

Survey Methodology and Data Reliability

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 small amounts of issue-oriented data with minimal burden on respondents and with a relatively short timeframe.

Sample Selection

The sample of elementary and secondary schools for the FRSS survey on Internet access in public schools was selected from the 1996–1997 NCES Common Core of Data (CCD) Public School Universe File, the most up-to-date file available at the time the sample was drawn. Over 91,000 schools are contained in the 1996–1997 CCD Public School Universe File. For this survey, regular elementary, middle, and secondary/combined schools were selected. Special education, vocational education, and alternative schools were excluded from the sampling frame, along with schools with a highest grade below first grade and those outside the 50 states and the District of Columbia. With these exclusions, the final sampling frame consisted of about 80,200 schools, of which about 49,300 were classified as “elementary” schools, 14,800 as middle schools, and about 16,200 as “secondary/combined” schools.

A sample of 1,004 schools was selected from the public school frame. To select the sample, the frame of schools was stratified by instructional level (elementary, middle/junior high, and secondary/combined schools), enrollment size class (less than 300 students, 300 to 999, 1,000 to 1,499, and 1,500 or more), and urbanization (city, urban fringe, town, and rural).

Respondents and Response Rate

In late August 1999, questionnaires were mailed to the principals of the 1,004 sampled schools. The principal was asked to forward the questionnaire to the person most knowledgeable about Internet access at the school. Telephone followup of nonrespondents was initiated in September and data collection was completed in November. Fifteen schools were outside the scope of the survey, and 919 schools completed the survey. Thus, the final response rate was 92.9 percent (919 of 989 eligible schools). The weighted response rate was 93.1 percent. The weighted nonresponse rate for individual questionnaire items ranged from 0 to 0.7 percent; imputation for item nonresponse was not implemented.

Sampling and Nonsampling Errors

The survey responses were weighted to produce national estimates. The weights were designed to adjust for the variable probabilities of selection and differential nonresponse. The findings in the survey report (*Internet Access in U.S. Public Schools and Classrooms: 1994–99*, NCES 2000–086) are based on the sample selected and, consequently, are subject to sampling variability. The standard error is the measure of the variability of estimates 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 percentage of public

schools with Internet access in 1999 was 95 percent, and the estimated standard error was 0.8 percent. The 95 percent confidence interval for the statistic extends from $95 - (0.8 \text{ times } 1.96)$ to $95 + (0.8 \text{ times } 1.96)$, or from 93 to 97 percent. To properly reflect the complex features of the sample design, standard errors of the survey-based estimates were calculated using jackknife replication. Under the jackknife replication approach, 50 subsamples or “replicates” were formed in a way that preserved the basic features of the full sample design. A set of estimation weights (referred to as “replicate weights”) were then generated for each jackknife replicate. Using the full sample weights and the replicate weights, estimates of survey statistics were calculated for the full sample and each of the 50 jackknife replicates. The sum of the squared deviations of the replicates then provided a measure of the variance (standard error) of the survey statistics.

The survey estimates are also subject to nonsampling errors that can arise because of nonobservation (nonresponse or noncoverage) errors, errors of reporting, and errors made in collection of the data. These errors can sometimes bias the data. Nonsampling errors may include problems such as the difference in the respondents’ interpretation of the meaning of the question; memory effects; misrecording of responses; incorrect editing, coding, or data entry; differences related to the particular time the survey was conducted; or errors in data preparation. While general sampling theory can be used in part 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 errors, the questionnaire on Internet access in public schools was pretested in 1994, and again each time it was substantially modified. The pretesting was done with public school technology coordinators and other knowledgeable respondents like those who completed the survey. No pretesting was necessary in 1999. During the design of the survey, an effort was made to check for consistency of interpretation of questions and to eliminate ambiguous items. The questionnaire and instructions were intensively reviewed by the National Center for Education Statistics. Manual and machine editing of the questionnaire responses were conducted to check the data for accuracy and consistency. Cases with missing or inconsistent items were recontacted by telephone to resolve problems. Data were keyed with 100 percent verification.

Definitions of Analysis Variables

Instructional level (recoded) – Schools were classified according to their grade span in the 1996–1997 Common Core of Data (CCD) Public School Universe File. Middle schools were classified as elementary or secondary depending on grade range. Combined schools were set to missing.

