

# Educational Technology in U.S. Public Schools: Fall 2008

First Look





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# First Look Summary

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## Introduction

This report provides national data on the availability and use of educational technology in public elementary and secondary schools during fall 2008. The data are the results of a national school-level survey that is one of a set that includes district, school, and teacher surveys on educational technology.<sup>1</sup> Every year between 1994 and 2005 (with the exception of 2004), the Office of Educational Technology (OET) in the U.S. Department of Education asked the National Center for Education Statistics (NCES) to conduct a survey of public schools to track access to information technology in schools and classrooms. NCES used its Fast Response Survey System (FRSS) to conduct these surveys. For fall 2008, this OET-sponsored technology study was redesigned and expanded to incorporate surveys at the district, school, and teacher levels. These three surveys provide complementary information and together cover a broader range of topics than would be possible with one survey alone. Prior to 2008, the surveys focused on computer and Internet access and use, as well as procedures to prevent student access to inappropriate material on the Internet and teacher professional development on technology use.<sup>2</sup> The set of 2008 surveys collected data on availability and use for a range of educational technology resources, such as district and school networks, computers, devices that enhance the capabilities of computers for instruction, and computer software. They also collected information on leadership and staff support for educational technology within districts and schools.

During the design phase for the 2008 study, research was conducted to determine how specific topics and survey questions should be distributed across the three surveys. The surveys were developed to reflect how information on educational technology is kept within most public school systems. This report presents results from the school-level survey, including information on computer hardware and Internet access, availability of staff to help integrate technology into instruction and provide timely technical support, and perceptions of educational technology issues at the school and district levels. The school survey covers the following specific topics:

- Number of computers the school has for instructional and administrative use;
- Number of instructional computers, by type, mobility, location, Internet access, and other characteristics;
- Types of operating systems used on instructional computers;
- Number of handheld devices (e.g., Palm OS, Windows CE, Pocket PC, BlackBerry) accessible to administrators, teachers, and students, and number of other types of technology devices provided by the school for instructional purposes;
- Availability and type of wireless network access;
- Use of district network or Internet access to provide various opportunities and information for teaching and learning;
- Length of time usually required to obtain various types of technology support in the school;
- Leadership and support available to help school staff integrate technology into instruction and provide technical support in the school; and
- Opinions of school-level respondents about statements related to using educational technology in the school.

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<sup>1</sup> For results from the district-level survey, see *Educational Technology in Public School Districts: Fall 2008* (NCES 2010–003) at <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2010003>. NCES expects to release the teacher-level survey results in spring 2010.

<sup>2</sup> A list of related reports from the 1994 through 2005 FRSS technology surveys of public schools may be found in the Related Reports section.

The questionnaire instructed schools to answer the survey using fall 2008 information and provided the following definitions to be used when answering the survey.

**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.<sup>3</sup>

**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.

NCES in the Institute of Education Sciences conducted this FRSS survey in fall 2008. FRSS is a survey system designed to collect small amounts of issue-oriented data from a nationally representative sample of districts, schools, or teachers with minimal burden on respondents and within a relatively short period of time. Questionnaires were mailed to 2,005 public schools in the 50 states and the District of Columbia. The unweighted survey response rate was 78 percent and the weighted response rate was 79 percent. The survey weights were adjusted for questionnaire nonresponse and the data were then weighted to yield national estimates that represent all regular public elementary and secondary schools in the United States. The results of a nonresponse bias analysis conducted for the survey to inform the nonresponse weight adjustments, along with additional details about the survey methodology, response rates, and data reliability, are presented in appendix B: Technical Notes.

Because the purpose of this report is to introduce new NCES data through the presentation of tables containing descriptive information, only selected findings are presented. These findings have been chosen to demonstrate the range of information available from the FRSS study rather than to discuss all of the observed differences; they are not meant to emphasize any particular issue. The findings are based on self-reported data from public elementary and secondary schools.

All specific statements of comparisons made in the bullets have been tested for statistical significance at the .05 level using Student’s *t*-statistics to ensure that the differences are larger than those that might be expected due to sampling variation. Adjustments for multiple comparisons were not conducted. Many of the variables examined are related to one another, and complex interactions and relationships have not been explored. Tables of standard error estimates are provided in appendix A. Detailed information about the survey methodology is provided in appendix B, and the questionnaire can be found in appendix C. Appendix B also includes definitions of the analysis variables (i.e., school characteristics) and terms used in the report.

## Selected Findings

This section presents key findings on educational technology in public schools in fall 2008.

- An estimated 100 percent of public schools had one or more instructional computers with Internet access and the ratio of students to instructional computers with Internet access was 3.1 to 1 (table 1). Ninety-seven percent of schools had one or more instructional computers located in classrooms (excluding laptops on carts) and 58 percent of schools had laptops on carts.
- Of the computers in public schools, 91 percent were used for instructional purposes (table 2). Of these instructional computers, 98 percent had Internet access, 15 percent were less than 1 year old, 14 percent were laptops on carts, and 51 percent were located in classrooms (excluding laptops on carts).

<sup>3</sup> This is the exact wording of the definition provided to respondents on the questionnaire. LCD is the acronym for liquid crystal display.

- Public schools provided handheld devices to administrators (49 percent), teachers (15 percent), and students (4 percent) (table 3).
- Public schools reported providing various technology devices for instruction, including LCD (liquid crystal display) and DLP (digital light processing) projectors (97 percent), digital cameras (93 percent), and interactive whiteboards (73 percent) (table 4). Within the schools with LCD or DLP projectors, the ratio of students to projectors was 32 to 1.
- Public schools reported having wireless network access for the whole school (39 percent), or for part of the school (30 percent), or wireless connections only from laptops to carts (9 percent) (table 5).<sup>4</sup>
- Windows operating systems for instructional computers included Windows Vista (in 13 percent of schools), Windows XP (84 percent), Windows NT or 2000 (27 percent), Windows 95, 98, or ME (23 percent), and Windows 3.1 or DOS (2 percent) (table 5). Macintosh operating systems included Mac OS 10 or higher (in 31 percent of schools) and Mac OS 9 or earlier (15 percent).<sup>5</sup>
- Public schools used their district network or the Internet to provide standardized assessment results and data for teachers to individualize instruction (87 percent), data to inform instructional planning at the school (85 percent), online student assessment (72 percent), and high-quality digital content (65 percent) (table 6).
- Thirty-one percent of public schools reported having full-time staff in the school whose only responsibility was technology support and/or technology integration (table 7). Forty-seven percent of secondary schools reported having such staff compared with 27 percent of elementary schools. Thirty-five percent of schools with low poverty concentration<sup>6</sup> reported having full-time technology staff compared to 28 percent of schools with high poverty concentration.
- Nine out of 10 schools reported that it takes 8 hours or less to get network services restored when the network goes down (22 percent reported less than 1 hour and 68 percent reported 1 to 8 hours) (table 7). A larger percentage of schools with low poverty concentration compared to schools with high poverty concentration reported that it takes less than 1 hour to get network services restored (27 percent versus 11 percent). Fifty-one percent of schools reported that it takes 1 to 8 hours to receive assistance with software problems or questions, and 45 percent reported that it takes 2 to 5 days to get a computer repaired.
- Public schools reported the extent to which various staff helped school staff integrate technology into instruction. Teachers helped in 20 percent of schools to a major extent and in 47 percent to a moderate extent (table 8). School-level technology staff helped integrate technology into instruction in 29 percent of schools to a major extent and in 34 percent to a moderate extent. District-level technology staff provided technical support in 59 percent of schools to a major extent and in 27 percent to a moderate extent (table 9). School-level technology staff provided technical support in 42 percent of schools to a major extent and in 30 percent to a moderate extent.
- Opinions on the use of educational technology in the school differed by poverty concentration. A larger percentage of schools with low poverty concentration than schools with high poverty concentration agreed that “teachers are sufficiently trained in technology usage” (74 percent versus 62 percent), “teachers are sufficiently trained to integrate technology into classroom instruction” (67 percent versus 56 percent), “technical support for educational technology is adequate” (74 percent versus 60 percent), and “funding for educational technology is being spent in the most appropriate ways” (79 percent versus 69 percent) (table 10).

<sup>4</sup> Respondents were asked to choose which of the following best describes the wireless network access in the school: (1) no wireless access of any kind; (2) the only wireless connections are from laptops to a cart, with the cart connected to a wall port; (3) wireless network access is available in part of the school; or (4) wireless network access is available in the whole school.

<sup>5</sup> A school may report more than one operating system.

<sup>6</sup> Poverty concentration is based on the percent of students eligible for free or reduced-price lunch (less than 35 percent and 75 percent or more—referred to as low and high, respectively).

**Table 1. Percent of public schools that have instructional computers with various characteristics, ratio of students to instructional computers with Internet access, and ratio of instructional computers in classrooms to number of classrooms, by school characteristics: Fall 2008**

School characteristic	Instructional computers with Internet access		Instructional computers in classrooms (excluding laptops on carts)		Percent of schools that have laptop computers on carts	Percent of schools that have computers available for students to take home
	Percent of schools that have instructional computers with Internet access	Ratio of students to instructional computers with Internet access <sup>1</sup>	Percent of schools that have instructional computers in classrooms	Ratio of instructional computers in classrooms to number of classrooms <sup>2</sup>		
All public schools .....	100	3.1	97	3.0	58	6
Instructional level <sup>3</sup>						
Elementary .....	100	3.2	98	3.2	55	4
Secondary .....	100	2.9	96	2.6	65	13
Enrollment size						
Less than 300 .....	100	2.2	94	2.8	51	10
300 to 999 .....	100	3.2	98	3.0	57	5
1,000 or more .....	100	3.2	98	2.9	76	7
Community type						
City .....	100	3.4	97	3.0	60	5
Suburban .....	100	3.2	97	3.1	62	5
Town .....	100	2.7	99	3.1	56	8
Rural .....	100	2.9	96	2.7	53	8
Region						
Northeast .....	100	2.8	99	3.0	64	6
Southeast .....	100	2.9	98	3.3	61	5
Central .....	100	3.1	96	2.6	55	7
West .....	100	3.5	97	3.0	54	7
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students <sup>4</sup>						
Less than 6 percent .....	100	2.8	97	2.6	52	7
6 to 20 percent .....	100	3.0	98	2.9	62	7
21 to 49 percent .....	100	3.2	98	3.0	58	5
50 percent or more .....	100	3.2	96	3.2	58	6
Percent of students eligible for free or reduced-price lunch						
Less than 35 percent .....	100	3.1	97	2.8	62	6
35 to 49 percent .....	100	3.2	96	2.7	54	6
50 to 74 percent .....	100	2.9	98	3.2	55	8
75 percent or more .....	100	3.2	97	3.3	55	5

<sup>1</sup> Ratio computed by dividing the number of students in all public schools by the number of instructional computers with Internet access in all public schools.

<sup>2</sup> Ratio computed by dividing the number of instructional computers in classrooms (excluding laptops on carts) in all public schools by the number of classrooms in all public schools.

<sup>3</sup> 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.

<sup>4</sup> Black includes African American and Hispanic includes Latino.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Educational Technology in U.S. Public Schools, Fall 2008," FRSS 92, 2008; and Common Core of Data, "Public Elementary/Secondary School Universe Survey," 2005-06.

**Table 2. Percent of the computers in public schools that are used for instruction, percent of instructional computers with various characteristics, and percentage distribution of the mobility and location of instructional computers, by school characteristics: Fall 2008**

School characteristic	Percent of computers that are used for instruction	Percent of instructional computers that:			Percentage distribution of instructional computers by mobility and location				
		Are desktops	Are less than 1 year old	Have Internet access	Laptop computers on carts	Not laptop computers on carts			
						In classrooms	In computer labs	In library/media centers	Other location
All public schools .....	91	76	15	98	14	51	27	6	2
Instructional level <sup>1</sup>									
Elementary .....	91	77	15	98	13	56	23	6	2
Secondary .....	92	76	17	99	16	43	33	7	1
Enrollment size									
Less than 300 .....	90	74	14	98	15	45	31	7	1
300 to 999 .....	91	77	15	98	13	54	24	7	2
1,000 or more .....	92	76	16	99	15	48	30	6	1
Community type									
City .....	91	76	15	97	14	53	25	6	2
Suburban .....	92	75	15	99	14	54	24	6	1
Town .....	92	78	17	98	14	51	28	7	#
Rural .....	91	78	16	98	14	46	32	7	2
Region									
Northeast .....	92	69	16	99	20	50	22	6	2
Southeast .....	92	77	17	98	13	55	25	6	1
Central .....	91	79	14	99	14	45	32	8	1
West .....	91	80	14	97	11	54	27	6	2
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students <sup>2</sup>									
Less than 6 percent .....	91	79	15	98	13	45	33	8	1
6 to 20 percent .....	91	76	16	99	15	48	29	7	1
21 to 49 percent .....	91	76	14	99	13	53	25	6	2
50 percent or more .....	92	76	17	97	14	55	23	6	2
Percent of students eligible for free or reduced-price lunch									
Less than 35 percent .....	91	74	16	99	16	48	28	7	1
35 to 49 percent .....	91	79	16	98	13	49	29	7	2
50 to 74 percent .....	92	77	14	98	12	55	25	6	1
75 percent or more .....	91	78	15	97	13	56	22	5	3

# Rounds to zero.

<sup>1</sup>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.

<sup>2</sup>Black includes African American and Hispanic includes Latino.

NOTE: This table contains percents of computers and not percents of schools. 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), "Educational Technology in U.S. Public Schools, Fall 2008," FRSS 92, 2008; and Common Core of Data, "Public Elementary/Secondary School Universe Survey," 2005-06.

