not explicitly used in the nonresponse-adjustment weighting procedures.

4. Impact of Teacher Nonresponse within Responding Schools

This section addresses the second component of teacher nonresponse, which occurs when an eligible teacher is selected from the list provided by the sampled school, but the sampled teacher fails to complete the questionnaire. In this section, we first examine teacher response rates by school characteristics (section 4.1). Within the set of schools that provided teacher lists, the (conditional) unweighted and weighted teacher response rates were both 79 percent. Note that the weight used to calculate the weighted teacher response rates is the school base weight times the reciprocal of the conditional probability of selecting the teacher within the set of responding schools. In other words, while the teacher weight used to compute weighted response rates presented in section 4.1 reflects the overall probability of selecting schools and teachers within schools, it does not incorporate the school-level nonresponse adjustment used to derive the final teacher weights as described in Section 2.

In section 4.2, we compare the base-weighted distributions of characteristics for the total sample of teachers versus the respondents and identify characteristics where the response rates vary significantly for subgroups. Next, we present comparisons before and after the standard FRSS nonresponse adjustments

are made to the weights. These comparisons involve distributions of respondents by characteristics (section 4.3) and for selected FRSS 95 survey results (section 4.4). The base weights used in sections 4.2 through 4.4 are the teacher base weights described in Section 2 and, unlike the teacher weights used in the response rate calculations in section 4.1, incorporate the differential school-level nonresponse adjustments made to compensate for nonresponding schools.

4.1 Teacher Response Rates by Selected Characteristics

Because there was no need to sample teachers at different rates based on teacher-level characteristics, schools were requested to provide only teacher names and no other teacher characteristics on the sampling lists. However, to identify the school characteristics associated with teacher-level nonresponse, unweighted and weighted response rates were calculated by instructional level (elementary and secondary/combined); locale (city, urban fringe, town, and rural); region (Northeast, Southeast, Central, and West); categories of poverty status defined by percent of students eligible for free/reduced-price lunch; race/ethnicity status defined by percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students; and enrollment size class. These school characteristics were based on data obtained from the 2005–06 CCD file at the time schools were sampled. The results are given in table 4a for the total sample and separately in tables 4b and 4c for elementary and secondary/combined teachers, respectively. The response rates shown under the heading “teacher” are the conditional response rates (i.e., conditional on the responding schools), while those under the heading “overall” are the overall response rates obtained by multiplying the conditional response rate by the corresponding school-level response rate. As can be seen in table 4a, 150 (3.6 percent) of the 4,133 sampled teachers were determined to be ineligible for the survey (e.g., not a full-time classroom teacher, no longer teaching at the sampled school) and are excluded from the calculation of the response rates. The last column of the tables shows the p-value of a test of association between response status and each of the selected school characteristics. A p-value of 0.05 or less indicates that there is a statistically significant association between the (weighted) conditional teacher response rate and the specified characteristic.

As discussed in Section 1, the selection of teachers was done on a flow basis to allow the teacher survey collection to proceed while the remainder of the teacher lists were collected and processed. Thus, there was more time before the end of the school year for teachers in the early batches to respond compared to teachers in the later batches. As a consequence, the teacher response rates generally decreased in the later batches. This can be seen in tables 4a to 4c. In addition to significant differences in teacher response rates by batch, for the total sample (table 4a), level, locale, region, free/reduced lunch status, and enrollment size are all significantly correlated with response rate. By level, the unweighted and weighted teacher response rates are higher in elementary schools (82 percent) than secondary/combined schools (75-76 percent). By locale, the unweighted and weighted teacher response rates are higher in towns and rural areas (83+ percent) than in urban fringe areas (77-78 percent) and cities (74-75 percent). By region, the unweighted and weighted teacher response rates are generally higher in the southeast and central regions (81-82 percent) than in the northeast (74-75 percent) and west region (79 percent). By free/reduced-price lunch status, the unweighted and weighted teacher response rates were higher in the 50-to-75 percent group (83 percent) than the other groups (77-79 percent). By enrollment size class, schools with less than 300 students had the highest teacher response rates (85-86 percent) compared with other schools (78-81percent).

Teacher response rates were also calculated separately for each of the two instructional levels and are presented in tables 4b and 4c, respectively. Among elementary school teachers, the characteristic showing the highest correlation with response rate is locale. The unweighted and weighted teacher response rates in towns and rural areas are substantially higher (85+ percent) than the response rates in

cities (76-77 percent). The response rates for elementary school teachers in urban fringe areas (81 percent) fall in between those observed for schools in towns/rural areas and cities. Teacher response rates for elementary schools also varied significantly by batch, region, and enrollment size class.

Among secondary/combined school teachers, response rates varied significantly by batch, locale, and race/ethnicity status (and to a lesser extent by enrollment size class). The unweighted and weighted teacher response rates in towns and rural areas are substantially higher (80+ percent) than the response rates in cities and urban fringe areas (71-72 percent). By school race/ethnicity status, response rates among secondary/combined school teachers were higher for the less-than-6 percent group (80 percent) than for the 50-percent-or higher group (72-73 percent).

4.2 Comparison of Responding and Nonresponding Teachers by Selected Characteristics

The analysis of the previous section examined the conditional teacher response rates within the set of schools that provided teacher lists. In this section we examine the impact that the overall teacher response rates (i.e., response rates reflecting both school and teacher nonresponse) will have on weighted distributions of teachers. Base-weighted distributions of responding and nonresponding teachers were calculated for the same categories of school characteristics for which the response rates summarized in Section 4.1 were computed. These distributions are presented in tables 5a to 5c. Note that the base weights used in these calculations are the teacher base weights described in Section 2 and, unlike the teacher weights used in the response rate calculations of tables 4a to 4c, incorporate the differential school-level nonresponse adjustments made to compensate for nonresponding schools.

The base-weighted distributions of responding teachers (respondent sample) can be compared with the corresponding base-weighted distributions of the total sample to obtain a measure of the potential impact of nonresponse on the survey-based estimates. For example, the difference between the base-weighted estimate of the percentage of *responding* teachers with a particular characteristic and the corresponding base-weighted estimate for all (eligible) sampled teachers provides an indication of the bias that might result in the weighted estimates if no weighting adjustments are made to compensate for teacher nonresponse. Since the results of Section 3 suggest that the school-level nonresponse adjustments were reasonably effective in removing or reducing nonresponse bias at the school level, we treat the teacher base weights as if they are unbiased weights in the present analysis.

For each of the base-weighted percentages shown in columns 2-4 of tables 5a to 5c, the relative bias (defined to be the difference between the base-weighted estimate for the respondent sample and the corresponding base-weighted estimate for the total sample, expressed as a percentage of the base-weighted estimate for the total sample) is shown in column 5 of the tables. The p-value shown in column 6 of these tables corresponds to a test of the hypothesis that the weighted distribution of the respondent sample is the same as the distribution of the total sample for the given characteristic. A p-value of 0.05 or less indicates that the two distributions are significantly different, which implies that the distribution of respondents is significantly different from that of the nonrespondents. (The tests associated with the p-values shown in the *last* column of these tables are discussed later in section 4.3.)

Among all teachers, there are significant differences between the distributions of the responding and nonresponding teachers by batch, level, locale, region, and enrollment size class (p-value < 0.01). For example, by batch, relatively more of the respondents were in the first two batches than in the later batches. By level, 66 percent of the respondents were elementary teachers compared with 57 percent of the nonrespondents. By locale, the respondent sample has a greater percentage of schools in rural areas (26 percent) than the nonrespondent sample (20 percent) and a smaller percentage of schools in cities (23 percent) than the nonrespondent sample (31 percent). By region, the percentage of responding teachers in

the northeast (21 percent) is lower than the corresponding percentage of nonresponding teachers (28 percent). By enrollment size class, the percentage of responding teachers in schools with less than 300 students (11 percent) is higher than for the nonresponding teachers (7 percent).

Base-weighted distributions were also calculated separately by instructional level (tables 5b and 5c) and are generally consistent with the information in tables 4b and 4c. From the p-values in column 6 of table 5b, it can be seen that for elementary teachers, there are significant differences between the responding and nonresponding teachers by batch, locale, region, and enrollment size class. In table 5c, it can be seen that for secondary/combined teachers, there are significant differences between the responding and nonresponding teachers by batch and locale.

4.3 Comparison of Distributions of Responding Teachers Before and After Nonresponse Adjustments

As described in the previous section, the base-weighted distribution of the responding teachers differed significantly from the total sample for many characteristics. However, the types of weighting adjustments applied to the FRSS samples (as described in Section 2) are designed to compensate for any distributional differences resulting from differential response rates. For example, in column 6 of table 5a, it can be seen that the base-weighted distribution of the respondent sample is significantly different from the corresponding distribution of the total sample by batch, level, locale, region, and enrollment size class. However, after nonresponse adjustment, the differences by level and enrollment size class have essentially disappeared as indicated in the last column of the table, which presents the p-value of a test comparing the weighted distribution of the respondent sample using the nonresponse-adjusted weights with the corresponding weighted distribution of the total sample using the base weights. The relative biases resulting from the use of the nonresponse-adjusted weights for the responding schools are presented in the next-to-last column of the table. Even where the differences remained statistically significant after the nonresponse adjustment of the weights, the relative biases were in many instances reduced considerably. Since locale and region could not always be used to form explicit nonresponse-adjustment classes because of small sample sizes, the weight adjustments were less effective in ameliorating differences by these variables. Despite the statistical significance of the tests, the differences appear to be tolerably small. Tables 5b and 5c summarize the corresponding results for elementary and secondary/combined teachers, respectively, and show significant differences between the distributions using the base weights and the nonresponse-adjusted weights by locale and region (for both levels) and by batch (for elementary teachers). However, the actual differences appear to be tolerable small.

4.4 Comparisons Before and After Nonresponse Adjustments for Selected Survey Results

The last set of comparisons conducted to assess the impact of nonresponse on survey-based estimates involved a comparison of weighted estimates of selected data items collected in the teacher survey using the base weights and nonresponse-adjusted weights. These results are summarized in tables 6a to 6c and table 7. The p-values given in these tables correspond to a test of the hypothesis that there is no difference between the two weighted estimates. Also shown is the relative bias of the base-weighted estimate for the responding teachers. Assuming that the final teacher (nonresponse-adjusted) weights have adequately compensated for both nonresponding schools and nonresponding teachers, the relative bias provides a measure of the amount of bias that will be removed as a result of using the nonresponse-adjusted weights.