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.

School size – Total enrollment of students based on the 1996–1997 CCD Public School Universe File.

Less than 300 students

300 to 999 students

1,000 or more students

Metropolitan status – As defined in the 1996–1997 CCD Public School Universe File.

City - A central city of a Consolidated Metropolitan Statistical Area (CMSA) or Metropolitan Statistical Area (MSA).

Urban fringe – Any incorporated place, Census designated place, or non-place territory within a CMSA or MSA of a large or mid-size city and defined as urban by the Census Bureau.

Town – An incorporated place or Census designated place with a population greater than or equal to 2,500 and located outside a CMSA or MSA.

Rural – Any incorporated place, Census designated place, or non-place territory designated as rural by the Census Bureau.

Percent minority enrollment – The percent of students enrolled in the school whose race or ethnicity is classified as one of the following: American Indian or Alaska Native; Asian or Pacific Islander; Black, non-Hispanic; or Hispanic, based on data in the 1996–1997 CCD Public School Universe File.

Less than 6 percent

6 to 20 percent

21 to 49 percent

50 percent or more

Percent of students eligible for free or reduced-price school lunch – This was based on responses to question 13 on the survey questionnaire; if it was missing from the questionnaire, it was obtained from the 1996–1997 CCD Public School Universe File. This item served as a measurement of the concentration of poverty at the school.

Less than 35 percent

35 to 49 percent

50 to 74 percent

75 percent or more

Geographic region – One of four regions used by the Bureau of Economic Analysis of the U.S. Department of Commerce, the National Assessment of Educational Progress, and the National Education Association. Obtained from the 1996–1997 CCD Public School Universe File.

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.

It is important to note that many of the school characteristics used for independent analysis may also be related to each other. For example, enrollment size and instructional level of schools are related, with secondary schools typically being larger than elementary schools. Similarly, poverty concentration and minority enrollment are related, with schools with a higher minority enrollment also more likely to have a high concentration of poverty. Other relationships between analysis variables may exist. Because of the relatively small sample size used, it is difficult to separate the independent effects of these variables. Their existence, however, should be considered in the interpretation of the data.

<p>U.S. DEPARTMENT OF EDUCATION NATIONAL CENTER FOR EDUCATION STATISTICS WASHINGTON, D.C. 20208-5651</p> <p>INTERNET ACCESS IN U.S. PUBLIC SCHOOLS, FALL 1999</p> <p>FAST RESPONSE SURVEY SYSTEM</p>	<p>FORM APPROVED O.M.B. NO.: 1850-0733 EXPIRATION DATE: 9/1999</p>
<p>This survey is authorized by law (20 U.S.C. 1221e-1). While you are not required to respond, your cooperation is needed to make the results of this survey comprehensive, accurate, and timely.</p>	

LABEL

IF ABOVE INFORMATION IS INCORRECT, PLEASE MAKE CORRECTIONS DIRECTLY ON LABEL.

Name of person completing form: _____ Telephone: _____

Title/position: _____ Number of years at this school: _____

Best days and times to reach you (in case of questions): _____

E-mail: _____

PLEASE RETURN COMPLETED FORM TO:	IF YOU HAVE ANY QUESTIONS, CONTACT:
<p>WESTAT Attention: 716613-Williams 1550 Research Boulevard Rockville, Maryland 20850</p>	<p>Catrina Williams 800-937-8281, ext. 3597 Fax: 800-254-0984 E-mail: williac2@westat.com</p>

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DEFINITIONS OF TERMS USED IN QUESTIONNAIRE

Cable modem - provides greater bandwidth from Internet Service Providers that enables faster data transfer than is possible using a 33.6 kbps modem, 56 kbps modem, or 128 kbps ISDN connection. Cable networks are supplied by cable companies and generally use fiber-optic cabling to form connections, although some cable companies may rely on co-axial cabling.

DS1 - refers to a digital transmission speed of 1.544 Mega (million) bits per second.

DS3 - refers to a digital transmission speed of 45 Mega (million) bits per second.

Dial-up connection - customer is only connected to the Internet when his/her modem dials the Internet Service Provider's telephone number to establish the connection.