**Table 3. Percent of public schools providing handheld computing devices (e.g., Palm OS, Windows CE, Pocket PC, BlackBerry) to administrators, teachers, or students, and among those schools, the mean number of handhelds for administrators, the ratio of full-time-equivalent (FTE) teachers to handhelds for teachers, and the ratio of students to handhelds for students, by school characteristics: Fall 2008**

School characteristic	For administrators		For teachers		For students <sup>1</sup>	
	Percent of schools	Mean number of handhelds <sup>2</sup>	Percent of schools	Ratio of FTE teachers to handhelds <sup>3</sup>	Percent of schools	Ratio of students to handhelds <sup>4</sup>
All public schools .....	49	2	15	4	4	21
Instructional level <sup>5</sup>						
Elementary .....	47	2	16	3	3	13
Secondary .....	56	4	14	11	6	44
Enrollment size						
Less than 300 .....	39	2	16	3	3	12
300 to 999 .....	50	2	15	3	4	14
1,000 or more .....	62	4	15	9	7	48
Community type						
City .....	48	2	18	3	4	15!
Suburban .....	51	2	14	5	4	18
Town .....	56	2	16	3	4	31
Rural .....	43	2	15	4	4	30
Region						
Northeast .....	46	2	14	4	5	24!
Southeast .....	60	3	16	5	5	28
Central .....	44	2	15	4	5	14
West .....	47	2	16	3	2	23!
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students <sup>6</sup>						
Less than 6 percent .....	46	3	16	5	3	30
6 to 20 percent .....	51	2	11	7	5	35
21 to 49 percent .....	53	2	14	4	5	14
50 percent or more .....	46	2	18	3	3	15
Percent of students eligible for free or reduced-price lunch						
Less than 35 percent .....	50	2	13	5	5	28
35 to 49 percent .....	49	2	12	5	4	29
50 to 74 percent .....	47	3	16	3	4	13
75 percent or more .....	48	2	20	3	3	15

! Interpret data with caution; the coefficient of variation is greater than 50 percent.

<sup>1</sup> The “for students” category represents combined responses from the following questionnaire items: “for students to use in specific classes” and “for students to use the entire day.”

<sup>2</sup> Mean number of handhelds for administrators based on the 49 percent of public schools with handhelds for administrators.

<sup>3</sup> Ratio computed by dividing the FTE teachers in the 15 percent of public schools with handhelds for teachers by the number of handhelds for teachers.

<sup>4</sup> Ratio computed by dividing the number of students in the 4 percent of public schools with handhelds for students by the number of handhelds for students.

<sup>5</sup> 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.

<sup>6</sup> Black includes African American and Hispanic includes Latino.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), “Educational Technology in U.S. Public Schools, Fall 2008,” FRSS 92, 2008; and Common Core of Data, “Public Elementary/Secondary School Universe Survey,” 2005–06.



**Table 4. Percent of public schools providing various technology devices for instruction, and among those schools, the ratio of students to number of devices, by school characteristics: Fall 2008**

School characteristic	LCD and DLP projectors		Videoconference units		Interactive whiteboards		Classroom response systems <sup>1</sup>		Digital cameras (still and video)		MP3 players/iPods		Document cameras <sup>2</sup>	
	Percent of schools	Ratio of students to devices	Percent of schools	Ratio of students to devices	Percent of schools	Ratio of students to devices	Percent of schools	Ratio of students to devices	Percent of schools	Ratio of students to devices	Percent of schools	Ratio of students to devices	Percent of schools	Ratio of students to devices
All public schools .....	97	32	22	308	73	65	38	144	93	74	13	69	52	59
Instructional level <sup>3</sup>														
Elementary .....	97	34	16	248	71	59	36	120	92	71	12	56!	49	49
Secondary .....	98	29	39	409	82	80	44	206	96	80	16	102	60	88
Enrollment size														
Less than 300 .....	95	24	26	128	65	35	26	72	91	43	11	50	40	38
300 to 999 .....	98	32	19	274	75	60	39	124	94	70	13	53!	53	52
1,000 or more .....	99	34	28	631!	86	100	56	237	95	104	19	152	71	91
Community type														
City .....	96	36	15	172!	73	81	36	188	91	68	11	85	53	56
Suburban .....	98	33	18	566	70	71	36	144	93	87	15	‡	56	57
Town .....	98	29	25	514	77	54	48	133	97	71	16	86	48	75
Rural .....	97	29	28	249	75	54	36	121	93	65	12	74	48	62
Region														
Northeast .....	98	34	26	506	78	64	30	242	94	76	16	79	41	109
Southeast .....	98	29	20	407	86	55	54	105	93	80	15	‡	59	60
Central .....	96	35	22	339	74	73	37	208	95	75	11	74	42	84
West .....	96	31	20	196	61	74	31	137	91	67	12	96	62	45
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students <sup>4</sup>														
Less than 6 percent .....	96	31	24	307	76	58	39	159	94	66	13	73	46	87
6 to 20 percent .....	98	29	23	316	77	66	42	181	96	75	16	87	54	67
21 to 49 percent .....	98	32	18	444	75	65	41	131	95	80	14	‡	59	59
50 percent or more .....	96	34	22	257	68	69	31	123	90	72	11	94	49	50
Percent of students eligible for free or reduced-price lunch														
Less than 35 percent .....	97	31	21	383	74	70	37	206	96	70	16	58!	53	69
35 to 49 percent .....	98	36	21	215!	75	74	39	130	96	92	11	77	49	70
50 to 74 percent .....	97	30	24	378	74	58	42	109	91	82	13	107	57	53
75 percent or more .....	96	33	20	226!	70	60	32	119	89	61!	10	77	46	46

! Interpret data with caution; the coefficient of variation is greater than 50 percent.

‡ Reporting standards not met.

<sup>1</sup> Wireless systems allowing teachers to pose questions and students to respond using “clickers” or hand-held response pads, with responses compiled on a computer.

<sup>2</sup> Devices that transmit images of 2- or 3-dimensional objects, text, or graphics to a computer monitor or LCD projector.

<sup>3</sup> 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.

<sup>4</sup> Black includes African American and Hispanic includes Latino.

NOTE: Ratio of students to devices computed by dividing the number of students in public schools that have the device by the number of devices.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), “Educational Technology in U.S. Public Schools, Fall 2008,” FRSS 92, 2008; and Common Core of Data, “Public Elementary/Secondary School Universe Survey,” 2005–06.

**Table 5. Percentage distribution of public schools reporting the type of wireless network access in the school, and percent reporting the operating system(s) or platform(s) used on their instructional computers, by school characteristics: Fall 2008**

School characteristic	Type of wireless network access in the school				Operating system(s) or platform(s) for instructional computers <sup>1</sup>							
	None	Wireless connections are only from laptops to carts <sup>2</sup>	Wireless access in part of the school	Wireless access in the whole school	Windows 3.1 or DOS	Windows 95, 98, or ME	Windows NT or 2000	Windows XP	Windows Vista	Mac OS 9 or earlier	Mac OS 10 or higher	Other operating system
All public schools .....	22	9	30	39	2	23	27	84	13	15	31	2
Instructional level <sup>3</sup>												
Elementary .....	24	9	28	39	2	24	26	81	11	16	28	1
Secondary .....	15	12	36	37	2	19	29	96	20	13	36	4
Enrollment size												
Less than 300 .....	18	8	32	41	2	26	25	80	18	11	27	3
300 to 999 .....	24	9	28	39	2	23	27	84	12	16	30	2
1,000 or more .....	15	15	35	35	1	15	30	94	15	20	41	3
Community type												
City .....	25	8	26	40	3	23	35	81	9	23	38	1
Suburban .....	22	12	29	37	2	20	27	82	9	15	31	1
Town .....	22	4	34	40	4	24	27	88	19	13	27	5
Rural .....	19	10	33	39	1	24	23	88	18	12	27	3
Region												
Northeast .....	19	14	25	42	#	12	22	80	5	17	35	1
Southeast .....	21	9	36	34	2	33	33	88	18	9	21	2
Central .....	23	10	28	39	3	21	24	85	13	12	28	3
West .....	23	6	31	41	2	23	29	83	15	22	38	3
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students <sup>4</sup>												
Less than 6 percent .....	20	11	35	35	2!	26	19	88	16	12	23	3
6 to 20 percent .....	20	11	28	41	1!	18	27	86	11	15	34	3
21 to 49 percent .....	24	8	31	37	2	20	24	81	15	15	38	1!
50 percent or more .....	23	8	28	41	3	26	35	83	11	18	29	2
Percent of students eligible for free or reduced-price lunch												
Less than 35 percent .....	21	10	29	40	1	15	22	83	11	16	38	2
35 to 49 percent .....	20	10	32	38	3	27	26	87	15	13	26	5
50 to 74 percent .....	23	8	32	36	2	23	28	83	15	16	29	2
75 percent or more .....	22	9	27	41	3	30	36	85	14	15	24	1!

# Rounds to zero.

! Interpret data with caution; the coefficient of variation is greater than 50 percent.

<sup>1</sup> A school may report more than one operating system.

<sup>2</sup> The wording for this response option in the questionnaire was “the only wireless connections are from laptops to a cart, with the cart connected to a wall port.”

<sup>3</sup> 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.

<sup>4</sup> Black includes African American and Hispanic includes Latino.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), “Educational Technology in U.S. Public Schools, Fall 2008,” FRSS 92, 2008; and Common Core of Data, “Public Elementary/Secondary School Universe Survey,” 2005–06.

**Table 6. Percent of public schools using their district network or Internet access to provide various opportunities and information for teaching and learning, by school characteristics: Fall 2008**

School characteristic	Two-way conferencing (e.g., video-conferencing)	Telecommunications (voice over IP)	Online student assessment provided by school or district	Access for students to online distance learning	Standardized assessment results and data for teachers to individualize instruction	Data to inform instructional planning at the school	Online professional development provided by school or district	High-quality digital content <sup>1</sup>
All public schools .....	30	23	72	42	87	85	59	65
Instructional level <sup>2</sup>								
Elementary .....	25	21	72	34	88	86	60	64
Secondary .....	45	28	71	65	83	82	57	68
Enrollment size								
Less than 300 .....	32	18	69	49	87	82	53	54
300 to 999 .....	28	22	72	37	87	85	60	67
1,000 or more .....	36	37	74	61	85	88	69	74
Community type								
City .....	24	18	73	35	91	88	61	61
Suburban .....	28	26	72	37	86	84	58	69
Town .....	29	26	71	44	85	84	60	64
Rural .....	36	21	72	52	85	83	58	63
Region								
Northeast .....	36	23	65	34	83	83	51	65
Southeast .....	30	21	77	46	91	88	71	69
Central .....	29	21	72	44	82	81	56	61
West .....	28	25	73	43	90	87	57	64
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students <sup>3</sup>								
Less than 6 percent .....	31	17	70	45	84	78	58	65
6 to 20 percent .....	34	30	70	44	86	86	56	71
21 to 49 percent .....	26	20	77	42	86	84	60	68
50 percent or more .....	30	23	71	40	89	89	61	58
Percent of students eligible for free or reduced-price lunch								
Less than 35 percent .....	31	25	67	42	83	83	58	70
35 to 49 percent .....	30	17	74	45	90	85	55	67
50 to 74 percent .....	31	23	78	44	88	86	63	67
75 percent or more .....	27	21	72	39	89	86	59	52

<sup>1</sup>Web-based learning materials or any text, images, sounds, and video that have been digitized.

<sup>2</sup>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.

<sup>3</sup>Black includes African American and Hispanic includes Latino.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Educational Technology in U.S. Public Schools, Fall 2008," FRSS 92, 2008; and Common Core of Data, "Public Elementary/Secondary School Universe Survey," 2005-06.

**Table 7. Percent of public schools with staff in the school full time whose only responsibility is technology support and/or technology integration into instruction, and percentage distribution of public schools reporting how long it takes to obtain various types of technology support, by school characteristics: Fall 2008**

School characteristic	Have full-time staff responsible for technology support and/or integration	Time it takes to get:																
		Computer repaired				Help with software problem or question				Network services restored when network goes down				Curricular support for teachers who need help with integrating technology into curriculum				
		Less than 1 hour	1 to 8 hours	2 to 5 days	1 week or more <sup>1</sup>	Less than 1 hour	1 to 8 hours	2 to 5 days	1 week or more <sup>1</sup>	Less than 1 hour	1 to 8 hours	2 to 5 days	1 week or more <sup>1</sup>	Less than 1 hour	1 to 8 hours	2 to 5 days	1 week or more <sup>1</sup>	
All public schools .....	31	3	24	45	28	17	51	23	8	22	68	9	2	9	35	35	21	
Instructional level <sup>2</sup>																		
Elementary .....	27	2	22	45	31	17	51	23	9	20	69	9	2	10	35	33	22	
Secondary .....	47	4	30	45	21	19	52	24	5	29	63	6	2	8	34	40	18	
Enrollment size																		
Less than 300 .....	25	2	23	46	29	17	49	24	10	22	63	12	2	7	30	37	25	
300 to 999 .....	30	3	23	45	29	17	52	23	8	21	70	8	2	10	37	33	20	
1,000 or more .....	54	6	27	45	22	21	54	21	5	30	64	5	1	8	37	40	15	
Community type																		
City .....	27	2	17	40	40	20	43	27	10	14	70	14	2	10	36	31	22	
Suburban .....	31	3	21	49	26	18	52	23	7	23	68	7	2	9	34	35	22	
Town .....	38	1 <sup>†</sup>	33	43	23	15	54	25	7	28	65	6	‡	11	33	39	18	
Rural .....	31	3	26	45	25	17	55	19	9	23	66	8	2	8	36	36	20	
Region																		
Northeast .....	37	4	24	48	24	20	51	22	8	25	66	8	1 <sup>†</sup>	11	32	37	20	
Southeast .....	28	2	20	44	34	11	53	24	13	19	64	13	4	12	38	29	21	
Central .....	33	4	27	46	23	19	52	23	6	27	63	8	2	7	35	37	21	
West .....	28	3	22	43	32	19	49	24	8	17	75	7	1	8	35	36	22	
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students <sup>3</sup>																		
Less than 6 percent .....	34	3	32	45	20	19	58	16	7	28	64	6	1 <sup>†</sup>	9	36	37	18	
6 to 20 percent .....	32	3	29	47	21	16	55	21	7	30	63	6	1 <sup>†</sup>	10	33	38	19	
21 to 49 percent .....	30	3	24	46	27	17	52	23	8	18	74	6	1 <sup>†</sup>	9	35	35	20	
50 percent or more .....	30	2	15	43	40	17	43	29	10	15	68	14	3	9	35	31	25	
Percent of students eligible for free or reduced-price lunch																		
Less than 35 percent ....	35	3	30	46	21	19	56	20	5	27	66	6	1	10	37	36	17	
35 to 49 percent .....	32	5	25	42	29	16	52	22	10	26	65	7	2	8	35	36	21	
50 to 74 percent .....	28	2	22	47	29	15	51	24	9	22	70	7	1 <sup>†</sup>	8	34	37	20	
75 percent or more .....	28	2	14	43	41	18	42	28	12	11	69	16	3	9	33	29	29	

<sup>†</sup> Interpret data with caution; the coefficient of variation is greater than 50 percent.