In table 6a, the difference between the base-weighted and nonresponse-adjusted estimates was not statistically significant for any of the five numerical variables considered in the analysis. The

corresponding results for elementary and secondary/combined teachers are shown in tables 6b and 6c, respectively, where it can be seen that the results are similar to those in table 6a. Similarly, it can be seen that for the attribute variables considered in tables 6a to 6c, there were generally few statistically significant results. This does not necessarily mean that the nonresponse adjustments were ineffective in reducing the bias of the types of attributes collected in the survey, but rather that (a) the sample sizes were insufficient to detect the magnitude and direction of the bias reductions, and (b) much of the bias reductions were likely captured in the school-level nonresponse adjustments. The absence of statistically significant differences may also suggest that the correlation between the survey responses and the variables used in the weighting adjustment (which are expected to be among the most important predictors of response propensity) is sufficiently small that any adjustment methodology involving these variables will not have an appreciable impact on the weighted estimates.

Finally, table 7 presents the two sets of weighted estimates (base-weighted and nonresponse-adjusted) for selected ratios and percentages as examples of those that may be reported in the First Look report for FRSS 95. The estimates include the ratio of students in the teachers' classrooms to the sum of computers in the classroom and computers that can be brought-in, the percent of teachers with an LCD or DLP projector, and the percent of teachers reporting that their students often use educational technology for research during class. The two types of weighted estimates are shown for the total respondent sample and by selected school and teacher characteristics. The teacher-level classification items include main teaching assignment and years of teaching experience. As indicated by the large p-values, the two weighted estimates are only significantly different for one of the comparisons given in the table (percent of teachers with an LCD or DLP projector in schools with less than 300 students). In addition, the estimates in the First Look report will be rounded to whole numbers (for percents) and to one decimal place for the ratio. Since the analysis summarized earlier suggests that the nonresponse adjustments will be reasonably effective in compensating for differential nonresponse losses, the lack of significant results indicates that further adjustment of the weights is unlikely to alter the results for the types of estimates expected to be included in the First Look report.

5. Summary and Conclusion

The overall response rate for the FRSS 95 teacher survey on use of educational technology is the product of two components: the school response rate and the (conditional) teacher response rate. The unweighted and weighted school response rates were 80 and 81 percent, respectively. The corresponding teacher response rates were both 79 percent, resulting in unweighted and weighted overall response rates of 64 percent and 65 percent, respectively. School and teacher response rates generally varied by locale, region, minority status, and enrollment size of school (see sections 3 and 4). Teacher response rates also varied significantly by batch.

To compensate for the differential response rates, weight adjustments were used to derive adjusted teacher weights for analysis purposes. As described in section 2, these adjustments were made in two stages. First, adjustments were made to the school component of the teacher weight to compensate for nonresponse during list collection. The nonresponse-adjusted school weights were used to compute the teacher base weights, which were then adjusted for teacher nonresponse. In general, such weight adjustments will reduce nonresponse bias if the variables used in forming the weight adjustment classes are correlated with response propensity (the probability that a sampled school/teacher will respond to the survey) and with the characteristics obtained from the survey.

There are reasons to believe that the nonresponse-adjusted weights developed for FRSS 95 will be reasonably effective in reducing potential biases. First, the school-level weight adjustments removed most of the disparities between the weighted distributions of the responding schools and the distributions of the

total school sample (section 3). Although some differences were not eliminated completely (i.e., by locale), the differences do not seem to be large enough to have a material impact on the weighted estimates derived from the survey. A comparison of weighted estimates of selected school-level characteristics available in the CCD files seems to bear this out. Except for some district-level attributes (which were not controlled for in the weighting process), the school-level weight adjustment procedures seem to have eliminated or reduced the difference between the nonresponse-adjusted estimate for the responding schools and the corresponding base-weighted estimate for the total sample of schools.

Similarly, the second-stage nonresponse adjustment of the teacher weights appeared to be reasonably effective in reducing any residual differences between the distributions of the responding and nonresponding teachers (section 4.3). A comparison of weighted teacher estimates of selected survey items before and after nonresponse adjustment indicated that there generally were no significant differences between the nonresponse-adjusted estimates and the corresponding base-weighted estimates prior to adjustment (section 4.4).

Although it is possible to conduct more in-depth analysis and possibly refine the weighting procedures described in section 2, the results of this preliminary analysis suggest that any potential improvements will be modest at best. For this reason and because it would adversely affect the schedule for releasing the survey results, we do not feel that there is a need to conduct additional nonresponse bias analyses at this time.

Table 1a. Sample sizes by response status, response rates, and test of association between response status and school characteristic for sampled schools, by selected school characteristics: 2009

School characteristic	Sample sizes by response status				Unweighted response rate	Weighted response rate ¹	Test of association (p-value) ²
	Total	Response	Nonresponse	Ineligible			
1	2	3	4	5	6	7	8
All schools	2,005	1563	386	56	80.19	81.49	
Instructional level							0.475
Elementary	1,004	802	182	20	81.50	81.73	
Secondary/combined	1,001	761	204	36	78.86	80.77	
Locale							#
City	506	333	144	29	69.81	69.82	
Urban fringe	715	553	150	12	78.66	80.16	
Town	186	163	19	4	89.56	90.44	
Rural	598	514	73	11	87.56	88.88	
Region							0.041
Northeast	403	309	82	12	79.03	80.67	
Southeast	460	383	73	4	83.99	85.15	
Central	510	405	87	18	82.32	83.34	
West	632	466	144	22	76.39	77.88	
Percent of students in school eligible for free or reduced-price lunch							0.087
Under 35 percent	897	709	170	18	80.66	81.86	
35 to 49.9 percent	362	287	70	5	80.39	83.12	
50 to 74.9 percent	426	341	71	14	82.77	85.24	
75 percent or more	293	207	71	15	74.46	74.51	
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students in school³							#
Under 6 percent	383	332	46	5	87.83	88.77	
6 to 20.9 percent	460	365	93	2	79.69	80.86	
21 to 49.9 percent	488	378	89	21	80.94	81.18	
50 percent or more	674	488	158	28	75.54	77.56	
Enrollment size							0.008
Under 300	338	261	40	37	86.71	86.97	
300 to 499	449	362	79	8	82.09	80.88	
500+	1,218	940	267	11	77.88	78.99	

Rounds to zero.

¹ Weighted response rates are calculated using base weights.

² Test of association between response status and school characteristic.

³ Black includes African American and Hispanic includes Latino.

NOTE: Detail may not sum to totals because of rounding. School characteristics are based on data available on the frame at the time of sampling and may differ from classification variables used in other reports.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Teachers' Use of Educational Technology in U.S. Public Schools," FRSS 95, 2009; and Common Core of Data, "Public Elementary/Secondary School Universe Survey," 2005–06.

Table 1b. Sample sizes by response status, response rates, and test of association between response status and school characteristic for sampled elementary schools, by selected school characteristics: 2009

School characteristic	Sample sizes by response status				Unweighted response rate	Weighted response rate ¹	Test of association (p-value) ²
	Total	Response	Nonresponse	Ineligible			
1	2	3	4	5	6	7	8
All elementary schools	1,004	802	182	20	81.50	81.73	
Locale							#
City	262	179	75	8	70.47	69.46	
Urban fringe	410	330	75	5	81.48	81.46	
Town	80	69	8	3	89.61	90.11	
Rural	252	224	24	4	90.32	90.37	
Region							0.086
Northeast	201	161	36	4	81.73	82.22	
Southeast	245	207	38	0	84.49	85.44	
Central	242	195	40	7	82.98	83.35	
West	316	239	68	9	77.85	77.40	
Percent of students in school eligible for free or reduced-price lunch							0.107
Under 35 percent	374	306	65	3	82.48	82.73	
35 to 49.9 percent	166	132	29	5	81.99	83.38	
50 to 74.9 percent	243	205	33	5	86.13	86.22	
75 percent or more	210	150	53	7	73.89	73.90	
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students in school ³							0.007
Under 6 percent	161	143	17	1	89.38	89.93	
6 to 20.9 percent	202	162	39	1	80.60	81.23	
21 to 49.9 percent	266	209	45	12	82.28	80.96	
50 percent or more	375	288	81	6	78.05	78.18	
Enrollment size							0.139
Under 300	173	139	20	14	87.42	87.13	
300 to 499	314	251	59	4	80.97	80.15	
500 to 599	152	119	33	0	78.29	78.18	
600 to 750	159	130	27	2	82.80	82.84	
750+	206	163	43	0	79.13	79.11	

Rounds to zero.

¹ Weighted response rates are calculated using base weights.

² Test of association between response status and school characteristic.

³ Black includes African American and Hispanic includes Latino.

NOTE: Detail may not sum to totals because of rounding. School characteristics are based on data available on the frame at the time of sampling and may differ from classification variables used in other reports.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Teachers' Use of Educational Technology in U.S. Public Schools," FRSS 95, 2009; and Common Core of Data, "Public Elementary/Secondary School Universe Survey," 2005–06.