56Kb - a digital transmission speed of 56 Kilo (thousand) bits per second.

Fractionalized T1 - T1 line that is split to allow for data communication and voice communication (as opposed to a T1 line used for data communication only).

Fractionalized T3 - T3 line that is split to allow for data communication and voice communication (as opposed to a T3 line used for data communication only).

Instructional rooms - refers to rooms in the school building used for any instructional purposes (includes classrooms, labs, library/media centers, art rooms, rooms used for vocational or special education, etc.).

ISDN (Integrated Services Digital Network) - phone line that moves data digitally and integrates voice and data.

Special education – refers to programs, instruction, learning experiences, and/or care for students with disabilities.

Students with disabilities – refers to special education students with impairments that substantially limit one or more of the major life activities and may include learning disabilities as well as physical impairments.

T1 - refers to a digital transmission speed of 1.536 Mega (million) bits per second.

T3 - refers to a digital transmission speed of 45 Mega (million) bits per second.

1. What is the total number of instructional rooms in this school? (Include all rooms used for any instructional purposes: classrooms, computer and other labs, library/media centers, etc.). _____
2. How many computers are used for instructional purposes (e.g., teachers, library/media center staff, students) _____
3. Does this school have access to the Internet? (*Circle one.*) Yes..... 1 No..... 2 (*Skip to Question 8.*)
- 4a. How many instructional rooms have a computer with Internet access? _____ (*If none, please enter "0".*)
- 4b. Of the instructional rooms that have a computer with Internet access, how many are: (*If none, please enter "0".*)
 - Classrooms? _____
 - Computers and other labs? _____
 - Library/media centers? _____
 - Other instructional rooms? _____
 - Total number of instructional rooms (should equal question 4a) _____**
- 5a. How many computers in your school currently have Internet access? _____ (*If none, please enter "0".*)
- 5b. Of the computers that have Internet access (question 5a), how many are used for instructional purposes? _____ (*If none, please enter "0".*)
6. What type of connection does your school use when connecting to the Internet? (*Circle all that apply.*)
 - a. Dedicated line (*Indicate the specific connection(s) used*)
 - 56kb 1
 - T1/DS1 2
 - Fractionalized T1 3
 - T3/DS3 4
 - Fractionalized T3 5
 - b. Dial-up connection 6
 - c. ISDN 7
 - d. Wireless connection 8
 - e. Cable modem 9
 - f. Other (*specify*) _____ 10
7. Please indicate who in your school has access to the following Internet resources or capabilities, and the extent to which they use these resources or capabilities while in school. (*Circle one for each item.*)

Internet access	Available?		If available, extent of use			
	Yes	No	Not at all	Small extent	Moderate Extent	Large extent
a. Administrative staff	1	2	1	2	3	4
b. Teachers	1	2	1	2	3	4
c. Students	1	2	1	2	3	4
d. Students with disabilities.....	1	2	1	2	3	4
8. Did your school receive hardware, software, or funding for advanced telecommunications from any of the following programs, organizations, or individuals in the 1998-1999 school year? (*Circle one for each item.*)

	Yes	No
a. School district	1	2
b. State/federal government programs (e.g., Technology Literacy Challenge Fund (TLCF), E-rate, Title VI)	1	2
c. Parents or parent organizations.....	1	2
d. Business/industry or community non-profit organizations	1	2
e. Teachers or students.....	1	2
f. Other (<i>specify</i>) _____	1	2
9. Which of the above was the largest source of hardware, software, and funding for advanced telecommunications in the 1998-1999 school year? (*Enter appropriate letter from question 8.*) _____
10. Who has **primary** responsibility for supporting advanced telecommunications in your school? (*Circle one.*)
 - Full-time, paid technology director/coordinator 1
 - Part-time, paid technology director/coordinator 2
 - District staff..... 3
 - Teacher or other staff as part of formal responsibilities ... 4
 - Teacher or other staff as volunteers 5
 - Other volunteers 6
 - Consultant/outside contractor 7
 - No one..... 8
 - Other (*specify*) _____ 9
11. What percent of the students in your school are eligible for the federally funded free or reduced-price lunch? _____%