<sup>‡</sup> Reporting standards not met.

<sup>1</sup> One week or more represents combined responses from the following questionnaire items: 1 to 3 weeks and a month or more.

<sup>2</sup> 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.

<sup>3</sup> Black includes African American and Hispanic includes Latino.

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), "Educational Technology in U.S. Public Schools, Fall 2008," FRSS 92, 2008; and Common Core of Data, "Public Elementary/Secondary School Universe Survey," 2005–06.

**Table 8. Percentage distribution of public schools reporting the extent to which people in various roles help school staff integrate technology into instruction, by school characteristics: Fall 2008**

School characteristic	District-level technology staff				School-level technology staff				School-level administrators			
	Not at all	Minor extent	Moderate extent	Major extent	Not at all	Minor extent	Moderate extent	Major extent	Not at all	Minor extent	Moderate extent	Major extent
All public schools .....	11	31	34	24	15	22	34	29	12	39	35	14
Instructional level <sup>1</sup>												
Elementary .....	11	31	34	24	16	21	34	29	11	39	35	15
Secondary .....	8	31	36	25	12	23	35	30	13	41	33	13
Enrollment size												
Less than 300 .....	16	29	34	21	20	23	36	21	13	34	38	15
300 to 999 .....	10	31	35	25	14	22	33	31	11	41	34	14
1,000 or more .....	6	34	33	26	9	18	35	38	11	41	34	15
Community type												
City .....	13	34	34	19	12	26	32	30	14	41	31	14
Suburban .....	10	32	31	27	16	19	35	30	12	40	32	16
Town .....	9	30	29	32	17	17	32	35	9	39	35	17
Rural .....	11	28	40	21	15	23	36	26	11	38	40	12
Region												
Northeast .....	11	30	32	27	19	17	35	29	11	42	34	13
Southeast .....	4	34	39	24	10	19	33	37	8	37	35	20
Central .....	13	30	35	21	17	24	39	20	15	38	34	13
West .....	14	29	32	25	14	24	30	32	12	41	35	12
Percent combined enrollment of Black, Hispanic, Asian/ Pacific Islander, or American Indian/ Alaska Native students <sup>2</sup>												
Less than 6 percent .....	11	25	40	24	18	18	37	27	11	38	35	16
6 to 20 percent .....	8	34	33	25	17	19	34	29	10	42	36	12
21 to 49 percent .....	9	31	37	23	14	24	31	31	14	40	34	11
50 percent or more .....	14	32	30	24	12	25	34	30	12	38	34	17
Percent of students eligible for free or reduced-price lunch												
Less than 35 percent .....	10	29	36	25	14	18	36	32	11	42	33	14
35 to 49 percent .....	9	31	36	24	15	23	32	30	12	38	35	15
50 to 74 percent .....	11	28	35	25	18	20	33	29	12	36	38	13
75 percent or more .....	14	36	30	20	12	29	34	25	13	39	33	14

See notes at end of table.

**Table 8. Percentage distribution of public schools reporting the extent to which people in various roles help school staff integrate technology into instruction, by school characteristics: Fall 2008—Continued**

School characteristic	Teachers				Library media specialists				Vendor(s)			
	Not at all	Minor extent	Moderate extent	Major extent	Not at all	Minor extent	Moderate extent	Major extent	Not at all	Minor extent	Moderate extent	Major extent
All public schools .....	2	30	47	20	20	31	31	18	55	34	10	2
Instructional level <sup>1</sup>												
Elementary .....	3	31	47	20	21	32	30	17	57	33	9	1
Secondary .....	2	28	49	21	15	29	34	22	47	39	11	3
Enrollment size												
Less than 300 .....	3	31	47	20	30	32	25	13	58	30	10	2
300 to 999 .....	2	31	47	20	18	31	33	18	55	34	10	2
1,000 or more .....	1	28	49	22	8	31	34	26	45	42	10	2
Community type												
City .....	3	32	49	16	24	24	35	17	54	34	10	1
Suburban .....	3	29	46	23	18	32	29	21	58	32	8	1
Town .....	2	29	45	24	21	29	29	22	45	44	8	3
Rural .....	2	31	49	19	18	36	32	14	55	32	12	2
Region												
Northeast .....	3	29	50	18	20	32	34	14	57	36	6	2!
Southeast .....	2	28	44	25	8	29	38	26	46	37	14	3
Central .....	2!	29	52	17	23	28	29	20	58	33	7	1
West .....	2	34	44	20	26	35	27	13	56	31	11	1
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students <sup>2</sup>												
Less than 6 percent .....	2	30	53	16	18	37	27	17	54	34	11	2
6 to 20 percent .....	2	25	49	24	18	27	35	20	54	38	6	2
21 to 49 percent .....	3	35	43	20	19	34	28	19	59	31	9	1
50 percent or more .....	3	32	45	20	23	28	33	16	52	34	12	2
Percent of students eligible for free or reduced-price lunch												
Less than 35 percent .....	2	27	51	19	17	30	32	20	57	35	6	1
35 to 49 percent .....	2!	31	47	20	15	31	35	18	56	31	12	2
50 to 74 percent .....	3	32	42	23	22	33	27	18	51	37	10	2
75 percent or more .....	3	34	46	18	25	31	31	13	53	32	14	2

See notes at end of table.

**Table 8. Percentage distribution of public schools reporting the extent to which people in various roles help school staff integrate technology into instruction, by school characteristics: Fall 2008—Continued**

School characteristic	Students				Parents or non-staff volunteers			
	Not at all	Minor extent	Moderate extent	Major extent	Not at all	Minor extent	Moderate extent	Major extent
All public schools .....	44	39	14	3	71	25	3	#
Instructional level <sup>1</sup>								
Elementary .....	49	36	13	3	72	25	4	‡
Secondary .....	29	52	16	3	71	28	1	#
Enrollment size								
Less than 300 .....	42	35	20	2	69	28	4	‡
300 to 999 .....	46	40	11	3	72	24	3	‡
1,000 or more .....	36	46	16	2	73	25	2	!‡
Community type								
City .....	47	35	15	4	72	21	6	!‡
Suburban .....	46	42	9	3	71	27	3	‡
Town .....	41	43	12	4	74	24	2!	‡
Rural .....	41	39	19	1	71	27	3	‡
Region								
Northeast .....	48	39	11	2	75	23	2	‡
Southeast .....	42	39	15	3	70	28	2	‡
Central .....	37	46	16	2	75	22	3	#
West .....	49	34	13	4	67	27	5	#
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students <sup>2</sup>								
Less than 6 percent .....	39	44	15	2	70	27	3	‡
6 to 20 percent .....	35	47	16	2	68	30	3	‡
21 to 49 percent .....	50	35	12	3	74	23	3	‡
50 percent or more .....	49	34	13	4	73	23	5	‡
Percent of students eligible for free or reduced-price lunch								
Less than 35 percent .....	40	43	15	2	65	33	2	!‡
35 to 49 percent .....	44	38	16	!‡	70	23	6	‡
50 to 74 percent .....	44	41	12	4	75	23	2	‡
75 percent or more .....	51	33	13	3	79	16	5	‡

# Rounds to zero.

! Interpret data with caution; the coefficient of variation is greater than 50 percent.

‡ Reporting standards not met.

<sup>1</sup> 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.

<sup>2</sup> Black includes African American and Hispanic includes Latino.

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), "Educational Technology in U.S. Public Schools, Fall 2008," FRSS 92, 2008; and Common Core of Data, "Public Elementary/Secondary School Universe Survey," 2005–06.

**Table 9. Percentage distribution of public schools reporting the extent to which people in various roles provide technical support for educational technology in the school, by school characteristics: Fall 2008**

School characteristic	District-level technology staff				School-level technology staff				School-level administrators			
	Not at all	Minor extent	Moderate extent	Major extent	Not at all	Minor extent	Moderate extent	Major extent	Not at all	Minor extent	Moderate extent	Major extent
All public schools .....	4	10	27	59	14	15	30	42	32	39	21	8
Instructional level <sup>1</sup>												
Elementary .....	4	11	27	58	14	15	31	39	31	39	22	8
Secondary .....	5	11	23	62	12	14	27	48	33	41	19	8
Enrollment size												
Less than 300 .....	9	11	25	56	17	15	35	33	27	38	25	10
300 to 999 .....	3	10	27	61	13	15	30	42	33	38	21	7
1,000 or more .....	2	13	32	53	8	14	20	58	32	45	15	7
Community type												
City .....	5	14	37	43	10	14	37	39	33	38	22	8
Suburban .....	2	11	23	64	15	13	25	46	34	38	20	8
Town .....	4	6	24	66	17	14	30	39	27	45	19	9
Rural .....	6	9	25	60	13	17	31	39	31	38	24	7
Region												
Northeast .....	6	9	25	61	16	15	23	47	39	35	20	5
Southeast .....	1	12	31	55	11	12	33	44	28	38	25	10
Central .....	5	9	22	63	17	15	31	37	32	41	19	8
West .....	4	11	29	56	11	17	32	40	30	40	22	8
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students <sup>2</sup>												
Less than 6 percent .....	5	8	18	68	18	11	30	41	29	40	22	10
6 to 20 percent .....	4	10	26	59	15	16	28	41	34	39	21	6
21 to 49 percent .....	3	8	24	65	12	16	26	46	36	42	16	6
50 percent or more .....	4	14	34	48	11	16	34	39	29	36	25	10
Percent of students eligible for free or reduced-price lunch												
Less than 35 percent .....	4	8	24	63	14	12	26	47	33	41	18	8
35 to 49 percent .....	4	11	25	60	11	16	31	42	35	34	25	7
50 to 74 percent .....	2	10	24	64	17	16	28	40	30	42	21	7
75 percent or more .....	5	13	37	45	11	17	39	33	30	35	26	9

See notes at end of table.



**Table 9. Percentage distribution of public schools reporting the extent to which people in various roles provide technical support for educational technology in the school, by school characteristics: Fall 2008—Continued**

School characteristic	Teachers				Library media specialists				Vendor(s)			
	Not at all	Minor extent	Moderate extent	Major extent	Not at all	Minor extent	Moderate extent	Major extent	Not at all	Minor extent	Moderate extent	Major extent
All public schools .....	16	53	25	6	31	36	22	11	57	31	10	2
Instructional level <sup>1</sup>												
Elementary .....	16	53	25	6	32	36	21	11	61	28	9	1
Secondary .....	16	52	25	7	28	35	25	13	48	37	11	4
Enrollment size												
Less than 300 .....	15	49	29	7	38	33	18	11	58	30	9	3
300 to 999 .....	17	54	24	5	30	36	23	11	59	29	10	2
1,000 or more .....	15	56	24	6	21	39	25	15	46	42	10	3
Community type												
City .....	16	52	26	6	31	31	28	10	60	28	11	21
Suburban .....	15	57	23	5	33	35	19	13	60	30	9	1
Town .....	16	51	27	6	29	35	22	14	50	36	12	21
Rural .....	17	49	27	6	31	39	20	10	57	31	9	3
Region												
Northeast .....	18	55	21	5	36	40	17	7	62	29	7	2
Southeast .....	15	48	30	8	13	36	31	20	51	34	12	3
Central .....	17	53	25	4	33	35	20	12	58	31	9	2
West .....	15	54	24	6	40	33	20	7	59	29	11	1
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students <sup>2</sup>												
Less than 6 percent .....	18	53	23	5	31	40	18	11	57	31	9	2
6 to 20 percent .....	13	52	30	5	27	37	22	14	59	32	7	2
21 to 49 percent .....	19	55	21	5	29	38	21	11	58	31	8	3
50 percent or more .....	15	51	27	7	35	31	24	10	56	29	13	2
Percent of students eligible for free or reduced-price lunch												
Less than 35 percent .....	16	56	23	5	31	36	21	12	62	29	6	3
35 to 49 percent .....	17	56	22	5	26	36	22	16	55	31	12	2
50 to 74 percent .....	16	51	28	5	32	38	18	12	55	34	9	2
75 percent or more .....	15	48	28	8	34	32	27	7	54	30	15	21

See notes at end of table.