Table 1c. Sample sizes by response status, response rates, and test of association between response status and school characteristic for sampled secondary/combined schools, by selected school characteristics: 2009

School characteristic	Sample sizes by response status				Unweighted response rate	Weighted response rate ¹	Test of association (p-value) ²
	Total	Response	Nonresponse	Ineligible			
1	2	3	4	5	6	7	8
All secondary/combined schools	1,001	761	204	36	78.86	80.77	
Locale							#
City.....	244	154	69	21	69.06	71.23	
Urban fringe	305	223	75	7	74.83	74.12	
Town	106	94	11	1	89.52	91.17	
Rural.....	346	290	49	7	85.55	86.05	
Region							0.180
Northeast	202	148	46	8	76.29	75.62	
Southeast	215	176	35	4	83.41	84.16	
Central.....	268	210	47	11	81.71	83.31	
West	316	227	76	13	74.92	79.22	
Percent of students in school eligible for free or reduced-price lunch							0.721
Under 35 percent	523	403	105	15	79.33	79.89	
35 to 49.9 percent	196	155	41	0	79.08	82.50	
50 to 74.9 percent	183	136	38	9	78.16	81.45	
75 percent or more.....	83	57	18	8	76.00	78.55	
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students in school³ ..							0.016
Under 6 percent	222	189	29	4	86.70	86.30	
6 to 20.9 percent	258	203	54	1	78.99	80.02	
21 to 49.9 percent	222	169	44	9	79.34	81.96	
50 percent or more.....	299	200	77	22	72.20	75.00	
Enrollment size.....							0.001
Under 300.....	165	122	20	23	85.92	86.52	
300 to 499.....	135	111	20	4	84.73	85.20	
500 to 999.....	273	218	50	5	81.34	80.86	
1,000 to 1,499.....	176	121	52	3	69.94	69.94	
1,500+	252	189	62	1	75.30	75.69	

Rounds to zero.

¹ Weighted response rates are calculated using base weights.

² Test of association between response status and school characteristic.

³ Black includes African American and Hispanic includes Latino.

NOTE: Detail may not sum to totals because of rounding. School characteristics are based on data available on the frame at the time of sampling and may differ from classification variables used in other reports.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Teachers' Use of Educational Technology in U.S. Public Schools," FRSS 95, 2009; and Common Core of Data, "Public Elementary/Secondary School Universe Survey," 2005–06.

Table 2a. Comparisons of weighted distributions of sampled schools, by response status and selected school characteristics: 2009

School characteristic	Base-weighted data					Nonresponse-adjusted data		
	Percent distribution of sample			Relative bias (percent) ¹	Test of association (p-value) ²	Respondents (percent)	Relative bias (percent) ³	Test of association (p-value) ⁴
	Total	Respondents	Non-respondents					
1	2	3	4	5	6	7	8	9
All schools	100.0	100.0	100.0	---	---	100.0	---	---
Instructional level					0.473			0.859
Elementary	75.0	75.2	74.0	0.3		75.0	0.0	
Secondary/combined	25.0	24.8	26.0	-0.9		25.0	0.0	
Locale					#			#
City	23.2	19.9	37.9	-14.3		21.2	-8.5	
Urban fringe	35.6	35.0	38.1	-1.6		36.5	2.6	
Town	8.9	9.8	4.6	11.0		9.4	5.7	
Rural	32.3	35.3	19.4	9.1		32.9	1.6	
Region					0.041			0.196
Northeast	18.7	18.5	19.5	-1.0		18.8	0.8	
Southeast	21.8	22.8	17.5	4.5		22.6	3.7	
Central	27.6	28.2	24.8	2.3		27.8	0.8	
West	31.9	30.5	38.1	-4.4		30.7	-3.7	
Percent of students in school eligible for free or reduced-price lunch					0.090			0.465
Under 35 percent	40.7	40.9	39.9	0.5		41.0	0.7	
35 to 49.9 percent	18.3	18.7	16.7	2.0		18.3	-0.4	
50 to 74.9 percent	22.8	23.8	18.1	4.6		23.0	0.9	
75 percent or more	17.2	15.8	23.7	-8.6		17.0	-1.6	
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students in school ⁵					#			0.256
Under 6 percent	21.0	22.8	12.7	8.9		21.8	3.7	
6 to 20.9 percent	22.2	22.1	23.0	-0.8		21.9	-1.4	
21 to 49.9 percent	23.5	23.4	23.9	-0.4		23.3	-0.6	
50 percent or more	33.3	31.7	40.4	-4.8		33.0	-1.0	
Enrollment size					0.008			0.939
Under 300	24.4	26.1	17.2	6.7		24.4	0.0	
300 to 499	29.3	29.1	30.3	-0.8		29.3	0.0	
500+	46.3	44.9	52.5	-3.1		46.3	0.0	

Rounds to zero.

¹ Relative bias defined to be $100 \times (B - A) / A$, where A = base-weighted estimate for total sample and B = base-weighted estimate for respondent sample.

² Test comparing distribution of total sample versus respondent sample using base weights.

³ Relative bias defined to be $100 \times (C - A) / A$, where A = base-weighted estimate for total sample and C = nonresponse-adjusted estimate for respondent sample.

⁴ Test comparing distribution of respondent sample using nonresponse-adjusted weights with distribution of total sample using base weights.

⁵ Black includes African American and Hispanic includes Latino.

NOTE: Detail may not sum to totals because of rounding. School characteristics are based on data available on the frame at the time of sampling and may differ from classification variables used in other reports.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Teachers' Use of Educational Technology in U.S. Public Schools," FRSS 95, 2009; and Common Core of Data, "Public Elementary/Secondary School Universe Survey," 2005-06.

Table 2b. Comparisons of weighted distributions of sampled elementary schools, by response status and selected school characteristics: 2009

School characteristic	Base-weighted data					Nonresponse-adjusted data		
	Percent distribution of sample			Relative bias (percent) ¹	Test of association (p-value) ²	Respondents (percent)	Relative bias (percent) ³	Test of association (p-value) ⁴
	Total	Respondents	Non-respondents					
1	2	3	4	5	6	7	8	9
All elementary schools	100.0	100.0	100.0	---		100.0	---	
Locale					#			0.003
City.....	24.5	20.8	41.0	-15.0		22.3	-9.2	
Urban fringe	39.1	38.9	39.7	-0.3		40.3	3.2	
Town	8.1	8.9	4.4	10.2		8.4	3.3	
Rural.....	28.3	31.3	14.9	10.6		29.0	2.6	
Region					0.083			0.278
Northeast	19.1	19.2	18.6	0.6		19.5	2.1	
Southeast	22.7	23.7	18.1	4.5		23.5	3.6	
Central.....	26.7	27.3	24.4	2.0		26.9	0.4	
West	31.5	29.8	39.0	-5.3		30.2	-4.2	
Percent of students in school eligible for free or reduced-price lunch					0.117			0.339
Under 35 percent	37.7	38.2	35.7	1.2		38.0	0.6	
35 to 49.9 percent	17.3	17.7	15.8	2.0		17.3	-0.2	
50 to 74.9 percent	24.1	25.5	18.2	5.5		24.5	1.4	
75 percent or more.....	20.0	18.1	28.6	-9.6		19.7	-1.5	
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students in school⁵					0.008			0.467
Under 6 percent	19.1	21.0	10.5	10.0		19.8	3.9	
6 to 20.9 percent	20.7	20.5	21.2	-0.6		20.3	-1.7	
21 to 49.9 percent	24.6	24.4	25.6	-0.9		24.2	-1.5	
50 percent or more.....	35.7	34.1	42.6	-4.3		35.7	0.0	
Enrollment size					0.143			0.946
Under 300.....	23.7	25.3	16.7	6.6		23.7	0.0	
300 to 499.....	33.4	32.7	36.3	-1.9		33.4	0.0	
500 to 599.....	14.2	13.6	17.0	-4.3		14.2	0.0	
600 to 749.....	13.6	13.8	12.8	1.4		13.6	0.0	
750+	15.1	14.6	17.2	-3.2		15.1	0.0	

Rounds to zero.

¹ Relative bias defined to be $100 \times (B - A) / A$, where A = base-weighted estimate for total sample and B = base-weighted estimate for respondent sample.

² Test comparing distribution of total sample versus respondent sample using base weights.

³ Relative bias defined to be $100 \times (C - A) / A$, where A = base-weighted estimate for total sample and C = nonresponse-adjusted estimate for respondent sample.

⁴ Test comparing distribution of respondent sample using nonresponse-adjusted weights with distribution of total sample using base weights.

⁵ Black includes African American and Hispanic includes Latino.

NOTE: Detail may not sum to totals because of rounding. School characteristics are based on data available on the frame at the time of sampling and may differ from classification variables used in other reports.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Teachers' Use of Educational Technology in U.S. Public Schools," FRSS 95, 2009; and Common Core of Data, "Public Elementary/Secondary School Universe Survey," 2005–06.

Table 2c. Comparisons of weighted distributions of sampled secondary/combined schools, by response status and selected school characteristics: 2009

School characteristic	Base-weighted data					Nonresponse-adjusted data		
	Percent distribution of sample			Relative bias (percent) ¹	Test of association (p-value) ²	Respondents (percent)	Relative bias (percent) ³	Test of association (p-value) ⁴
	Total	Respondents	Non-respondents					
1	2	3	4	5	6	7	8	9
All secondary/combined schools.....	100.0	100.0	100.0	---	---	100.0	---	---
Locale					#			0.001
City	19.3	17.0	28.8	-11.8		18.1	-6.0	
Urban fringe.....	25.1	23.0	33.8	-8.2		25.1	0.0	
Town.....	11.2	12.6	5.1	12.9		12.4	10.9	
Rural	44.5	47.4	32.3	6.5		44.5	-0.1	
Region.....					0.177			0.417
Northeast.....	17.6	16.5	22.3	-6.4		16.9	-3.6	
Southeast.....	19.3	20.1	15.9	4.2		20.1	4.1	
Central	30.1	31.0	26.1	3.1		30.6	1.8	
West.....	33.0	32.4	35.7	-1.9		32.3	-2.2	
Percent of students in school eligible for free or reduced-price lunch.....					0.727			0.431
Under 35 percent.....	49.7	49.2	52.0	-1.1		50.1	0.8	
35 to 49.9 percent.....	21.4	21.8	19.4	2.1		21.1	-1.1	
50 to 74.9 percent.....	18.6	18.8	17.9	0.8		18.4	-1.0	
75 percent or more	9.0	8.7	10.0	-2.8		8.8	-1.7	
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students in school⁵					0.016			0.124
Under 6 percent.....	26.7	28.6	19.0	6.8		27.6	3.3	
6 to 20.9 percent.....	27.0	26.7	28.0	-0.9		26.8	-0.6	
21 to 49.9 percent.....	20.1	20.4	18.8	1.5		20.7	2.9	
50 percent or more	26.2	24.4	34.1	-7.1		24.9	-5.0	
Enrollment size					0.001			0.968
Under 300	26.5	28.4	18.6	7.1		26.5	0.0	
300 to 499	17.0	17.9	13.1	5.5		17.0	0.0	
500 to 999	26.7	26.8	26.6	0.1		26.7	0.0	
1,000 to 1,499	13.7	11.8	21.4	-13.4		13.7	0.0	
1,500+.....	16.1	15.1	20.4	-6.3		16.1	0.0	

Rounds to zero.

¹ Relative bias defined to be $100 \times (B - A) / A$, where A = base-weighted estimate for total sample and B = base-weighted estimate for respondent sample.

² Test comparing distribution of total sample versus respondent sample using base weights.

³ Relative bias defined to be $100 \times (C - A) / A$, where A = base-weighted estimate for total sample and C = nonresponse-adjusted estimate for respondent sample.

⁴ Test comparing distribution of respondent sample using nonresponse-adjusted weights with distribution of total sample using base weights.

⁵ Black includes African American and Hispanic includes Latino.

NOTE: Detail may not sum to totals because of rounding. School characteristics are based on data available on the frame at the time of sampling and may differ from classification variables used in other reports.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Teachers' Use of Educational Technology in U.S. Public Schools," FRSS 95, 2009; and Common Core of Data, "Public Elementary/Secondary School Universe Survey," 2005-06.

Table 3a. Comparisons of weighted estimates of CCD data for sampled schools, by response status: 2009

CCD data item	Base-weighted data					Nonresponse-adjusted data		
	Estimates for CCD data items			Relative bias ¹	T-test ²	Estimates for CCD data items for respondents	Relative bias ³	T-test ⁴
	Total	Respondents	Non-respondents					
1	2	3	4	5	6	7	8	9
Numeric variables	(Mean)			(Percent)	(P-value)	(Mean)	(Percent)	(P-value)
Membership.....	574.6	556.4	654.4	-3.2	0.001	571.6	-0.5	0.039
FTE teachers.....	35.5	34.7	38.9	-2.2	0.011	35.6	0.2	0.622
Students eligible for free or reduced-price lunch.....	186.1	176.0	230.5	-5.4	0.002	183.3	-1.5	0.036
Migrant students prior year.....	4.9	4.4	7.3	-10.9	0.083	4.6	-7.8	0.201
Ungraded students.....	1.3	0.9	3.0	-30.2	0.032	1.0	-18.1	0.198
White students.....	328.9	331.1	319.2	0.7	0.455	334.3	1.6	0.001
Black students ⁵	97.3	91.5	122.6	-5.9	0.003	96.3	-1.0	0.602
Hispanic students ⁶	109.8	99.2	156.7	-9.7	0.001	105.2	-4.3	0.028
Attribute variables	(Percent)			(P-value)		(Percent)		(P-value)
Title I eligible.....	58.7	59.5	55.1	1.4	0.225	59.4	1.3	0.173
Charter school.....	2.4	2.5	1.6	7.2	0.427	2.5	5.5	0.505
In small district (<1,000 students).....	8.4	9.0	5.7	7.2	0.057	8.4	-0.4	0.907
In large district (25,000+ students).....	40.0	36.5	55.4	-8.8	#	38.0	-4.9	#
District in CBSA.....	23.5	20.0	38.9	-14.9	#	21.2	-9.6	#
In district where 30%+ are below poverty.....	10.0	10.3	8.3	3.7	0.351	10.4	4.8	0.225

Rounds to zero.

¹ Relative bias defined to be $100 \times (B - A) / A$, where A = base-weighted estimate for total sample and B = base-weighted estimate for respondent sample.

² Test comparing base-weighted estimate of total sample with base-weighted estimate of respondent sample.

³ Relative bias defined to be $100 \times (C - A) / A$, where A = base-weighted estimate for total sample and C = nonresponse-adjusted estimate for respondent sample.

⁴ Test comparing nonresponse-adjusted estimate of respondent sample with base-weighted estimate of total sample.

⁵ Black includes African American.

⁶ Hispanic includes Latino.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Teachers' Use of Educational Technology in U.S. Public Schools," FRSS 95, 2009; and Common Core of Data, "Public Elementary/Secondary School Universe Survey," 2005–06.

Table 3b. Comparisons of weighted estimates of CCD data for sampled elementary schools, by response status: 2009

CCD data item	Base-weighted data					Nonresponse-adjusted data		
	Estimates for CCD data items			Relative bias ¹	T-test ²	Estimates for CCD data items for respon-dents	Relative bias ³	T-test ⁴
	Total	Respon-dents	Non-respon-dents					
1	2	3	4	5	6	7	8	9
Numeric variables	(Mean)			(Percent)	(P-value)	(Mean)	(Percent)	(P-value)
Membership.....	496.6	488.9	531.3	-1.6	0.048	495.8	-0.2	0.600
FTE teachers.....	31.3	31.0	32.4	-0.8	0.288	31.4	0.4	0.385
Students eligible for free or reduced-price lunch.....	179.6	171.4	216.7	-4.6	0.011	177.5	-1.2	0.110
Migrant students prior year.....	4.2	3.8	6.2	-10.1	0.236	4.0	-6.8	0.424
Ungraded students	1.0	0.6	2.9	-42.2	0.039	0.7	-32.1	0.126
White students	271.4	276.9	246.7	2.0	0.083	274.5	1.1	0.120
Black students ⁵	89.8	86.4	105.1	-3.8	0.143	90.1	0.3	0.897
Hispanic students ⁶	102.0	94.4	136.0	-7.5	0.009	99.3	-2.6	0.227
Attribute variables	(Percent)			(P-value)		(Percent)	(P-value)	
Title I eligible	65.2	66.0	61.3	1.3	0.304	66.2	1.6	0.096
Charter school.....	2.0	2.0	2.0	0.0	0.987	2.0	0.5	0.967
In small district (<1,000 students).....	6.2	6.6	4.6	5.9	0.351	6.1	-2.4	0.655
In large district (25,000+ students)	43.8	40.2	60.3	-8.4	#	41.7	-4.9	#
District in CBSA.....	25.2	21.3	42.7	-15.5	#	22.6	-10.2	0.001
In district where 30%+ are below poverty	9.7	10.1	7.9	4.2	0.424	10.4	6.7	0.186

Rounds to zero.

¹ Relative bias defined to be $100 \times (B - A) / A$, where A = base-weighted estimate for total sample and B = base-weighted estimate for respondent sample.

² Test comparing base-weighted estimate of total sample with base-weighted estimate of respondent sample.

³ Relative bias defined to be $100 \times (C - A) / A$, where A = base-weighted estimate for total sample and C = nonresponse-adjusted estimate for respondent sample.

⁴ Test comparing nonresponse-adjusted estimate of respondent sample with base-weighted estimate of total sample.

⁵ Black includes African American.

⁶ Hispanic includes Latino.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Teachers' Use of Educational Technology in U.S. Public Schools," FRSS 95, 2009; and Common Core of Data, "Public Elementary/Secondary School Universe Survey," 2005–06.

Table 3c. Comparisons of weighted estimates of CCD data for sampled secondary/combined schools, by response status: 2009

CCD data item	Base-weighted data					Nonresponse-adjusted data		
	Estimates for CCD data items			Relative bias ¹	T-test ²	Estimates for CCD data items for respondents	Relative bias ³	T-test ⁴
	Total	Respondents	Non-respondents					
1	2	3	4	5	6	7	8	9
Numeric variables	(Mean)			(Percent)	(P-value)	(Mean)	(Percent)	(P-value)
Membership.....	808.4	761.5	1005.4	-5.8	#	799.1	-1.1	0.021
FTE teachers.....	48.3	46.1	57.4	-4.5	0.002	48.1	-0.3	0.501
Students eligible for free or reduced-price lunch.....	205.3	190.0	270.0	-7.5	0.008	200.5	-2.4	0.188
Migrant students prior year.....	7.0	6.2	10.5	-11.9	0.173	6.4	-9.2	0.230
Ungraded students.....	2.1	1.8	3.1	-12.3	0.354	2.1	1.1	0.946
White students.....	501.4	495.6	526.0	-1.2	0.363	513.6	2.4	0.016
Black students ⁵	119.7	107.1	172.5	-10.5	0.003	114.9	-4.0	0.205
Hispanic students ⁶	133.5	113.9	215.8	-14.7	0.001	122.8	-8.0	0.009
Attribute variables	(Percent)			(P-value)		(Percent)		(P-value)
Title I eligible.....	39.2	39.7	37.3	1.1	0.520	39.0	-0.5	0.789
Charter school.....	3.4	4.1	0.6	20.1	0.002	3.9	14.5	0.022
In small district (<1,000 students).....	15.0	16.4	9.0	9.5	0.014	15.3	2.2	0.498
In large district (25,000+ students).....	28.4	25.3	41.7	-11.1	#	27.0	-5.2	#
District in CBSA.....	18.4	16.1	28.1	-12.6	#	17.1	-7.1	0.004
In district where 30%+ are below poverty	10.7	10.9	9.5	2.6	0.615	10.6	-0.4	0.931

Rounds to zero.

¹ Relative bias defined to be $100 \times (B - A) / A$, where A = base-weighted estimate for total sample and B = base-weighted estimate for respondent sample.

² Test comparing base-weighted estimate of total sample with base-weighted estimate of respondent sample.

³ Relative bias defined to be $100 \times (C - A) / A$, where A = base-weighted estimate for total sample and C = nonresponse-adjusted estimate for respondent sample.

⁴ Test comparing nonresponse-adjusted estimate of respondent sample with base-weighted estimate of total sample.

⁵ Black includes African American.

⁶ Hispanic includes Latino.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Teachers' Use of Educational Technology in U.S. Public Schools," FRSS 95, 2009; and Common Core of Data, "Public Elementary/Secondary School Universe Survey," 2005–06.