**Table 9. Percentage distribution of public schools reporting the extent to which people in various roles provide technical support for educational technology in the school, by school characteristics: Fall 2008—Continued**

School characteristic	Students				Parents or non-staff volunteers				Other			
	Not at all	Minor extent	Moderate extent	Major extent	Not at all	Minor extent	Moderate extent	Major extent	Not at all	Minor extent	Moderate extent	Major extent
All public schools .....	64	28	7	1	83	14	2	1	98	1	1	1
Instructional level <sup>1</sup>												
Elementary .....	69	24	5	1	84	14	2	1	98	#	#	1
Secondary .....	46	43	9	2	82	16	2	1!	96	2	1	1
Enrollment size												
Less than 300 .....	57	34	9	1!	78	20	1!	‡	97	1!	2!	1!
300 to 999 .....	68	25	5	1	85	12	2	1	98	1	#	1
1,000 or more .....	54	34	11	2!	86	12	1	‡	97	1!	1	1!
Community type												
City .....	67	23	9	1!	84	13	3	1!	99	‡	1!	‡
Suburban .....	68	27	4	1	86	12	#	1!	99	#	#	1
Town .....	60	33	5	2	85	13	1!	‡	99	‡	‡	‡
Rural .....	60	31	8	1	80	18	2	#	96	2	1!	1
Region												
Northeast .....	73	20	5	1!	87	11	1!	‡	98	‡	1!	2
Southeast .....	62	29	7	2	81	16	2	1!	98	1!	#	1
Central .....	58	35	6	1!	85	14	1	‡	98	#	1!	1!
West .....	65	26	8	2	82	15	2	1	98	1	1!	‡
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students <sup>2</sup>												
Less than 6 percent .....	58	34	6	1!	80	18	1	‡	97	1!	#	1!
6 to 20 percent .....	59	33	7	#	83	15	1	1!	98	1!	‡	1
21 to 49 percent .....	69	24	5	1	89	10	1!	‡	97	1!	2!	‡
50 percent or more .....	67	23	7	2	82	14	3	1!	98	1!	#	1!
Percent of students eligible for free or reduced-price lunch												
Less than 35 percent .....	62	31	6	1	83	16	1	#	98	#	#	1
35 to 49 percent .....	63	30	7	#	78	17	3	2!	97	1!	2!	‡
50 to 74 percent .....	65	27	6	2	87	12	1!	‡	97	1!	1!	1!
75 percent or more .....	68	24	7	1!	84	12	3	1!	98	1!	‡	1!

# Rounds to zero.

! Interpret data with caution; the coefficient of variation is greater than 50 percent.

‡ Reporting standards not met.

<sup>1</sup>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.

<sup>2</sup>Black includes African American and Hispanic includes Latino.

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), "Educational Technology in U.S. Public Schools, Fall 2008," FRSS 92, 2008; and Common Core of Data, "Public Elementary/Secondary School Universe Survey," 2005–06.

**Table 10. Percentage distribution of public schools reporting agreement or disagreement with various statements on using educational technology in the instructional program in the school, by school characteristics: Fall 2008**

School characteristic	Teachers are sufficiently trained in technology usage		Teachers are sufficiently trained to integrate technology into classroom instruction		Teachers are interested in using technology in classroom instruction		Teachers construct lessons in which students use a range of educational technologies		Technology is a priority of the district administration	
	Disagree	Agree	Disagree	Agree	Disagree	Agree	Disagree	Agree	Disagree	Agree
All public schools .....	30	70	36	64	7	93	31	69	18	82
Instructional level <sup>1</sup>										
Elementary .....	30	70	37	63	7	93	33	67	18	82
Secondary .....	28	72	34	66	7	93	26	74	18	82
Enrollment size										
Less than 300 .....	33	67	37	63	10	90	31	69	16	84
300 to 999 .....	29	71	37	63	7	93	33	67	19	81
1,000 or more .....	28	72	32	68	6	94	24	76	17	83
Community type										
City .....	36	64	42	58	7	93	39	61	27	73
Suburban .....	30	70	35	65	8	92	29	71	17	83
Town .....	19	81	31	69	6	94	29	71	14	86
Rural .....	30	70	36	64	8	92	29	71	15	85
Region										
Northeast .....	29	71	35	65	4	96	26	74	15	85
Southeast .....	24	76	26	74	7	93	28	72	15	85
Central .....	33	67	42	58	9	91	34	66	18	82
West .....	32	68	39	61	8	92	35	65	22	78
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students <sup>2</sup>										
Less than 6 percent .....	28	72	34	66	7	93	28	72	12	88
6 to 20 percent .....	29	71	37	63	5	95	26	74	15	85
21 to 49 percent .....	29	71	35	65	8	92	37	63	19	81
50 percent or more .....	32	68	37	63	9	91	33	67	23	77
Percent of students eligible for free or reduced-price lunch										
Less than 35 percent .....	26	74	33	67	6	94	25	75	15	85
35 to 49 percent .....	30	70	36	64	7	93	31	69	15	85
50 to 74 percent .....	29	71	33	67	7	93	35	65	17	83
75 percent or more .....	38	62	44	56	10	90	38	62	27	73

See notes at end of table.

**Table 10. Percentage distribution of public schools reporting agreement or disagreement with various statements on using educational technology in the instructional program in the school, by school characteristics: Fall 2008—Continued**

School characteristic	Technology infrastructure is adequate		Technical support for educational technology is adequate		Funding for educational technology is adequate		Funding for educational technology is being spent in the most appropriate ways		Use of educational technology is adversely affected by competing priorities in the classroom	
	Disagree	Agree	Disagree	Agree	Disagree	Agree	Disagree	Agree	Disagree	Agree
All public schools .....	23	77	31	69	60	40	25	75	32	68
Instructional level <sup>1</sup>										
Elementary .....	23	77	31	69	60	40	26	74	31	69
Secondary .....	26	74	32	68	60	40	21	79	34	66
Enrollment size										
Less than 300 .....	22	78	34	66	60	40	22	78	37	63
300 to 999 .....	24	76	30	70	59	41	26	74	29	71
1,000 or more .....	23	77	31	69	63	37	28	72	35	65
Community type										
City .....	33	67	38	62	67	33	35	65	30	70
Suburban .....	22	78	31	69	59	41	27	73	31	69
Town .....	20	80	22	78	56	44	14	86	36	64
Rural .....	20	80	30	70	57	43	21	79	31	69
Region										
Northeast .....	24	76	26	74	54	46	24	76	34	66
Southeast .....	23	77	31	69	56	44	25	75	32	68
Central .....	25	75	35	65	60	40	22	78	34	66
West .....	22	78	30	70	65	35	28	72	28	72
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students <sup>2</sup>										
Less than 6 percent .....	21	79	26	74	54	46	16	84	37	63
6 to 20 percent .....	19	81	31	69	57	43	21	79	37	63
21 to 49 percent .....	23	77	28	72	62	38	27	73	24	76
50 percent or more .....	28	72	37	63	63	37	32	68	30	70
Percent of students eligible for free or reduced-price lunch										
Less than 35 percent .....	21	79	26	74	56	44	21	79	36	64
35 to 49 percent .....	22	78	32	68	64	36	27	73	33	67
50 to 74 percent .....	23	77	30	70	60	40	24	76	30	70
75 percent or more .....	29	71	40	60	62	38	31	69	26	74

<sup>1</sup> 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.

<sup>2</sup> Black includes African American and Hispanic includes Latino.

NOTE: The response options in the questionnaire were strongly disagree, somewhat disagree, somewhat agree, and strongly agree. Responses to the “strongly” and “somewhat” categories were combined in the table. 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), “Educational Technology in U.S. Public Schools, Fall 2008,” FRSS 92, 2008; and Common Core of Data, “Public Elementary/Secondary School Universe Survey,” 2005–06.

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# Appendix A

## Standard Error Tables

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**Table 1a. Standard errors for the percent of public schools that have instructional computers with various characteristics, ratio of students to instructional computers with Internet access, and ratio of instructional computers in classrooms to number of classrooms, by school characteristics: Fall 2008**

School characteristic	Instructional computers with Internet access		Instructional computers in classrooms (excluding laptops on carts)		Percent of schools that have laptop computers on carts	Percent of schools that have computers available for students to take home
	Percent of schools that have instructional computers with Internet access	Ratio of students to instructional computers with Internet access	Percent of schools that have instructional computers in classrooms	Ratio of instructional computers in classrooms to number of classrooms		
All public schools .....	†	0.04	0.5	0.05	1.3	0.5
Instructional level						
Elementary .....	†	0.05	0.6	0.07	1.8	0.6
Secondary .....	†	0.05	1.0	0.07	1.9	1.4
Enrollment size						
Less than 300 .....	†	0.07	1.7	0.13	3.5	1.5
300 to 999 .....	†	0.05	0.5	0.06	1.8	0.6
1,000 or more .....	†	0.06	0.6	0.10	2.7	1.1
Community type						
City .....	†	0.12	1.0	0.13	3.5	1.4
Suburban .....	†	0.08	1.1	0.11	2.4	0.9
Town .....	†	0.09	0.5	0.15	4.1	1.8
Rural .....	†	0.07	1.0	0.08	2.7	1.2
Region						
Northeast .....	†	0.08	0.6	0.13	2.9	1.5
Southeast .....	†	0.08	1.1	0.11	3.2	1.0
Central .....	†	0.07	1.2	0.08	2.8	1.2
West .....	†	0.10	0.9	0.11	2.7	1.0
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students						
Less than 6 percent .....	†	0.07	1.2	0.10	3.1	1.3
6 to 20 percent .....	†	0.07	0.6	0.11	2.8	1.3
21 to 49 percent .....	†	0.08	1.1	0.12	2.5	1.1
50 percent or more .....	†	0.10	1.0	0.10	2.4	1.2
Percent of students eligible for free or reduced-price lunch						
Less than 35 percent .....	†	0.06	0.9	0.09	2.2	0.8
35 to 49 percent .....	†	0.08	1.7	0.12	3.6	1.4
50 to 74 percent .....	†	0.08	0.7	0.14	2.6	1.5
75 percent or more .....	†	0.14	1.4	0.16	3.3	1.2

† Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Educational Technology in U.S. Public Schools, Fall 2008," FRSS 92, 2008; and Common Core of Data, "Public Elementary/Secondary School Universe Survey," 2005–06.

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**Table 2a. Standard errors for percent of the computers in public schools that are used for instruction, percent of instructional computers with various characteristics, and percentage distribution of the mobility and location of instructional computers, by school characteristics: Fall 2008**

School characteristic	Percent of computers that are used for instruction	Percent of instructional computers that:			Percentage distribution of instructional computers by mobility and location					
		Are desktops	Are less than 1 year old	Have Internet access	Laptop computers on carts	Not laptop computers on carts				
						In classrooms	In computer labs	In library/media centers	Other location	
All public schools .....	0.2	0.7	0.7	0.2	0.4	0.5	0.4	0.2	0.2	
Instructional level										
Elementary .....	0.3	1.1	1.0	0.3	0.7	0.7	0.6	0.2	0.3	
Secondary .....	0.4	1.3	1.1	0.2	0.9	1.0	0.9	0.2	0.2	
Enrollment size										
Less than 300 .....	0.7	1.7	1.3	0.7	1.4	1.7	1.4	0.6	0.5	
300 to 999 .....	0.3	1.1	1.0	0.3	0.6	0.7	0.6	0.2	0.3	
1,000 or more .....	0.4	1.6	1.3	0.4	1.3	1.4	1.1	0.3	0.2	
Community type										
City .....	0.5	2.0	1.9	0.5	1.0	1.4	1.1	0.4	0.7	
Suburban .....	0.4	1.3	1.0	0.3	0.7	1.2	1.0	0.2	0.3	
Town .....	0.5	2.6	2.4	0.7	2.4	1.8	1.6	0.5	†	
Rural .....	0.4	1.2	1.4	0.4	1.0	1.2	0.9	0.3	0.4	
Region										
Northeast .....	0.5	2.0	1.6	0.4	1.4	1.6	0.9	0.3	0.7	
Southeast .....	0.4	1.7	1.6	0.4	1.2	1.3	0.9	0.3	0.2	
Central .....	0.5	1.0	1.1	0.4	0.8	0.9	1.0	0.4	0.3	
West .....	0.4	1.2	1.5	0.5	0.7	1.0	0.8	0.3	0.4	
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students										
Less than 6 percent .....	0.4	1.5	1.1	0.5	0.9	1.3	1.4	0.5	0.3	
6 to 20 percent .....	0.5	1.6	1.0	0.3	1.1	1.3	0.9	0.3	0.2	
21 to 49 percent .....	0.4	1.7	1.1	0.3	0.9	1.5	0.9	0.3	0.4	
50 percent or more .....	0.3	1.7	1.5	0.5	1.2	1.0	0.7	0.3	0.4	
Percent of students eligible for free or reduced-price lunch										
Less than 35 percent .....	0.4	1.1	1.0	0.3	0.8	1.0	1.0	0.3	0.3	
35 to 49 percent .....	0.7	1.5	1.7	0.5	1.1	1.5	1.0	0.5	0.5	
50 to 74 percent .....	0.3	1.9	1.5	0.4	1.0	1.5	1.0	0.3	0.3	
75 percent or more .....	0.6	2.2	2.0	0.7	1.3	1.2	1.1	0.3	0.7	

† Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Educational Technology in U.S. Public Schools, Fall 2008," FRSS 92, 2008; and Common Core of Data, "Public Elementary/Secondary School Universe Survey," 2005-06.