Table 4a. Sample sizes by response status, school and teacher response rates, and test of association between response status and school characteristic for sampled teachers, by selected school characteristics: 2009

School characteristic	Sample sizes by response status				Unweighted response rate			Weighted response rate ¹			Test of association (p-value) ²
	Total	Response	Non-response	Ineligible	School	Teacher	Overall	School	Teacher	Overall	
1	2	3	4	5	6	7	8	9	10	11	12
All teachers	4,133	3,159	824	150	80.19	79.31	63.60	81.49	79.47	64.76	
Batch											#
1	1,747	1,387	302	58	80.19	82.12	65.86	81.49	82.39	67.14	
2	838	665	140	33	80.19	82.61	66.25	81.49	82.59	67.31	
3	450	331	100	19	80.19	76.80	61.59	81.49	77.24	62.94	
4	417	308	90	19	80.19	77.39	62.06	81.49	77.36	63.05	
5	475	344	117	14	80.19	74.62	59.84	81.49	76.51	62.35	
6	206	124	75	7	80.19	62.31	49.97	81.49	62.08	50.59	
Instructional level											#
Elementary	2,188	1,748	373	67	81.50	82.41	67.17	81.73	81.70	66.78	
Secondary/combined	1,945	1,411	451	83	78.86	75.78	59.76	80.77	75.38	60.88	
Locale											#
City	929	672	229	28	69.81	74.58	52.07	69.82	73.96	51.64	
Urban fringe	1,635	1,217	362	56	78.66	77.07	60.63	80.16	78.17	62.66	
Town	390	327	49	14	89.56	86.97	77.89	90.44	87.94	79.54	
Rural	1,179	943	184	52	87.56	83.67	73.27	88.88	83.45	74.17	
Region											0.001
Northeast	893	648	214	31	79.03	75.17	59.41	80.67	74.09	59.76	
Southeast	1,065	829	190	46	83.99	81.35	68.33	85.15	82.28	70.07	
Central	971	756	174	41	82.32	81.29	66.92	83.34	81.60	68.01	
West	1,204	926	246	32	76.39	79.01	60.36	77.88	79.36	61.80	
Percent of students in school eligible for free or reduced-price lunch											0.035
Under 35 percent	1,955	1,468	416	71	80.66	77.92	62.85	81.86	78.33	64.13	
35 to 49.9 percent	715	542	145	28	80.39	78.89	63.42	83.12	78.92	65.60	
50 to 75.9 percent	921	736	148	37	82.77	83.26	68.91	85.24	83.46	71.14	
75 percent or more	509	388	108	13	74.46	78.23	58.25	74.51	77.49	57.74	

See notes at end of table.

Table 4a. Sample sizes by response status, school and teacher response rates, and test of association between response status and school characteristic for sampled teachers, by selected school characteristics: 2009—Continued

School characteristic	Sample sizes by response status				Unweighted response rate			Weighted response rate ¹			Test of association (p-value) ²
	Total	Response	Non-response	Ineligible	School	Teacher	Overall	School	Teacher	Overall	
1	2	3	4	5	6	7	8	9	10	11	12
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students in school³											
Under 6 percent.....	791	607	141	43	87.83	81.15	71.27	88.77	81.13	72.02	0.375
6 to 20.9 percent.....	933	711	190	32	79.69	78.91	62.89	80.86	78.29	63.31	
21 to 49.9 percent.....	1,067	833	210	24	80.94	79.87	64.65	81.18	80.63	65.46	
50 percent or more.....	1,342	1,008	283	51	75.54	78.08	58.98	77.56	78.47	60.86	
Enrollment size											
Under 300.....	470	382	67	21	86.71	85.08	73.77	86.97	85.55	74.40	0.002
300 to 499.....	841	653	152	36	82.09	81.12	66.59	80.88	80.87	65.41	
500 or more.....	2,822	2,124	605	93	77.88	77.83	60.61	78.99	78.06	61.66	

Rounds to zero.

¹ Weighted response rates were calculated using base weights.

² Test of association between response status and school characteristic.

³ Black includes African American and Hispanic includes Latino.

NOTE: Detail may not sum to totals because of rounding. School characteristics are based on data available on the frame at the time of sampling and may differ from classification variables used in other reports.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Teachers' Use of Educational Technology in U.S. Public Schools," FRSS 95, 2009; and Common Core of Data, "Public Elementary/Secondary School Universe Survey," 2005–06.

Table 4b. Sample sizes by response status, school and teacher response rates, and test of association between response status and school characteristic for sampled elementary school teachers, by selected school characteristics: 2009

School characteristic 1	Sample sizes by response status				Unweighted response rate			Weighted response rate ¹			Test of association (p-value) ² 12
	Total 2	Response 3	Non- response 4	Ineligible 5	School 6	Teacher 7	Overall 8	School 9	Teacher 10	Overall 11	
All elementary school teachers	2,188	1,748	373	67	81.5	82.4	67.2	81.7	81.7	66.8	0.004
Batch											
1.....	1,128	918	175	35	81.5	84.0	68.5	81.7	83.9	68.6	
2.....	548	448	85	15	81.5	84.1	68.5	81.7	83.9	68.6	
3.....	282	214	56	12	81.5	79.3	64.6	81.7	79.3	64.8	
4.....	0	0	0	0	---	---	---	---	---	---	
5.....	162	127	32	3	81.5	79.9	65.1	81.7	80.0	65.4	
6.....	68	41	25	2	81.5	62.1	50.6	81.7	62.2	50.8	#
Locale											
City.....	476	356	105	15	70.5	77.2	54.4	69.5	75.5	52.5	
Urban fringe.....	959	749	179	31	81.5	80.7	65.8	81.5	81.0	66.0	
Town.....	172	155	13	4	89.6	92.3	82.7	90.1	91.9	82.8	
Rural.....	581	488	76	17	90.3	86.5	78.2	90.4	85.3	77.1	
Region											
Northeast.....	448	337	96	15	81.7	77.8	63.6	82.2	75.4	62.0	0.004
Southeast.....	610	497	92	21	84.5	84.4	71.3	85.4	84.6	72.3	
Central.....	487	394	76	17	83.0	83.8	69.6	83.4	83.6	69.7	
West.....	643	520	109	14	77.9	82.7	64.4	77.4	82.1	63.5	
Percent of students in school eligible for free or reduced-price lunch											0.072
Under 35 percent.....	857	676	156	25	82.5	81.3	67.0	82.7	81.0	67.0	
35 to 49.9 percent.....	352	273	65	14	82.0	80.8	66.2	83.4	80.1	66.8	
50 to 75.9 percent.....	586	491	77	18	86.1	86.4	74.5	86.2	85.8	73.9	
75 percent or more.....	383	300	74	9	73.9	80.2	59.3	73.9	78.8	58.2	

See notes at end of table.

Table 4b. Sample sizes by response status, school and teacher response rates, and test of association between response status and school characteristic for sampled elementary school teachers, by selected school characteristics: 2009—Continued

School characteristic	Sample sizes by response status				Unweighted response rate			Weighted response rate ¹			Test of association (p-value) ²
	Total	Response	Non-response	Ineligible	School	Teacher	Overall	School	Teacher	Overall	
1	2	3	4	5	6	7	8	9	10	11	12
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students in school³											
Under 6 percent.....	369	292	61	16	89.4	82.7	73.9	89.9	82.3	74.0	0.210
6 to 20.9 percent.....	420	323	82	15	80.6	79.8	64.3	81.2	78.5	63.8	
21 to 49.9 percent.....	614	509	91	14	82.3	84.8	69.8	81.0	84.3	68.3	
50 percent or more	785	624	139	22	78.0	81.8	63.8	78.2	81.1	63.4	
Enrollment size.....											0.034
Under 300	280	240	26	14	87.4	90.2	78.9	87.1	89.6	78.0	
300 to 499	633	501	113	19	81.0	81.6	66.1	80.1	81.1	65.0	
500 to 599	332	268	55	9	78.3	83.0	65.0	78.2	82.1	64.2	
600 to 750	399	306	85	8	82.8	78.3	64.8	82.8	78.2	64.8	
750+.....	544	433	94	17	79.1	82.2	65.0	79.1	81.0	64.1	

Rounds to zero.

¹ Weighted response rates were calculated using base weights.

² Test of association between response status and school characteristic.

³ Black includes African American and Hispanic includes Latino.

NOTE: Detail may not sum to totals because of rounding. School characteristics are based on data available on the frame at the time of sampling and may differ from classification variables used in other reports.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Teachers' Use of Educational Technology in U.S. Public Schools," FRSS 95, 2009; and Common Core of Data, "Public Elementary/Secondary School Universe Survey," 2005–06.

Table 4c. Sample sizes by response status, school and teacher response rates, and test of association between response status and school characteristic for sampled secondary/combined school teachers, by selected school characteristics: 2009

School characteristic	Sample sizes by response status				Unweighted response rate			Weighted response rate ¹			Test of association (p-value) ²
	Total	Response	Non-response	Ineligible	School	Teacher	Overall	School	Teacher	Overall	
1	2	3	4	5	6	7	8	9	10	11	12
All secondary/combined school teachers	1,945	1,411	451	83	78.9	75.8	59.8	80.8	75.4	60.9	0.016
Batch											
1	619	469	127	23	78.9	78.7	62.1	80.8	78.3	63.2	
2	290	217	55	18	78.9	79.8	62.9	80.8	78.8	63.7	
3	168	117	44	7	78.9	72.7	57.3	80.8	72.5	58.5	
4	417	308	90	19	78.9	77.4	61.0	80.8	77.4	62.5	
5	313	217	85	11	78.9	71.9	56.7	80.8	71.3	57.6	
6	138	83	50	5	78.9	62.4	49.2	80.8	61.9	50.0	#
Locale											
City	453	316	124	13	69.1	71.8	49.6	71.2	71.2	50.7	
Urban fringe.....	676	468	183	25	74.8	71.9	53.8	74.1	71.8	53.2	
Town.....	218	172	36	10	89.5	82.7	74.0	91.2	82.8	75.4	
Rural	598	455	108	35	85.5	80.8	69.1	86.0	80.4	69.2	
Region											0.211
Northeast.....	445	311	118	16	76.3	72.5	55.3	75.6	71.8	54.3	
Southeast.....	455	332	98	25	83.4	77.2	64.4	84.2	77.2	65.0	
Central	484	362	98	24	81.7	78.7	64.3	83.3	78.4	65.3	
West.....	561	406	137	18	74.9	74.8	56.0	79.2	74.2	58.8	
Percent of students in school eligible for free or reduced-price lunch.....											0.789
Under 35 percent.....	1,098	792	260	46	79.3	75.3	59.7	79.9	74.9	59.9	
35 to 49.9 percent.....	363	269	80	14	79.1	77.1	61.0	82.5	77.0	63.5	
50 to 75.9 percent.....	335	245	71	19	78.2	77.5	60.6	81.4	76.8	62.6	
75 percent or more	126	88	34	4	76.0	72.1	54.8	78.5	71.1	55.9	

See notes at end of table.