**Table 3a. Standard errors for the percent of public schools providing handheld computing devices (e.g., Palm OS, Windows CE, Pocket PC, BlackBerry) to administrators, teachers, or students, and among those schools, the mean number of handhelds for administrators, the ratio of full-time-equivalent (FTE) teachers to handhelds for teachers, and the ratio of students to handhelds for students, by school characteristics: Fall 2008**

School characteristic	For administrators		For teachers		For students	
	Percent of schools	Mean number of handhelds	Percent of schools	Ratio of FTE teachers to handhelds	Percent of schools	Ratio of students to handhelds
All public schools .....	1.5	0.1	0.9	0.3	0.6	3.5
Instructional level						
Elementary .....	1.9	0.1	1.3	0.2	0.8	2.5
Secondary .....	2.3	0.2	1.5	1.8	1.2	3.3
Enrollment size						
Less than 300 .....	3.5	0.2	2.1	0.6	1.0	4.0
300 to 999 .....	2.1	0.1	1.3	0.2	0.8	2.9
1,000 or more .....	2.9	0.2	2.1	2.8	1.4	4.5
Community type						
City .....	3.5	0.1	2.2	0.4	1.3	8.2
Suburban .....	2.6	0.1	1.7	0.6	1.0	6.5
Town .....	4.6	0.2	3.3	0.8	1.3	4.9
Rural .....	3.2	0.2	1.6	0.5	0.8	5.3
Region						
Northeast .....	3.7	0.1	2.4	0.9	1.3	15.4
Southeast .....	2.6	0.2	2.0	1.1	1.2	4.3
Central .....	2.6	0.2	1.9	0.7	1.1	5.1
West .....	2.5	0.1	1.9	0.3	0.9	15.9
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students						
Less than 6 percent .....	3.1	0.2	2.0	0.8	0.9	6.9
6 to 20 percent .....	2.8	0.1	1.9	1.8	1.1	5.5
21 to 49 percent .....	2.5	0.1	2.1	0.6	1.4	5.9
50 percent or more .....	2.2	0.1	1.7	0.3	0.7	6.3
Percent of students eligible for free or reduced-price lunch						
Less than 35 percent .....	2.3	0.1	1.5	0.9	1.1	10.1
35 to 49 percent .....	3.9	0.2	2.1	1.3	1.2	8.4
50 to 74 percent .....	2.8	0.2	2.3	0.6	1.0	5.4
75 percent or more .....	3.1	0.1	2.4	0.3	0.9	7.5

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Educational Technology in U.S. Public Schools, Fall 2008," FRSS 92, 2008; and Common Core of Data, "Public Elementary/Secondary School Universe Survey," 2005-06.

**Table 4a. Standard errors for the percent of public schools providing various technology devices for instruction, and among those schools, the ratio of students to number of devices, by school characteristics: Fall 2008**

School characteristic	LCD and DLP projectors		Videoconference units		Interactive whiteboards		Classroom response systems		Digital cameras (still and video)		MP3 players/iPods		Document cameras	
	Percent of schools	Ratio of students to devices	Percent of schools	Ratio of students to devices	Percent of schools	Ratio of students to devices	Percent of schools	Ratio of students to devices	Percent of schools	Ratio of students to devices	Percent of schools	Ratio of students to devices	Percent of schools	Ratio of students to devices
All public schools .....	0.5	0.6	1.2	48.8	1.5	2.6	1.4	11.4	0.8	6.8	1.1	27.9	1.4	2.6
Instructional level														
Elementary .....	0.6	0.9	1.5	65.1	1.8	3.1	1.7	11.8	1.0	10.1	1.3	34.5	1.7	2.7
Secondary .....	0.6	0.8	1.7	88.7	1.9	3.5	2.0	16.9	0.7	3.4	1.6	14.1	2.2	6.5
Enrollment size														
Less than 300 .....	1.7	1.3	3.0	13.3	3.6	2.9	2.8	8.6	2.3	3.0	2.0	13.0	3.7	6.0
300 to 999 .....	0.5	0.9	1.5	66.3	1.4	3.2	1.9	13.3	0.9	10.4	1.2	30.1	1.7	2.8
1,000 or more .....	0.4	1.2	2.8	356.9	2.1	7.1	2.7	32.5	1.3	5.7	2.2	24.6	2.8	8.7
Community type														
City .....	1.3	1.8	2.3	91.0	2.2	6.3	3.1	19.3	1.7	31.3	1.8	19.0	2.9	4.7
Suburban .....	0.8	1.0	2.0	51.9	2.7	4.8	2.2	21.9	1.5	4.4	1.8	†	2.5	3.7
Town .....	1.1	1.4	2.7	45.1	3.1	4.5	4.0	23.9	1.2	4.4	2.7	14.6	3.5	10.8
Rural .....	1.2	1.2	2.3	24.4	2.6	3.2	2.5	13.5	1.4	3.6	1.6	13.2	2.2	6.2
Region														
Northeast .....	1.1	1.8	3.3	41.1	2.6	4.2	3.1	29.3	1.6	4.0	2.4	9.5	3.4	14.6
Southeast .....	0.7	1.4	2.5	58.8	1.9	4.8	3.4	14.7	1.9	5.9	2.4	†	2.7	5.0
Central .....	1.0	1.7	2.1	52.2	2.6	5.3	3.0	16.6	1.5	4.1	1.4	22.4	3.0	11.6
West .....	1.3	1.0	1.9	71.6	2.9	6.4	2.7	18.3	1.7	20.9	1.6	20.6	2.5	2.9
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students														
Less than 6 percent .....	2.0	1.7	2.9	35.3	2.9	4.5	2.8	19.7	1.3	2.9	2.1	16.6	3.1	10.5
6 to 20 percent .....	0.9	1.3	2.4	109.2	2.7	4.7	2.7	40.7	1.5	3.7	2.2	25.3	3.1	6.4
21 to 49 percent .....	0.8	1.4	2.3	85.2	2.8	5.7	3.0	18.1	1.4	5.1	2.1	†	3.2	5.3
50 percent or more .....	1.1	1.6	2.4	96.1	2.7	5.1	2.5	16.4	1.6	21.9	1.6	18.3	2.1	3.6
Percent of students eligible for free or reduced-price lunch														
Less than 35 percent .....	1.1	0.9	2.0	97.0	2.0	3.9	2.2	31.2	1.3	3.6	1.7	46.8	2.1	5.1
35 to 49 percent .....	1.0	1.8	2.8	158.3	3.4	7.8	3.2	34.4	1.6	6.0	2.0	12.8	3.7	8.9
50 to 74 percent .....	0.9	1.3	2.3	49.2	2.6	3.4	2.3	12.7	1.6	5.0	2.0	18.6	2.5	4.0
75 percent or more .....	1.4	1.9	2.9	132.1	2.7	5.2	2.8	17.6	2.5	33.4	2.0	21.8	2.8	5.2

† Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Educational Technology in U.S. Public Schools, Fall 2008," FRSS 92, 2008; and Common Core of Data, "Public Elementary/Secondary School Universe Survey," 2005-06.

**Table 5a. Standard errors for the percentage distribution of public schools reporting the type of wireless network access in the school, and percent reporting the operating system(s) or platform(s) used on their instructional computers, by school characteristics: Fall 2008**

School characteristic	Type of wireless network access in the school				Operating system(s) or platform(s) for instructional computers							
	None	Wireless connections are only from laptops to carts	Wireless access in part of the school	Wireless access in the whole school	Windows 3.1 or DOS	Windows 95, 98, or ME	Windows NT or 2000	Windows XP	Windows Vista	Mac OS 9 or earlier	Mac OS 10 or higher	Other operating system
All public schools .....	1.3	0.7	1.0	1.3	0.4	1.0	1.4	1.1	1.0	0.8	1.2	0.4
Instructional level												
Elementary .....	1.7	0.9	1.3	1.6	0.5	1.4	1.7	1.4	1.3	1.0	1.4	0.4
Secondary .....	1.5	1.6	1.8	2.3	0.7	1.7	1.7	0.8	1.7	1.2	2.2	0.7
Enrollment size												
Less than 300 .....	2.7	1.8	3.1	3.3	1.0	2.8	3.1	3.1	2.5	2.2	2.6	1.1
300 to 999 .....	1.6	0.8	1.5	1.9	0.5	1.3	1.6	1.2	1.0	1.0	1.4	0.4
1,000 or more .....	2.2	2.5	2.9	3.4	0.5	2.6	3.2	1.7	2.0	2.7	3.1	0.9
Community type												
City .....	3.4	1.8	2.5	3.3	1.0	2.8	3.4	2.3	1.9	2.7	2.8	0.5
Suburban .....	2.0	1.7	2.2	2.3	0.7	1.8	2.3	2.2	1.3	1.6	2.3	0.4
Town .....	2.8	1.4	3.8	4.1	1.6	4.0	3.4	2.6	3.0	2.6	2.6	1.8
Rural .....	2.0	1.3	2.2	2.2	0.5	2.0	2.1	1.7	2.3	1.7	2.1	0.8
Region												
Northeast .....	3.2	1.8	3.1	2.9	†	2.5	3.0	3.0	1.3	2.2	3.3	0.4
Southeast .....	2.4	1.5	2.4	2.5	0.9	2.8	2.5	2.1	1.8	1.7	2.3	0.7
Central .....	2.6	2.2	2.0	2.6	0.9	1.8	2.3	2.2	2.0	1.6	2.3	0.8
West .....	2.1	1.3	2.2	2.7	0.7	2.3	2.7	2.0	1.9	1.9	2.4	0.9
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students												
Less than 6 percent .....	2.9	1.7	2.8	2.5	0.9	2.7	2.8	2.1	2.7	2.1	2.6	0.9
6 to 20 percent .....	2.3	1.8	2.8	3.1	0.3	2.2	2.8	2.5	1.8	1.9	2.9	1.2
21 to 49 percent .....	2.5	1.5	2.4	3.1	0.7	2.5	2.6	2.2	1.9	2.3	2.4	0.7
50 percent or more .....	2.1	1.2	1.9	2.1	0.9	2.1	2.5	2.1	1.6	1.6	2.3	0.5
Percent of students eligible for free or reduced-price lunch												
Less than 35 percent .....	1.7	1.3	1.9	2.1	0.5	1.8	1.9	2.0	1.4	1.7	2.3	0.5
35 to 49 percent .....	3.0	2.3	3.6	3.1	1.6	3.4	2.8	3.0	2.7	2.2	3.4	1.5
50 to 74 percent .....	2.6	1.3	2.6	2.8	0.8	1.9	2.8	2.1	2.1	1.7	2.1	0.8
75 percent or more .....	2.8	2.0	2.6	3.2	1.1	3.0	2.6	2.5	2.1	2.5	2.8	0.6

† Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Educational Technology in U.S. Public Schools, Fall 2008," FRSS 92, 2008; and Common Core of Data, "Public Elementary/Secondary School Universe Survey," 2005-06.

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**Table 6a. Standard errors for the percent of public schools using their district network or Internet access to provide various opportunities and information for teaching and learning, by school characteristics: Fall 2008**

School characteristic	Two-way conferencing (e.g., video-conferencing)	Telecommunications (voice over IP)	Online student assessment provided by school or district	Access for students to online distance learning	Standardized assessment results and data for teachers to individualize instruction	Data to inform instructional planning at the school	Online professional development provided by school or district	High-quality digital content
All public schools .....	1.3	1.1	1.4	1.4	1.0	1.1	1.5	1.4
Instructional level								
Elementary .....	1.7	1.4	1.7	1.7	1.2	1.5	1.8	1.8
Secondary .....	2.3	1.5	2.1	2.1	1.8	1.7	2.1	2.0
Enrollment size								
Less than 300 .....	3.1	2.3	3.1	3.8	2.1	2.2	3.5	3.0
300 to 999 .....	1.7	1.4	1.7	1.5	1.2	1.3	1.9	1.9
1,000 or more .....	2.6	2.9	2.4	2.5	2.1	1.8	2.7	2.6
Community type								
City .....	2.4	1.8	2.4	2.9	1.9	1.9	2.9	3.2
Suburban .....	2.4	2.4	2.4	2.3	1.6	1.8	2.6	2.2
Town .....	3.0	3.6	3.9	3.6	2.7	2.6	4.4	3.3
Rural .....	2.6	1.8	2.3	2.6	1.5	1.9	2.8	2.3
Region								
Northeast .....	3.6	3.2	3.5	3.1	2.7	2.8	3.2	3.4
Southeast .....	2.8	2.1	2.2	2.6	2.0	2.1	2.4	3.1
Central .....	2.6	2.0	2.5	2.9	2.7	2.5	2.9	2.6
West .....	2.3	2.1	2.9	2.6	1.4	1.8	2.5	2.3
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students								
Less than 6 percent .....	2.9	2.6	2.9	3.2	2.1	2.5	3.3	3.0
6 to 20 percent .....	3.0	2.7	3.1	3.6	2.2	2.5	2.8	3.4
21 to 49 percent .....	2.6	2.2	2.4	2.6	2.2	1.9	3.1	2.5
50 percent or more .....	2.6	2.0	2.4	2.5	1.6	1.7	2.3	2.8
Percent of students eligible for free or reduced-price lunch								
Less than 35 percent .....	2.3	1.9	2.6	2.4	2.0	1.7	2.4	2.2
35 to 49 percent .....	3.5	2.6	2.7	3.6	2.0	2.9	3.3	3.6
50 to 74 percent .....	2.7	2.4	2.6	3.0	1.5	2.0	2.9	3.2
75 percent or more .....	2.9	2.7	3.1	2.9	2.2	2.2	2.9	3.2

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Educational Technology in U.S. Public Schools, Fall 2008," FRSS 92, 2008; and Common Core of Data, "Public Elementary/Secondary School Universe Survey," 2005–06.