Table 4c. Sample sizes by response status, school and teacher response rates, and test of association between response status and school characteristic for sampled secondary/combined school teachers, by selected school characteristics: 2009—Continued

School characteristic	Sample sizes by response status				Unweighted response rate			Weighted response rate ¹			Test of association (p-value) ²
	Total	Response	Non-response	Ineligible	School	Teacher	Overall	School	Teacher	Overall	
1	2	3	4	5	6	7	8	9	10	11	12
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students in school³											
Under 6 percent.....	422	315	80	27	86.7	79.7	69.1	86.3	79.5	68.7	0.047
6 to 20.9 percent.....	513	388	108	17	79.0	78.2	61.8	80.0	78.0	62.4	
21 to 49.9 percent.....	453	324	119	10	79.3	73.1	58.0	82.0	72.7	59.6	
50 percent or more	557	384	144	29	72.2	72.7	52.5	75.0	72.2	54.2	
Enrollment size.....											
Under 300	190	142	41	7	85.9	77.6	66.7	86.5	76.0	65.7	0.052
300 to 499	208	152	39	17	84.7	79.6	67.4	85.2	79.6	67.8	
500 to 999	538	411	105	22	81.3	79.7	64.8	80.9	79.5	64.3	
1,000 to 1,499	354	258	85	11	69.9	75.2	52.6	69.9	75.2	52.6	
1,500+.....	655	448	181	26	75.3	71.2	53.6	75.7	71.0	53.8	

Rounds to zero.

¹ Weighted response rates were calculated using base weights.

² For test of association between response status and school characteristic.

³ Black includes African American and Hispanic includes Latino.

NOTE: Detail may not sum to totals because of rounding. School characteristics are based on data available on the frame at the time of sampling and may differ from classification variables used in other reports.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Teachers' Use of Educational Technology in U.S. Public Schools," FRSS 95, 2009; and Common Core of Data, "Public Elementary/Secondary School Universe Survey," 2005–06.

Table 5a. Comparison of weighted distributions of sampled teachers, by response status and selected school characteristics: 2009

School characteristic	Base-weighted data					Nonresponse-adjusted data		
	Percent distribution of sample			Relative bias (percent) ¹	Test of association (p-value) ²	Respondents (percent)	Relative bias (percent) ³	Test of association (p-value) ⁴
	Total	Respondents	Non-respondents					
1	2	3	4	5	6	7	8	9
Batch					#			0.003
1.....	41.27	42.84	35.36	3.79		41.22	-0.13	
2.....	20.14	20.99	16.91	4.23		20.19	0.27	
3.....	10.69	10.41	11.75	-2.61		11.10	3.80	
4.....	7.70	7.51	8.43	-2.51		8.20	6.47	
5.....	14.02	13.42	16.25	-4.22		14.17	1.07	
6.....	6.18	4.83	11.29	-21.86		5.13	-17.06	
Instructional level					#			0.935
Elementary.....	63.74	65.58	56.79	2.88		63.74	0.00	
Secondary/combined.....	36.26	34.42	43.21	-5.07		36.26	0.00	
Locale					#			0.008
City.....	24.50	22.85	30.74	-6.73		23.56	-3.83	
Urban fringe.....	42.50	41.93	44.68	-1.36		43.09	1.39	
Town.....	8.32	9.24	4.83	11.10		8.80	5.87	
Rural.....	24.68	25.98	19.75	5.28		24.54	-0.57	
Region					0.001			0.003
Northeast.....	22.30	20.74	28.23	-7.02		20.71	-7.13	
Southeast.....	25.88	26.84	22.22	3.74		26.67	3.06	
Central.....	22.25	22.90	19.81	2.90		22.72	2.09	
West.....	29.57	29.52	29.75	-0.16		29.90	1.13	
Percent of students in school eligible for free or reduced-price lunch					0.059			0.183
Under 35 percent.....	45.47	44.88	47.67	-1.28		45.36	-0.23	
35 to 49.9 percent.....	16.58	16.49	16.93	-0.55		16.48	-0.62	
50 to 75.9 percent.....	22.08	23.16	17.98	4.90		22.65	2.58	
75 percent or more.....	15.19	14.79	16.70	-2.63		14.80	-2.55	
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students in school ⁵					0.362			0.788
Under 6 percent.....	16.66	17.02	15.33	2.12		16.52	-0.85	
6 to 20.9 percent.....	21.53	21.26	22.57	-1.27		21.36	-0.81	
21 to 49.9 percent.....	26.28	26.72	24.62	1.67		26.61	1.27	
50 percent or more.....	35.52	35.00	37.49	-1.46		35.50	-0.05	

See notes at end of table.

Table 5a. Comparison of weighted distributions of sampled teachers, by response status and selected school characteristics: 2009—Continued

School characteristic	Base-weighted data					Nonresponse-adjusted data		
	Percent distribution of sample			Relative bias (percent) ¹	Test of association (p-value) ²	Respon-dents (percent)	Relative bias (percent) ³	Test of association (p-value) ⁴
	Total	Respon-dents	Non-respon-dents					
1	2	3	4	5	6	7	8	9
Enrollment size					0.002			0.776
Under 300	9.89	10.72	6.77	8.35		9.90	0.07	
300 to 499	21.21	21.65	19.55	2.08		21.21	-0.01	
500 or more.....	68.90	67.63	73.69	-1.84		68.89	-0.01	

Rounds to zero.

¹ Relative bias defined to be $100 \times (B - A) / A$, where A = base-weighted estimate for total sample and B = base-weighted estimate for respondent sample.

² Test comparing distribution of total sample versus respondent sample using base weights.

³ Relative bias defined to be $100 \times (C - A) / A$, where A = base-weighted estimate for total sample and C = nonresponse-adjusted estimate for respondent sample.

⁴ Test comparing distribution of respondent sample using nonresponse-adjusted weights with distribution of total sample using base weights.

⁵ Black includes African American and Hispanic includes Latino.

NOTE: Detail may not sum to totals because of rounding. School characteristics are based on data available on the frame at the time of sampling and may differ from classification variables used in other reports.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Teachers' Use of Educational Technology in U.S. Public Schools," FRSS 95, 2009; and Common Core of Data, "Public Elementary/Secondary School Universe Survey," 2005–06.

Table 5b. Comparison of weighted distributions of sampled elementary school teachers, by response status and selected school characteristics: 2009

School characteristic	Base-weighted data					Nonresponse-adjusted data		
	Percent distribution of sample			Relative bias (percent) ¹	Test of association (p-value) ²	Respondents (percent)	Relative bias (percent) ³	Test of association (p-value) ⁴
	Total	Respondents	Non-respondents					
1	2	3	4	5	6	7	8	9
Batch					0.004			0.025
1.....	46.75	48.09	40.87	2.88		46.61	-0.29	
2.....	22.99	23.67	20.02	2.96		23.12	0.59	
3.....	11.69	11.37	13.11	-2.78		12.37	5.78	
4.....	---	---	---	---	---	---	---	---
5.....	12.95	12.59	14.53	-2.79		13.36	3.14	
6.....	5.63	4.28	11.48	-23.83		4.54	-19.25	
Locale					#			0.004
City.....	23.99	22.21	31.78	-7.43		22.76	-5.16	
Urban fringe.....	45.23	44.98	46.33	-0.55		46.27	2.30	
Town.....	7.16	8.08	3.12	12.90		7.77	8.56	
Rural.....	23.62	24.73	18.77	4.70		23.20	-1.76	
Region					0.005			0.017
Northeast.....	21.44	19.75	28.84	-7.89		19.82	-7.57	
Southeast.....	27.46	28.49	22.95	3.76		28.40	3.43	
Central.....	21.11	21.63	18.82	2.48		21.42	1.46	
West.....	29.99	30.12	29.39	0.45		30.36	1.25	
Percent of students in school eligible for free or reduced-price lunch					0.065			0.267
Under 35 percent.....	39.09	38.85	40.15	-0.62		39.04	-0.13	
35 to 49.9 percent.....	15.60	15.31	16.83	-1.81		15.52	-0.46	
50 to 75.9 percent.....	24.97	26.23	19.46	5.05		25.62	2.61	
75 percent or more.....	19.97	19.22	23.29	-3.80		19.43	-2.71	
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students in school⁵					0.185			0.131
Under 6 percent.....	14.98	15.09	14.48	0.76		14.78	-1.32	
6 to 20.9 percent.....	18.81	18.09	21.95	-3.82		17.94	-4.64	
21 to 49.9 percent.....	27.51	28.48	23.27	3.53		28.34	3.03	
50 percent or more.....	38.71	38.34	40.30	-0.94		38.94	0.61	

See notes at end of table.

Table 5b. Comparison of weighted distributions of sampled elementary school teachers, by response status and selected school characteristics: 2009—Continued

School characteristic	Base-weighted data					Nonresponse-adjusted data		
	Percent distribution of sample			Relative bias (percent) ¹	Test of association (p-value) ²	Respondents (percent)	Relative bias (percent) ³	Test of association (p-value) ⁴
	Total	Respondents	Non-respondents					
1	2	3	4	5	6	7	8	9
Enrollment size					0.048			0.446
Under 300	10.96	12.09	6.01	10.33		10.96	0.00	
300 to 499	28.23	28.09	28.86	-0.51		28.23	0.00	
500 to 599	15.59	15.63	15.43	0.24		15.63	0.25	
600 to 750	17.73	17.01	20.88	-4.07		17.69	-0.22	
750+.....	27.49	27.19	28.81	-1.10		27.49	0.00	

Rounds to zero.