**Table 7a. Standard errors for the percent of public schools with staff in the school full time whose only responsibility is technology support and/or technology integration into instruction, and percentage distribution of public schools reporting how long it takes to obtain various types of technology support, by school characteristics: Fall 2008**

School characteristic	Have full-time staff responsible for technology support and/or integration	Time it takes to get:																
		Computer repaired				Help with software problem or question				Network services restored when network goes down				Curricular support for teachers who need help with integrating technology into curriculum				
		Less than 1 hour	1 to 8 hours	2 to 5 days	1 week or more	Less than 1 hour	1 to 8 hours	2 to 5 days	1 week or more	Less than 1 hour	1 to 8 hours	2 to 5 days	1 week or more	Less than 1 hour	1 to 8 hours	2 to 5 days	1 week or more	
All public schools .....	1.4	0.5	1.0	1.4	1.5	1.1	1.2	1.2	0.9	1.1	1.2	0.7	0.4	0.8	1.4	1.2	1.3	
Instructional level																		
Elementary .....	1.6	0.5	1.4	1.9	1.9	1.4	1.4	1.4	1.1	1.2	1.4	1.0	0.5	1.0	1.8	1.5	1.5	
Secondary .....	2.5	0.8	1.7	1.9	1.6	1.6	2.1	1.6	0.9	2.0	1.9	1.0	0.6	1.3	2.0	2.0	1.7	
Enrollment size																		
Less than 300 .....	3.0	0.9	2.3	3.1	3.1	2.6	3.5	2.9	2.1	3.3	3.7	2.1	1.0	1.9	3.1	3.2	2.8	
300 to 999 .....	1.8	0.6	1.5	1.6	1.9	1.3	1.6	1.5	1.1	1.3	1.4	0.9	0.4	1.0	1.8	1.7	1.4	
1,000 or more .....	2.6	1.5	2.5	3.0	2.8	2.3	3.0	2.3	1.5	2.7	2.6	1.3	0.4	1.8	3.0	3.3	2.0	
Community type																		
City .....	2.4	0.8	2.2	3.3	3.3	2.8	2.9	2.8	2.0	2.1	2.8	2.2	0.9	1.9	3.0	2.5	2.7	
Suburban .....	2.6	0.9	2.0	2.9	2.5	1.9	2.6	2.0	1.3	2.0	2.1	1.3	0.7	1.4	2.3	2.6	2.6	
Town .....	3.5	0.9	3.3	3.3	3.1	3.1	3.9	3.5	2.0	3.3	3.3	1.7	†	2.1	3.5	3.8	2.9	
Rural .....	2.2	0.8	2.2	2.7	2.8	1.8	2.5	2.1	1.7	2.6	2.6	1.2	0.7	1.6	2.8	2.5	2.3	
Region																		
Northeast .....	2.8	1.2	2.6	3.0	2.1	2.9	3.2	2.6	1.8	2.6	2.9	1.6	0.5	1.9	2.6	2.9	2.4	
Southeast .....	2.5	0.7	2.4	2.7	2.9	2.0	2.4	2.3	2.2	2.7	2.7	2.0	1.2	2.1	2.4	2.1	2.2	
Central .....	2.9	0.9	2.2	2.6	2.5	2.0	2.5	2.1	1.5	2.8	2.8	1.5	0.8	1.6	2.9	2.9	3.0	
West .....	2.3	0.9	2.0	2.8	2.4	2.2	2.5	2.3	1.5	2.0	2.4	1.1	0.6	1.4	2.6	2.3	2.5	
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students																		
Less than 6 percent .....	3.0	1.0	3.1	3.5	2.8	2.6	3.4	2.3	1.8	3.0	3.1	1.5	0.7	2.0	3.6	3.1	3.0	
6 to 20 percent .....	2.6	1.1	2.5	2.8	2.8	2.3	2.9	2.2	1.6	2.2	2.5	1.2	0.6	1.9	2.5	2.8	2.2	
21 to 49 percent .....	2.7	1.0	2.0	3.4	2.8	2.0	2.6	2.3	1.7	2.1	2.2	1.5	0.8	1.6	3.0	2.8	2.4	
50 percent or more .....	2.1	0.8	1.4	2.5	2.9	2.1	2.4	2.3	1.7	1.8	2.4	1.6	0.9	1.4	2.5	2.5	2.4	
Percent of students eligible for free or reduced-price lunch																		
Less than 35 percent .....	2.3	0.8	1.7	2.2	1.8	1.9	2.4	1.7	1.0	2.4	2.6	1.1	0.5	1.6	1.8	2.0	1.7	
35 to 49 percent .....	3.1	1.5	2.9	3.5	3.6	3.0	4.0	3.5	2.2	3.8	3.9	1.6	1.1	1.9	3.1	3.0	3.2	
50 to 74 percent .....	2.5	1.0	2.1	3.3	3.0	1.9	2.7	2.1	1.8	2.2	2.2	1.3	0.7	1.5	3.1	2.5	2.3	
75 percent or more .....	2.5	0.8	2.2	2.9	3.1	2.5	2.6	2.8	2.3	1.9	2.8	2.4	1.1	1.8	2.8	3.1	3.3	

† Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Educational Technology in U.S. Public Schools, Fall 2008," FRSS 92, 2008; and Common Core of Data, "Public Elementary/Secondary School Universe Survey," 2005-06.

**Table 8a. Standard errors for the percentage distribution of public schools reporting the extent to which people in various roles help school staff integrate technology into instruction, by school characteristics: Fall 2008**

School characteristic	District-level technology staff				School-level technology staff				School-level administrators			
	Not at all	Minor extent	Moderate extent	Major extent	Not at all	Minor extent	Moderate extent	Major extent	Not at all	Minor extent	Moderate extent	Major extent
All public schools .....	1.0	1.1	1.4	1.2	1.0	1.5	1.1	1.3	1.1	1.6	1.6	1.1
Instructional level												
Elementary .....	1.3	1.5	1.7	1.4	1.3	1.7	1.4	1.6	1.3	1.9	1.8	1.4
Secondary .....	1.4	1.7	2.2	1.9	1.5	1.9	2.0	1.8	1.4	2.1	2.6	1.4
Enrollment size												
Less than 300 .....	2.7	2.9	3.6	2.8	2.7	3.4	3.1	2.6	2.5	3.2	3.4	2.6
300 to 999 .....	1.2	1.6	1.9	1.5	1.1	1.5	1.4	1.5	1.1	1.9	1.7	1.3
1,000 or more .....	1.6	2.8	3.3	3.0	1.7	2.5	3.1	3.1	1.8	3.1	2.9	2.1
Community type												
City .....	2.2	2.8	3.0	2.5	2.1	2.5	2.7	2.8	2.0	3.1	3.2	2.2
Suburban .....	1.5	2.4	2.6	2.3	1.9	2.3	2.5	2.5	1.8	3.3	2.6	2.3
Town .....	2.2	3.6	3.8	3.6	3.0	3.5	3.2	3.3	2.0	3.1	3.4	3.1
Rural .....	2.2	1.7	2.5	2.1	1.7	2.5	2.3	2.5	1.6	2.3	2.5	1.8
Region												
Northeast .....	2.4	2.8	2.9	2.6	2.7	2.4	2.6	2.4	2.0	3.0	3.4	2.3
Southeast .....	1.1	2.7	2.6	2.1	1.7	2.7	2.9	3.3	1.5	2.8	2.9	2.3
Central .....	2.2	2.2	3.0	2.5	2.5	2.7	2.6	2.3	2.1	3.3	3.2	2.0
West .....	1.9	2.1	2.3	2.2	2.6	2.1	2.2	2.3	1.9	2.1	2.5	1.6
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students												
Less than 6 percent .....	1.8	2.6	2.7	2.7	2.9	2.3	3.2	3.2	2.0	3.0	2.7	2.1
6 to 20 percent .....	1.9	2.6	3.1	2.8	2.3	2.4	2.9	2.6	1.8	3.3	3.0	2.1
21 to 49 percent .....	1.8	2.9	3.8	3.1	2.2	2.7	2.8	3.0	2.5	3.1	2.3	1.8
50 percent or more .....	1.8	2.2	2.5	2.3	1.7	2.0	2.4	2.3	1.7	2.2	2.4	1.5
Percent of students eligible for free or reduced-price lunch												
Less than 35 percent .....	1.7	2.3	2.3	2.3	2.0	2.1	1.9	2.3	1.7	2.8	2.5	1.8
35 to 49 percent .....	2.7	3.2	4.1	3.9	2.7	3.5	4.1	3.4	2.3	3.8	3.7	3.1
50 to 74 percent .....	1.8	2.1	2.8	2.9	2.0	2.1	2.8	2.4	2.0	2.6	2.4	1.7
75 percent or more .....	2.3	2.9	2.6	2.3	2.3	2.9	3.1	2.6	2.1	3.0	3.0	2.1

See notes at end of table.



**Table 8a. Standard errors for the percentage distribution of public schools reporting the extent to which people in various roles help school staff integrate technology into instruction, by school characteristics: Fall 2008—Continued**

School characteristic	Teachers				Library media specialists				Vendor(s)			
	Not at all	Minor extent	Moderate extent	Major extent	Not at all	Minor extent	Moderate extent	Major extent	Not at all	Minor extent	Moderate extent	Major extent
All public schools .....	0.5	1.5	1.6	1.0	1.0	1.1	1.1	1.2	1.4	1.1	1.0	0.3
Instructional level												
Elementary .....	0.6	1.7	1.7	1.3	1.2	1.5	1.2	1.5	1.7	1.4	1.2	0.4
Secondary .....	0.6	2.2	2.4	1.5	1.9	2.0	2.2	1.6	2.1	2.0	1.3	0.7
Enrollment size												
Less than 300 .....	1.1	3.0	3.6	2.8	2.9	3.3	2.9	2.2	3.2	3.0	2.2	0.7
300 to 999 .....	0.6	1.8	1.6	1.3	1.3	1.5	1.3	1.5	1.8	1.4	1.1	0.4
1,000 or more .....	0.5	2.7	3.4	2.4	1.8	2.5	2.8	2.4	3.3	3.4	2.0	0.9
Community type												
City .....	1.1	3.2	3.1	1.8	2.8	2.3	3.0	2.2	3.2	2.6	2.2	0.7
Suburban .....	0.9	2.1	2.4	2.2	2.1	2.1	2.1	2.1	2.9	2.5	1.5	0.6
Town .....	1.1	3.4	4.1	3.6	2.9	3.4	3.5	2.6	3.6	3.5	2.0	1.1
Rural .....	0.7	2.9	2.7	2.0	2.0	2.5	2.1	1.7	2.4	2.2	1.5	0.5
Region												
Northeast .....	1.2	2.9	3.6	2.2	2.5	3.1	3.3	2.3	3.7	3.1	1.9	0.8
Southeast .....	0.9	2.7	2.7	2.8	1.8	2.6	2.5	2.4	2.8	2.8	1.9	0.9
Central .....	1.0	2.8	3.2	2.2	2.6	2.5	2.5	2.6	2.8	2.4	1.6	0.5
West .....	0.7	2.6	3.0	2.1	2.3	2.3	2.1	1.4	2.7	2.2	1.8	0.6
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students												
Less than 6 percent .....	0.8	3.2	3.3	2.4	2.3	3.5	2.8	2.5	3.2	2.9	2.2	0.7
6 to 20 percent .....	1.0	2.8	3.4	2.6	2.5	2.3	2.5	2.3	3.0	2.8	1.2	0.6
21 to 49 percent .....	1.1	2.7	2.9	2.2	2.5	2.4	2.7	2.1	2.6	2.4	1.7	0.6
50 percent or more .....	0.8	2.5	2.4	1.7	2.4	2.1	2.1	1.7	3.1	2.6	1.7	0.8
Percent of students eligible for free or reduced-price lunch												
Less than 35 percent .....	0.9	2.1	2.5	1.9	1.9	2.0	1.8	1.9	2.0	1.7	1.0	0.5
35 to 49 percent .....	1.3	3.7	3.5	2.9	3.0	3.1	3.3	3.7	3.5	3.1	2.5	0.8
50 to 74 percent .....	1.0	2.6	2.8	2.3	2.1	2.3	2.3	2.4	3.0	2.5	1.5	0.8
75 percent or more .....	0.9	3.2	2.9	2.3	3.0	2.9	2.5	1.8	3.1	2.9	2.5	0.8

See notes at end of table.