¹ Relative bias defined to be $100 \times (B - A) / A$, where A = base-weighted estimate for total sample and B = base-weighted estimate for respondent sample.

² Test comparing distribution of total sample versus respondent sample using base weights.

³ Relative bias defined to be $100 \times (C - A) / A$, where A = base-weighted estimate for total sample and C = nonresponse-adjusted estimate for respondent sample.

⁴ Test comparing distribution of respondent sample using nonresponse-adjusted weights with distribution of total sample using base weights.

⁵ Black includes African American and Hispanic includes Latino.

NOTE: Detail may not sum to totals because of rounding. School characteristics are based on data available on the frame at the time of sampling and may differ from classification variables used in other reports.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Teachers' Use of Educational Technology in U.S. Public Schools," FRSS 95, 2009; and Common Core of Data, "Public Elementary/Secondary School Universe Survey," 2005–06.

Table 5c. Comparison of weighted distributions of sampled secondary/combined school teachers, by response status and selected school characteristics: 2009

School characteristic	Base-weighted data					Nonresponse-adjusted data		
	Percent distribution of sample			Relative bias (percent) ¹	Test of association (p-value) ²	Response-dents (percent)	Relative bias (percent) ³	Test of association (p-value) ⁴
	Total	Response-dents	Non-response-dents					
1	2	3	4	5	6	7	8	9
Batch					0.017			0.117
1.....	31.66	32.83	28.12	3.71		31.74	0.28	
2.....	15.12	15.88	12.84	5.01		15.03	-0.58	
3.....	8.94	8.60	9.96	-3.79		8.87	-0.74	
4.....	21.24	21.81	19.51	2.69		22.61	6.47	
5.....	15.89	15.01	18.52	-5.50		15.58	-1.91	
6.....	7.16	5.87	11.05	-18.01		6.16	-14.02	
Locale					0.001			0.008
City.....	25.40	24.08	29.37	-5.19		24.99	-1.62	
Urban fringe.....	37.71	36.11	42.52	-4.24		37.50	-0.54	
Town.....	10.35	11.45	7.06	10.55		10.62	2.61	
Rural.....	26.54	28.37	21.04	6.88		26.89	1.30	
Region					0.171			0.003
Northeast.....	23.81	22.62	27.42	-5.03		22.28	-6.43	
Southeast.....	23.09	23.70	21.26	2.64		23.62	2.29	
Central.....	24.27	25.31	21.11	4.31		25.01	3.05	
West.....	28.83	28.37	30.21	-1.59		29.09	0.91	
Percent of students in school eligible for free or reduced-price lunch					0.773			0.183
Under 35 percent.....	56.67	56.38	57.54	-0.51		56.47	-0.35	
35 to 49.9 percent.....	18.32	18.74	17.05	2.30		18.16	-0.86	
50 to 75.9 percent.....	17.00	17.32	16.05	1.87		17.43	2.52	
75 percent or more.....	6.78	6.36	8.05	-6.21		6.66	-1.70	
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students in school⁵					0.065			0.354
Under 6 percent.....	19.63	20.69	16.44	5.38		19.58	-0.23	
6 to 20.9 percent.....	26.32	27.30	23.37	3.72		27.38	4.01	
21 to 49.9 percent.....	24.13	23.37	26.40	-3.12		23.58	-2.26	
50 percent or more.....	29.92	28.64	33.79	-4.29		29.46	-1.55	

See notes at end of table.

Table 5c. Comparison of weighted distributions of sampled secondary/combined school teachers, by response status and selected school characteristics: 2009—Continued

School characteristic	Base-weighted data					Nonresponse-adjusted data		
	Percent distribution of sample			Relative bias (percent) ¹	Test of association (p-value) ²	Respondents (percent)	Relative bias (percent) ³	Test of association (p-value) ⁴
	Total	Respondents	Non-respondents					
1	2	3	4	5	6	7	8	9
Enrollment size					0.074			0.846
Under 300	8.02	8.10	7.76	1.07		8.04	0.24	
300 to 499	8.88	9.40	7.30	5.88		8.87	-0.08	
500 to 999	26.15	27.56	21.88	5.42		26.16	0.04	
1,000 to 1,499	20.44	20.41	20.53	-0.15		20.45	0.04	
1,500+	36.52	34.53	42.53	-5.46		36.49	-0.09	

¹ Relative bias defined to be $100 \times (B - A) / A$, where A = base-weighted estimate for total sample and B = base-weighted estimate for respondent sample.

² Test comparing distribution of total sample versus respondent sample using base weights.

³ Relative bias defined to be $100 \times (C - A) / A$, where A = base-weighted estimate for total sample and C = nonresponse-adjusted estimate for respondent sample.

⁴ Test comparing distribution of respondent sample using nonresponse-adjusted weights with distribution of total sample using base weights.

⁵ Black includes African American and Hispanic includes Latino.

NOTE: Detail may not sum to totals because of rounding. School characteristics are based on data available on the frame at the time of sampling and may differ from classification variables used in other reports.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Teachers' Use of Educational Technology in U.S. Public Schools," FRSS 95, 2009; and Common Core of Data, "Public Elementary/Secondary School Universe Survey," 2005–06.

Table 6a. Comparisons of selected weighted survey estimates for responding teachers before and after nonresponse adjustments: 2009

Survey variable	Survey respondents			
	Base-weighted estimates ¹	Nonresponse-adjusted estimates ¹	Relative bias ²	T-test ³
1	2	3	4	5
Numeric variables	(Mean)		(Percent)	(P-value)
Q1a - Number of computers located in the classroom every day				
Total.....	4.1	4.1	-0.4	0.407
With Internet access.....	3.8	3.8	-0.4	0.388
Q1b - Number of computers that can be brought into the classroom				
Total.....	8.8	8.9	-0.7	0.158
With Internet access.....	8.4	8.5	-0.7	0.157
Q15 - Years as an elementary or secondary teacher.....	13.8	13.8	0.1	0.514
Attribute variables			(Percent)	(P-value)
Q2a - Frequency that the teacher or students use computers in the classroom during instructional time				
Not available.....	1.2	1.2	-1.2	0.650
Never.....	10.3	10.5	-1.6	0.089
Rarely.....	18.5	18.6	-0.5	0.375
Sometimes.....	29.4	29.3	0.4	0.257
Often.....	40.6	40.4	0.3	0.387
Q2b - Frequency that the teacher or students use computers outside the classroom during instructional time				
Not available.....	1.8	1.8	-0.5	0.861
Never.....	7.5	7.6	-1.4	0.158
Rarely.....	18.5	18.7	-1.1	0.088
Sometimes.....	43.4	43.2	0.5	0.132
Often.....	28.8	28.7	0.4	0.374
Q12 - Main teaching assignment				
Special education.....	8.4	8.5	-1.9	0.037
General education in a self-contained classroom.....	37.2	36.2	2.8	0.001
Arts and Music.....	4.8	4.8	-0.5	0.663
English/language arts.....	11.6	11.7	-1.0	0.246
English as a second language.....	1.5	1.6	-2.7	0.311
Foreign languages.....	2.6	2.8	-4.4	0.043
Health/physical education.....	1.4	1.4	-2.0	0.317
Mathematics/computer science.....	10.4	10.6	-1.8	0.015
Science.....	7.8	7.9	-1.3	0.199
Social sciences/social studies.....	7.4	7.5	-0.9	0.373
Vocational, career, or technical education.....	3.6	3.8	-3.5	0.050
Other.....	3.2	3.2	-0.6	0.661

¹For numeric variables, estimates are means. For attributes, estimates are percentages of teachers. Responses include imputed values.

²Relative bias defined to be 100*(B-A)/A, where B = base-weighted estimate for respondents and A = nonresponse-adjusted estimates for respondents.

³Test of difference between base-weighted and nonresponse-adjusted estimates.

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

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Teachers' Use of Educational Technology in U.S. Public Schools," FRSS 95, 2009.

Table 6b. Comparisons of selected weighted survey estimates for responding elementary school teachers before and after nonresponse adjustments: 2009

Survey variable	Survey respondents			
	Base-weighted estimates ¹	Nonresponse-adjusted estimates ¹	Relative bias ²	T-test ³
1	2	3	4	5
Numeric variables	(Mean)		(Percent)	(P-value)
Q1a - Number of computers located in the classroom every day				
Total.....	3.9	3.9	0.0	0.909
With Internet access.....	3.6	3.6	0.0	0.997
Q1b - Number of computers that can be brought into the classroom				
Total.....	8.1	8.2	-0.7	0.288
With Internet access.....	7.8	7.8	-0.6	0.328
Q15 - Years as an elementary or secondary teacher.....	13.9	13.9	0.0	0.952
Attribute variables			(Percent)	(P-value)
Q2a - Frequency that the teacher or students use computers in the classroom during instructional time				
Not available.....	0.8	0.8	0.6	0.905
Never.....	7.7	7.7	0.1	0.913
Rarely.....	16.4	16.5	-0.2	0.737
Sometimes.....	31.1	31.1	-0.1	0.839
Often.....	44.1	44.0	0.1	0.782
Q2b - Frequency that the teacher or students use computers outside the classroom during instructional time				
Not available.....	1.9	1.9	-0.7	0.822
Never.....	6.5	6.5	-0.4	0.757
Rarely.....	15.5	15.6	-0.1	0.874
Sometimes.....	44.3	44.2	0.2	0.703
Often.....	31.9	31.9	0.0	0.957
Q12 - Main teaching assignment				
Special education.....	7.3	7.4	-1.6	0.237
General education in a self-contained classroom.....	55.8	55.8	0.0	0.990
Arts and Music.....	3.6	3.5	1.4	0.456
English/language arts.....	9.8	9.9	-1.2	0.424
English as a second language.....	1.6	1.7	-3.6	0.261
Foreign languages.....	0.6	0.6	0.2	0.977
Health/physical education.....	0.7	0.7	0.8	0.839
Mathematics/computer science.....	6.7	6.6	0.7	0.547
Science.....	4.8	4.7	2.0	0.245
Social sciences/social studies.....	5.0	4.9	1.8	0.319
Vocational, career, or technical education.....	1.0	1.0	0.5	0.898
Other.....	3.1	3.1	0.0	0.993

¹For numeric variables, estimates are means. For attributes, estimates are percentages of teachers. Responses include imputed values.