**Table 8a. Standard errors for the percentage distribution of public schools reporting the extent to which people in various roles help school staff integrate technology into instruction, by school characteristics: Fall 2008—Continued**

School characteristic	Students				Parents or non-staff volunteers			
	Not at all	Minor extent	Moderate extent	Major extent	Not at all	Minor extent	Moderate extent	Major extent
All public schools .....	1.6	1.4	1.1	0.4	1.2	1.2	0.5	†
<b>Instructional level</b>								
Elementary .....	2.0	1.8	1.2	0.5	1.5	1.6	0.6	†
Secondary .....	2.2	2.2	1.5	0.7	1.9	1.9	0.5	†
<b>Enrollment size</b>								
Less than 300 .....	3.6	3.4	3.0	0.9	3.7	3.7	1.3	†
300 to 999 .....	1.7	1.6	1.0	0.5	1.3	1.3	0.5	†
1,000 or more .....	3.2	3.1	2.3	0.7	2.8	2.8	0.6	0.4
<b>Community type</b>								
City .....	3.0	2.9	2.2	1.2	2.7	2.5	1.6	0.5
Suburban .....	2.9	2.5	1.5	0.9	2.1	2.2	0.9	†
Town .....	3.6	3.4	2.6	1.8	3.8	3.6	1.3	†
Rural .....	2.8	2.8	2.2	0.4	2.7	2.7	0.7	†
<b>Region</b>								
Northeast .....	3.4	3.1	2.0	0.9	2.8	2.8	0.8	†
Southeast .....	3.1	2.8	1.7	1.0	2.2	2.3	0.9	†
Central .....	2.7	2.8	2.0	0.6	2.7	2.4	1.0	†
West .....	2.7	2.1	1.9	0.9	2.1	2.1	1.1	†
<b>Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students</b>								
Less than 6 percent .....	3.4	3.3	2.4	0.6	3.5	3.5	1.1	†
6 to 20 percent .....	3.2	3.5	2.2	0.7	2.4	2.4	1.1	†
21 to 49 percent .....	3.2	2.7	2.0	0.8	2.5	2.5	1.0	†
50 percent or more .....	2.3	2.3	1.6	0.9	2.5	2.3	1.1	†
<b>Percent of students eligible for free or reduced-price lunch</b>								
Less than 35 percent .....	2.8	2.5	1.7	0.7	2.2	2.1	0.6	0.3
35 to 49 percent .....	3.9	3.7	3.0	0.7	2.9	3.0	1.7	†
50 to 74 percent .....	2.6	2.8	1.8	1.0	2.7	2.7	0.7	†
75 percent or more .....	3.3	3.2	2.3	1.0	2.7	2.7	1.3	†

† Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Educational Technology in U.S. Public Schools, Fall 2008," FRSS 92, 2008; and Common Core of Data, "Public Elementary/Secondary School Universe Survey," 2005–06.

**Table 9a. Standard errors for the percentage distribution of public schools reporting the extent to which people in various roles provide technical support for educational technology in the school, by school characteristics: Fall 2008**

School characteristic	District-level technology staff				School-level technology staff				School-level administrators			
	Not at all	Minor extent	Moderate extent	Major extent	Not at all	Minor extent	Moderate extent	Major extent	Not at all	Minor extent	Moderate extent	Major extent
All public schools .....	0.6	0.8	1.3	1.2	0.9	1.0	1.4	1.2	1.2	1.4	1.1	0.8
Instructional level												
Elementary .....	0.8	0.9	1.6	1.7	1.2	1.2	1.7	1.5	1.5	1.7	1.4	1.0
Secondary .....	1.1	1.2	1.9	2.2	1.3	1.7	1.8	1.7	1.6	2.0	1.6	1.0
Enrollment size												
Less than 300 .....	1.9	2.1	2.5	2.9	2.8	2.8	3.3	3.0	3.3	4.0	3.0	1.8
300 to 999 .....	0.6	0.9	1.4	1.7	1.0	1.1	1.7	1.7	1.3	1.7	1.3	1.0
1,000 or more .....	0.7	2.1	3.2	2.9	1.5	1.9	2.6	2.8	3.1	2.5	1.9	1.5
Community type												
City .....	1.5	2.1	2.8	3.0	1.9	2.4	3.0	3.0	3.0	3.2	2.4	1.7
Suburban .....	0.6	1.5	2.5	2.6	1.6	1.9	2.3	2.7	2.7	2.8	1.8	1.7
Town .....	1.6	1.9	3.6	3.4	3.2	2.8	3.6	3.4	2.5	3.4	3.3	2.0
Rural .....	1.5	1.4	2.3	2.5	1.7	2.0	2.3	2.8	2.4	2.6	2.2	1.3
Region												
Northeast .....	1.5	1.8	3.2	3.4	2.4	2.1	2.2	2.9	3.0	3.6	2.5	1.4
Southeast .....	0.6	2.4	3.1	3.2	1.7	1.8	2.6	3.0	2.4	2.6	2.6	1.7
Central .....	1.3	1.6	2.5	2.7	2.2	2.2	3.3	2.5	2.9	3.2	2.4	1.5
West .....	1.3	1.5	2.3	2.3	1.9	2.0	2.5	2.6	2.4	2.6	2.3	1.4
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students												
Less than 6 percent .....	1.7	1.6	2.4	2.9	2.7	2.2	3.2	3.0	2.9	3.2	2.9	2.0
6 to 20 percent .....	1.4	1.6	2.6	2.9	1.9	2.3	2.8	2.6	2.7	3.2	2.4	1.5
21 to 49 percent .....	1.0	1.4	2.7	3.1	1.9	2.1	2.6	3.2	2.6	3.1	2.1	1.2
50 percent or more .....	0.9	1.7	2.5	2.5	1.4	1.8	2.5	2.0	2.4	2.5	1.9	1.3
Percent of students eligible for free or reduced-price lunch												
Less than 35 percent .....	1.3	1.2	2.1	2.2	1.7	1.6	1.9	2.2	2.3	2.9	2.3	1.3
35 to 49 percent .....	1.8	2.7	2.9	4.2	1.9	3.4	4.2	3.4	3.7	3.7	3.5	2.0
50 to 74 percent .....	0.9	1.7	2.8	2.8	1.8	1.6	2.6	2.6	2.4	2.4	1.9	1.7
75 percent or more .....	1.3	2.2	2.9	3.0	1.9	2.3	2.9	2.8	2.8	3.0	2.5	1.7

See notes at end of table.

**Table 9a. Standard errors for the percentage distribution of public schools reporting the extent to which people in various roles provide technical support for educational technology in the school, by school characteristics: Fall 2008—Continued**

School characteristic	Teachers				Library media specialists				Vendor(s)			
	Not at all	Minor extent	Moderate extent	Major extent	Not at all	Minor extent	Moderate extent	Major extent	Not at all	Minor extent	Moderate extent	Major extent
All public schools .....	1.2	1.5	1.3	0.5	1.6	1.4	1.2	1.0	1.8	1.5	1.1	0.4
Instructional level												
Elementary .....	1.4	1.9	1.6	0.7	1.8	2.0	1.5	1.2	2.2	1.7	1.4	0.4
Secondary .....	1.4	2.0	1.6	1.2	2.2	1.9	1.6	1.5	2.3	2.2	1.2	0.7
Enrollment size												
Less than 300 .....	2.4	3.4	3.2	1.6	3.7	3.0	2.3	2.2	3.9	3.4	2.3	1.1
300 to 999 .....	1.4	1.8	1.3	0.7	1.7	1.8	1.5	1.1	2.1	1.6	1.3	0.5
1,000 or more .....	2.1	3.0	2.8	1.2	2.7	2.9	2.5	2.1	3.4	3.7	2.2	0.7
Community type												
City .....	2.1	3.3	2.9	1.3	3.1	3.1	2.9	1.8	3.0	2.6	2.0	1.0
Suburban .....	1.8	2.7	2.0	1.0	2.5	2.6	1.9	1.5	3.0	2.7	1.5	0.5
Town .....	2.8	4.1	3.9	2.0	3.8	3.7	3.1	3.0	4.5	3.9	3.0	1.1
Rural .....	2.0	2.2	2.6	1.1	2.4	2.7	1.6	1.6	2.8	2.6	1.5	0.8
Region												
Northeast .....	3.1	3.4	2.3	1.2	4.0	3.5	2.7	1.8	3.8	3.3	1.4	0.8
Southeast .....	1.9	3.0	2.8	1.6	2.3	2.6	2.6	2.2	2.9	2.5	2.1	0.9
Central .....	1.9	2.5	2.1	1.2	2.8	2.8	2.5	1.8	2.8	2.7	2.0	0.6
West .....	2.1	2.7	2.8	1.2	3.1	2.7	2.3	1.4	2.8	2.2	1.8	0.6
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students												
Less than 6 percent .....	2.6	3.1	2.9	1.2	3.3	3.6	2.3	2.0	3.2	3.1	2.1	0.7
6 to 20 percent .....	1.9	3.0	2.7	1.4	2.9	2.5	2.4	1.8	3.4	3.2	1.5	0.7
21 to 49 percent .....	2.4	2.9	2.1	1.4	2.9	3.3	2.9	2.0	2.8	2.9	1.6	0.9
50 percent or more .....	1.6	2.5	2.2	1.2	2.9	2.6	2.4	1.3	2.8	2.2	2.1	0.6
Percent of students eligible for free or reduced-price lunch												
Less than 35 percent .....	2.0	2.2	1.9	0.8	2.4	2.6	1.9	1.4	2.5	2.4	1.0	0.8
35 to 49 percent .....	2.7	4.0	3.2	1.8	3.1	3.2	2.5	3.5	3.7	3.3	2.6	0.8
50 to 74 percent .....	2.4	2.6	2.8	1.2	2.8	2.7	2.4	1.9	3.3	2.8	1.8	0.9
75 percent or more .....	2.4	3.4	2.5	1.4	3.5	3.1	2.8	1.4	3.3	2.7	2.7	0.9

See notes at end of table.

**Table 9a. Standard errors for the percentage distribution of public schools reporting the extent to which people in various roles provide technical support for educational technology in the school, by school characteristics: Fall 2008—Continued**

School characteristic	Students				Parents or non-staff volunteers				Other			
	Not at all	Minor extent	Moderate extent	Major extent	Not at all	Minor extent	Moderate extent	Major extent	Not at all	Minor extent	Moderate extent	Major extent
All public schools .....	1.6	1.5	0.9	0.3	1.1	1.1	0.4	0.2	0.4	0.2	0.3	0.2
Instructional level												
Elementary .....	1.8	1.8	1.0	0.3	1.4	1.4	0.4	0.3	0.4	†	†	0.3
Secondary .....	2.2	2.0	1.2	0.5	1.2	1.3	0.4	0.3	1.0	0.7	0.5	0.4
Enrollment size												
Less than 300 .....	3.6	3.1	2.4	0.3	3.0	3.1	0.7	†	1.2	0.5	0.9	0.4
300 to 999 .....	1.6	1.6	0.8	0.4	1.1	1.2	0.4	0.3	0.4	0.3	†	0.3
1,000 or more .....	3.1	2.8	1.9	0.9	2.2	2.2	0.6	†	0.9	0.6	0.4	0.7
Community type												
City .....	3.1	2.7	1.9	0.7	2.2	2.1	1.0	0.6	0.8	†	0.7	†
Suburban .....	2.0	1.9	0.8	0.5	1.6	1.6	†	0.5	0.6	†	†	0.5
Town .....	3.7	4.0	1.7	1.0	3.0	3.0	0.8	†	0.5	†	†	†
Rural .....	2.8	2.7	1.8	0.4	2.3	2.1	0.8	†	1.0	0.6	0.5	0.5
Region												
Northeast .....	3.0	2.9	1.3	0.6	2.5	2.4	0.5	†	0.8	†	0.3	0.8
Southeast .....	2.9	2.6	1.5	0.7	2.3	2.1	0.7	0.5	0.8	0.6	†	0.6
Central .....	2.9	2.8	1.3	0.4	2.1	2.0	0.5	†	0.7	†	0.5	0.4
West .....	2.3	2.3	1.7	0.6	2.2	2.2	0.9	0.6	1.0	0.6	0.5	†
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students												
Less than 6 percent .....	3.3	3.3	1.9	0.5	2.6	2.5	0.7	†	0.9	0.5	†	0.7
6 to 20 percent .....	2.8	3.0	2.0	†	2.3	2.2	0.3	0.7	0.7	0.6	†	0.4
21 to 49 percent .....	2.6	2.7	1.2	0.6	1.7	1.7	0.6	†	1.1	0.4	1.0	†
50 percent or more .....	2.5	2.2	1.4	0.7	1.9	1.8	0.9	0.5	0.6	0.5	†	0.4
Percent of students eligible for free or reduced-price lunch												
Less than 35 percent .....	2.4	2.2	1.2	0.4	1.6	1.6	0.3	†	0.5	†	†	0.5
35 to 49 percent .....	3.3	3.0	2.0	†	2.6	2.5	1.1	1.0	1.5	0.7	1.3	†
50 to 74 percent .....	2.9	3.0	1.4	0.8	1.7	1.7	0.5	†	0.9	0.5	0.6	0.5
75 percent or more .....	3.1	2.7	1.8	0.7	2.2	2.1	1.1	0.6	0.8	0.7	†	0.5

† Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Educational Technology in U.S. Public Schools, Fall 2008," FRSS 92, 2008; and Common Core of Data, "Public Elementary/Secondary School Universe Survey," 2005–06.