²Relative bias defined to be 100*(B-A)/A, where B = base-weighted estimate for respondents and A = nonresponse-adjusted estimates for respondents.

³Test of difference between base-weighted and nonresponse-adjusted estimates.

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

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Teachers' Use of Educational Technology in U.S. Public Schools," FRSS 95, 2009.

Table 6c. Comparisons of selected weighted survey estimates for responding secondary/combined school teachers before and after nonresponse adjustments: 2009

Survey variable	Survey respondents			
	Base-weighted estimates ¹	Nonresponse-adjusted estimates ¹	Relative bias ²	T-test ³
1	2	3	4	5
Numeric variables	(Mean)		(Percent)	(P-value)
Q1a - Number of computers located in the classroom every day				
Total.....	4.3	4.4	-0.5	0.429
With Internet access.....	4.1	4.1	-0.4	0.556
Q1b - Number of computers that can be brought into the classroom				
Total.....	10.1	10.1	0.3	0.645
With Internet access.....	9.8	9.8	0.2	0.785
Q15 - Years as an elementary or secondary teacher.....	13.7	13.6	0.3	0.306
Attribute variables		(Percent)		(P-value)
Q2a - Frequency that the teacher or students use computers in the classroom during instructional time				
Not available.....	1.9	1.9	0.6	0.765
Never.....	15.3	15.4	-0.6	0.522
Rarely.....	22.6	22.4	0.6	0.371
Sometimes.....	26.3	26.1	0.7	0.271
Often.....	34.0	34.2	-0.7	0.177
Q2b - Frequency that the teacher or students use computers outside the classroom during instructional time				
Not available.....	1.6	1.6	-0.7	0.810
Never.....	9.5	9.6	-0.9	0.384
Rarely.....	24.1	24.2	-0.5	0.508
Sometimes.....	41.7	41.4	0.8	0.098
Often.....	23.1	23.2	-0.6	0.507
Q12 - Main teaching assignment				
Special education.....	10.3	10.4	-0.9	0.385
General education in a self-contained classroom.....	1.7	1.6	2.7	0.342
Arts and Music.....	7.2	7.2	0.5	0.700
English/language arts.....	15.0	14.9	0.9	0.276
English as a second language.....	1.3	1.4	-1.7	0.675
Foreign languages.....	6.5	6.5	-0.6	0.701
Health/physical education.....	2.5	2.5	0.2	0.901
Mathematics/computer science.....	17.7	17.7	-0.3	0.641
Science.....	13.5	13.5	-0.2	0.871
Social sciences/social studies.....	12.2	12.2	0.2	0.746
Vocational, career, or technical education.....	8.6	8.6	0.2	0.873
Other.....	3.4	3.5	-1.1	0.605

¹For numeric variables, estimates are means. For attributes, estimates are percentages of teachers. Responses include imputed values.

²Relative bias defined to be $100 \times (B - A) / A$, where B = base-weighted estimate for respondents and A = nonresponse-adjusted estimates for respondents.

³Test of difference between base-weighted and nonresponse-adjusted estimates.

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

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Teachers' Use of Educational Technology in U.S. Public Schools," FRSS 95, 2009.

Table 7. Comparisons of selected weighted survey estimates for responding teachers before and after nonresponse adjustment, by school and teacher characteristics: 2009

School or teacher characteristic	Ratio of students in the classroom to the sum of computers in the classroom every day and computers that can be brought into the classroom				Percent of teachers with an LCD or DLP projector in the classroom every day				Percent of teachers reporting that students often use educational technology to conduct research during class			
	Base-weighted estimate	Non-response-adjusted estimate	Relative bias ¹	T-test (P-value) ²	Base-weighted estimate	Non-response-adjusted estimate	Relative bias ¹	T-test (P-value) ²	Base-weighted estimate	Non-response-adjusted estimate	Relative bias ¹	T-test (P-value) ²
1	2	3	4	5	6	7	8	9	10	11	12	13
All teachers	1.68	1.67	0.26	0.525	47.44	47.74	-0.63	0.068	23.60	23.80	-0.83	0.153
Instructional level												
Elementary.....	1.75	1.75	0.28	0.550	43.79	43.86	-0.15	0.745	21.31	21.37	-0.24	0.747
Secondary/combined.....	1.56	1.56	-0.34	0.471	54.39	54.57	-0.33	0.430	27.72	27.84	-0.47	0.455
Locale												
City.....	1.77	1.77	0.26	0.728	44.40	44.87	-1.06	0.230	25.03	24.92	0.44	0.751
Urban fringe.....	1.61	1.61	-0.18	0.772	48.61	48.87	-0.54	0.291	22.69	22.96	-1.16	0.098
Town.....	1.86	1.85	0.35	0.751	52.75	52.65	0.17	0.863	25.04	25.09	-0.22	0.905
Rural.....	1.65	1.63	0.92	0.110	46.36	46.76	-0.87	0.126	23.29	23.71	-1.77	0.135
Region												
Northeast.....	1.40	1.40	0.24	0.698	39.64	39.72	-0.21	0.811	26.27	26.31	-0.18	0.843
Southeast.....	1.61	1.61	0.02	0.977	50.03	50.51	-0.96	0.135	24.80	25.12	-1.28	0.167
Central.....	1.73	1.72	0.57	0.421	42.61	42.76	-0.36	0.617	22.93	23.17	-1.06	0.413
West.....	1.93	1.92	0.56	0.436	54.32	54.62	-0.54	0.266	21.12	21.31	-0.90	0.336
Percent of students in school eligible for free or reduced-price lunch												
Under 35 percent.....	1.55	1.54	0.18	0.677	49.23	49.45	-0.44	0.336	24.49	24.58	-0.38	0.593
35 to 49.9 percent.....	1.84	1.85	-0.89	0.411	48.53	49.18	-1.32	0.095	23.44	23.46	-0.07	0.953
50 to 75.9 percent.....	1.86	1.84	0.69	0.473	46.55	46.77	-0.46	0.616	20.42	20.68	-1.22	0.363
75 percent or more.....	1.75	1.75	0.28	0.810	41.79	41.98	-0.47	0.695	24.58	24.95	-1.50	0.409

See notes at end of table.

Table 7. Comparison of selected weighted survey estimates for responding teachers before and after nonresponse adjustment, by school and teacher characteristics: 2009—Continued

School or teacher characteristic	Ratio of students in the classroom to the sum of computers in the classroom every day and computers that can be brought into the classroom				Percent of teachers with an LCD or DLP projector in the classroom every day				Percent of teachers reporting that students often use educational technology to conduct research during class			
	Base-weighted estimate	Non-response-adjusted estimate	Relative bias ¹	T-test (P-value) ²	Base-weighted estimate	Non-response-adjusted estimate	Relative bias ¹	T-test (P-value) ²	Base-weighted estimate	Non-response-adjusted estimate	Relative bias ¹	T-test (P-value) ²
1	2	3	4	5	6	7	8	9	10	11	12	13
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students in school³												
Under 6 percent	1.71	1.69	0.96	0.200	43.13	43.51	-0.88	0.232	24.35	24.38	-0.14	0.906
6 to 20.9 percent	1.52	1.51	0.44	0.451	52.75	52.89	-0.26	0.668	22.10	22.47	-1.66	0.134
21 to 49.9 percent	1.64	1.64	0.05	0.946	47.88	47.97	-0.19	0.732	23.36	23.67	-1.28	0.159
50 percent or more	1.81	1.81	0.04	0.956	45.98	46.45	-1.01	0.172	24.36	24.44	-0.36	0.689
Enrollment size												
Less than 300	1.59	1.56	1.69	0.107	39.56	40.61	-2.59	0.042	22.10	22.33	-1.02	0.617
300 to 499	1.85	1.84	0.80	0.244	40.08	40.24	-0.39	0.487	23.18	23.29	-0.49	0.621
500 or more	1.64	1.64	-0.09	0.850	51.05	51.08	-0.06	0.897	23.97	24.16	-0.79	0.216
Main teaching assignment												
General education in self-contained classroom	1.97	1.96	0.27	0.641	38.67	38.78	-0.29	0.640	19.00	19.13	-0.64	0.588
Mathematics/computer science, science	1.52	1.53	-0.60	0.363	65.41	65.54	-0.21	0.625	17.10	17.01	0.50	0.756
English/language arts, foreign languages, social sciences/social studies	1.71	1.71	0.17	0.780	54.87	55.28	-0.75	0.197	30.63	30.63	0.01	0.986
Special education, English as a second language	1.09	1.10	-0.80	0.408	32.96	32.93	0.10	0.924	29.02	29.46	-1.47	0.279
Teaching experience												
3 or fewer years	1.78	1.79	-0.40	0.674	51.19	51.35	-0.32	0.678	20.44	20.78	-1.63	0.256
4 to 9 years	1.57	1.58	-0.52	0.283	51.70	51.70	0.01	0.976	21.70	21.62	0.39	0.709
10 to 19 years	1.76	1.74	1.00	0.070	47.31	47.71	-0.83	0.108	24.27	24.32	-0.21	0.824
20 or more years	1.64	1.63	0.57	0.368	41.58	42.13	-1.29	0.097	26.37	26.91	-2.01	0.069

¹Relative bias defined to be 100*(B-A)/A, where B = base-weighted estimate for respondents and A = nonresponse-adjusted estimates for respondents.

²Test of difference between base-weighted and nonresponse-adjusted estimates.

³Black includes African American and Hispanic includes Latino.

NOTE: Detail may not sum to totals because of rounding. School characteristics are based on data available on the frame at the time of sampling and may differ from classification variables used in other reports.

Teacher characteristics used in this table may not match those used in other reports.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Teachers' Use of Educational Technology in U.S. Public Schools,"

FRSS 95, 2009; and Common Core of Data, "Public Elementary/Secondary School Universe Survey," 2005-06.