**Table 10a. Standard errors for the percentage distribution of public schools reporting agreement or disagreement with various statements on using educational technology in the instructional program in the school, by school characteristics: Fall 2008**

School characteristic	Teachers are sufficiently trained in technology usage		Teachers are sufficiently trained to integrate technology into classroom instruction		Teachers are interested in using technology in classroom instruction		Teachers construct lessons in which students use a range of educational technologies		Technology is a priority of the district administration	
	Disagree	Agree	Disagree	Agree	Disagree	Agree	Disagree	Agree	Disagree	Agree
All public schools .....	1.3	1.3	1.4	1.4	0.7	0.7	1.2	1.2	1.1	1.1
Instructional level <sup>1</sup>										
Elementary .....	1.7	1.7	1.9	1.9	0.9	0.9	1.6	1.6	1.3	1.3
Secondary .....	2.1	2.1	2.2	2.2	1.2	1.2	2.1	2.1	1.6	1.6
Enrollment size										
Less than 300 .....	3.3	3.3	3.4	3.4	1.7	1.7	2.9	2.9	2.6	2.6
300 to 999 .....	1.7	1.7	1.8	1.8	0.9	0.9	1.6	1.6	1.4	1.4
1,000 or more .....	2.6	2.6	2.4	2.4	1.2	1.2	2.8	2.8	2.2	2.2
Community type										
City .....	3.1	3.1	3.0	3.0	1.5	1.5	2.7	2.7	2.7	2.7
Suburban .....	2.6	2.6	2.6	2.6	1.4	1.4	2.7	2.7	1.7	1.7
Town .....	2.6	2.6	3.7	3.7	2.0	2.0	3.2	3.2	3.0	3.0
Rural .....	2.4	2.4	2.6	2.6	1.4	1.4	2.4	2.4	2.0	2.0
Region										
Northeast .....	2.5	2.5	3.0	3.0	1.3	1.3	3.0	3.0	2.6	2.6
Southeast .....	2.8	2.8	2.9	2.9	1.5	1.5	2.8	2.8	2.3	2.3
Central .....	2.4	2.4	2.4	2.4	1.7	1.7	2.1	2.1	2.1	2.1
West .....	2.7	2.7	2.9	2.9	1.5	1.5	2.4	2.4	1.9	1.9
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students										
Less than 6 percent .....	2.7	2.7	3.2	3.2	2.0	2.0	3.4	3.4	2.4	2.4
6 to 20 percent .....	2.2	2.2	2.6	2.6	1.3	1.3	2.6	2.6	1.9	1.9
21 to 49 percent .....	3.1	3.1	3.0	3.0	1.5	1.5	2.8	2.8	2.3	2.3
50 percent or more .....	2.1	2.1	2.2	2.2	1.3	1.3	2.0	2.0	2.2	2.2
Percent of students eligible for free or reduced-price lunch										
Less than 35 percent .....	2.3	2.3	2.6	2.6	1.3	1.3	2.2	2.2	1.5	1.5
35 to 49 percent .....	3.3	3.3	3.5	3.5	1.7	1.7	3.3	3.3	3.0	3.0
50 to 74 percent .....	2.4	2.4	2.7	2.7	1.5	1.5	2.6	2.6	2.5	2.5
75 percent or more .....	3.0	3.0	3.2	3.2	1.8	1.8	2.9	2.9	2.9	2.9

See notes at end of table.

**Table 10a. Standard errors for the percentage distribution of public schools reporting agreement or disagreement with various statements on using educational technology in the instructional program in the school, by school characteristics: Fall 2008—Continued**

School characteristic	Technology infrastructure is adequate		Technical support for educational technology is adequate		Funding for educational technology is adequate		Funding for educational technology is being spent in the most appropriate ways		Use of educational technology is adversely affected by competing priorities in the classroom	
	Disagree	Agree	Disagree	Agree	Disagree	Agree	Disagree	Agree	Disagree	Agree
All public schools .....	1.0	1.0	1.2	1.2	1.4	1.4	1.4	1.4	1.5	1.5
Instructional level <sup>1</sup>										
Elementary .....	1.3	1.3	1.5	1.5	1.6	1.6	1.8	1.8	1.8	1.8
Secondary .....	1.7	1.7	2.0	2.0	2.4	2.4	1.9	1.9	2.0	2.0
Enrollment size										
Less than 300 .....	2.8	2.8	2.6	2.6	3.4	3.4	3.1	3.1	3.1	3.1
300 to 999 .....	1.4	1.4	1.7	1.7	1.8	1.8	1.7	1.7	2.0	2.0
1,000 or more .....	2.3	2.3	2.8	2.8	2.8	2.8	2.2	2.2	2.4	2.4
Community type										
City .....	2.8	2.8	2.7	2.7	3.0	3.0	2.7	2.7	3.1	3.1
Suburban .....	2.1	2.1	2.5	2.5	2.7	2.7	2.5	2.5	2.7	2.7
Town .....	3.0	3.0	2.7	2.7	3.6	3.6	3.0	3.0	3.8	3.8
Rural .....	2.0	2.0	1.9	1.9	2.5	2.5	2.5	2.5	2.8	2.8
Region										
Northeast .....	2.7	2.7	2.5	2.5	3.5	3.5	3.0	3.0	3.5	3.5
Southeast .....	2.9	2.9	2.9	2.9	3.1	3.1	2.9	2.9	3.0	3.0
Central .....	2.3	2.3	2.3	2.3	2.4	2.4	2.5	2.5	2.7	2.7
West .....	1.9	1.9	2.4	2.4	2.2	2.2	2.2	2.2	2.4	2.4
Percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students										
Less than 6 percent .....	2.3	2.3	2.6	2.6	3.4	3.4	2.9	2.9	3.8	3.8
6 to 20 percent .....	2.0	2.0	2.8	2.8	2.8	2.8	2.7	2.7	3.0	3.0
21 to 49 percent .....	2.5	2.5	2.7	2.7	3.2	3.2	3.1	3.1	2.3	2.3
50 percent or more .....	2.3	2.3	2.5	2.5	2.3	2.3	2.2	2.2	2.7	2.7
Percent of students eligible for free or reduced-price lunch										
Less than 35 percent .....	1.6	1.6	1.8	1.8	2.3	2.3	2.1	2.1	2.7	2.7
35 to 49 percent .....	3.0	3.0	3.7	3.7	4.2	4.2	4.3	4.3	3.0	3.0
50 to 74 percent .....	2.4	2.4	3.0	3.0	2.7	2.7	2.5	2.5	2.5	2.5
75 percent or more .....	2.8	2.8	2.9	2.9	3.1	3.1	2.7	2.7	2.9	2.9

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Educational Technology in U.S. Public Schools, Fall 2008," FRSS 92, 2008; and Common Core of Data, "Public Elementary/Secondary School Universe Survey," 2005-06.

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# Appendix B

## Technical Notes

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# Technical Notes

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## 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. 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 Design

The sample for the FRSS 2008 school survey on educational technology consisted of 2,005 public elementary and secondary/combined 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.

A nationally representative sample of 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. 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. Schools in the frame were then sorted by locale<sup>7</sup> and region to induce additional implicit stratification. These variables are defined in more detail in the Definitions of Analysis Variables section of these Technical Notes.

## Data Collection and Response Rates

Questionnaires and cover letters for the study were mailed to the principal of each sampled school in September 2008. The letter introduced the study and requested that the questionnaire be completed by the person most knowledgeable about educational technology within the school. Respondents were offered the option of completing the survey via the Web. Telephone follow-up for survey nonresponse and data clarification was initiated in early October 2008 and completed in July 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). This left a total of 1,949 eligible schools in the sample. Completed questionnaires were received from 1,519 schools, or 78 percent of the eligible schools (table B-1). Of the schools that

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<sup>7</sup> The metro-centric locale variable from 2005–06 CCD was used in sampling. Estimates presented by Community type in this report are based on the urban-centric locale variable discussed further in the Definitions of Analysis Variables section of this report.

completed the survey, 61 percent completed it by Web, 33 percent completed it by mail, 6 percent completed it by fax, and less than 1 percent completed it by telephone. The weighted response rate was 79 percent. The weighted number of eligible schools in the survey represents the estimated universe of regular elementary and secondary schools in the 50 states and the District of Columbia.<sup>8</sup>

**Table B-1. Number and percent of responding public schools in the study sample, and estimated number and percent of public schools the sample represents, by school characteristics: Fall 2008**

School characteristic	Respondent sample (unweighted)		National estimate (weighted)	
	Number	Percent	Number	Percent
All public schools .....	1,519	100	81,700	100
Instructional level <sup>1</sup>				
Elementary .....	808	53	61,800	76
Secondary .....	660	43	18,000	22
Enrollment size				
Less than 300 .....	252	17	20,000	24
300 to 999 .....	916	60	53,100	65
1,000 or more .....	351	23	8,700	11
Community type				
City .....	325	21	17,600	22
Suburban .....	477	31	26,200	32
Town .....	215	14	10,900	13
Rural .....	502	33	27,100	33
Region				
Northeast .....	297	20	15,400	19
Southeast .....	366	24	18,100	22
Central .....	402	26	22,900	28
West .....	454	30	25,300	31
Percent combined enrollment of Black, Hispanic, Asian/ Pacific Islander, or American Indian/Alaska Native students <sup>2</sup>				
Less than 6 percent .....	320	21	17,900	22
6 to 20 percent .....	360	24	18,000	22
21 to 49 percent .....	362	24	18,800	23
50 percent or more .....	477	31	27,100	33
Percent of students eligible for free or reduced-price lunch				
Less than 35 percent .....	599	39	29,700	36
35 to 49 percent .....	260	17	13,000	16
50 to 74 percent .....	378	25	21,000	26
75 percent or more .....	282	19	18,100	22

<sup>1</sup> 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.

<sup>2</sup> Black includes African American and Hispanic includes Latino.

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), "Educational Technology in U.S. Public Schools, Fall 2008," FRSS 92, 2008; and Common Core of Data "Public Elementary/Secondary School Universe Survey," 2005–06.

<sup>8</sup> For more details about the development of survey weights, see the section of this report on Sampling Errors.

## Imputation for Item Nonresponse

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 (table B-2).<sup>9</sup> The missing items included both numerical data such as the number of instructional computers that have Internet access, as well as categorical data such as whether the school used its district network or Internet access to provide access for students to online distance learning. The missing data were imputed using a “hot-deck” approach to obtain a “donor” school from which the imputed values were derived. Under the hot-deck approach, a donor school that matched selected characteristics of the school with missing data (the recipient school) was identified. The matching characteristics included instructional level, categories of enrollment size, region, categories for percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students, categories for percent of students eligible for free or reduced-price lunch, district size, and district poverty level. In addition, relevant questionnaire items were used to form appropriate imputation groupings. Once a donor was found, it was used to obtain the imputed values for the school with missing data. For categorical items, the imputed value was simply the corresponding value from the donor school. For numerical items, an appropriate ratio (e.g., proportion of instructional computers that have Internet access) was calculated for the donor school, and this ratio was applied to available data (e.g., reported number of instructional computers) for the recipient school to obtain the corresponding imputed value.

**Table B-2. Percent of cases with imputed data in the respondent sample, and percent of cases with imputed data the sample represents, by questionnaire item: Fall 2008**

Questionnaire item	Respondent sample (unweighted)	National estimate (weighted)
<b>Question 2: Types of Instructional Computers</b>		
Q2A Number of instructional computers: desktops.....	0.13	0.08
Q2B Number of instructional computers: laptops/notebooks.....	0.13	0.08
Q2C Number of instructional computers: other computer types, such as tablet PCs.....	0.13	0.08
<b>Question 3: Location of Instructional Computers</b>		
Q3A Number of instructional computers: laptop computers on carts.....	0.66	0.56
Q3B Number of instructional computers: located in classrooms (excluding laptops on carts).....	0.86	0.64
Q3C Number of instructional computers: located in computer labs (excluding laptops on carts).....	0.86	0.64
Q3D Number of instructional computers: located in library-media center(s) (excluding laptops on carts).....	0.86	0.64
Q3E Number of instructional computers: located at another location (excluding laptops on carts).....	0.86	0.64
<b>Question 4: Characteristics of Instructional Computers</b>		
Q4A Number of instructional computers that have internet access.....	0.20	0.21
Q4B Number of instructional computers that are available for students to take home.....	0.13	0.15
Q4C Number of instructional computers that are less than 1 year old.....	0.20	0.22
<b>Question 5: Operating System(s) or Platform(s) Used on Instructional Computers</b>		
Q5C System(s) or platform(s) used on the instructional computers: Windows NT or 2000.....	0.07	0.05
<b>Question 6: Handheld Devices</b>		
Q6B Number of handheld devices provided by your school for teachers.....	0.07	0.05
Q6C Number of handheld devices provided for students to use in specific classes.....	0.07	0.05
Q6D Number of handheld devices provided by your school for students to use the entire school day.....	0.07	0.05

See notes at end of table.

<sup>9</sup> Per NCES standards, all missing questionnaire data are imputed.

**Table B-2. Percent of cases with imputed data in the respondent sample, and percent of cases with imputed data the sample represents, by questionnaire item: Fall 2008—Continued**

Questionnaire item	Respondent sample (unweighted)	National estimate (weighted)
<b>Question 7: Technology Devices Used for Instruction</b>		
Q7A	Number of LCD and DLP projectors provided by your school for instruction .....	0.26 0.23
Q7B	Number of videoconference units provided by your school for instruction .....	0.07 0.02
Q7C	Number of interactive whiteboards (e.g., SMART Boards, Activboards) provided by your school for instruction .....	0.26 0.23
Q7D	Number of classroom response systems; count number of classroom sets provided by your school for instruction .....	0.26 0.26
Q7E	Number of digital cameras (still and video) provided by your school for instruction .....	0.13 0.06
Q7F	Number of MP3 players/iPods provided by your school for instruction .....	0.07 0.02
Q7G	Number of document cameras provided by your school for instruction .....	0.07 0.02
<b>Question 8: Wireless Network Access</b>		
Q8	Describe the wireless network access in your school .....	0.07 0.12
<b>Question 9: District Network or Internet Access Used for Teaching and Learning Activities</b>		
Q9A	District network or Internet access used for teaching and learning: Two-way teleconferencing, e.g., videoconferencing .....	0.07 0.02
Q9B	District network or Internet access used for teaching and learning: Telecommunications (voice over IP) .....	0.20 0.20
Q9C	District network or Internet access used for teaching and learning: Online student assessment provided by your school or district .....	0.07 0.02
Q9D	District network or Internet access used for teaching and learning: Access for students to online distance learning .....	0.20 0.19
Q9E	District network or Internet access used for teaching and learning: Standardized assessment results and data for teachers to use to individualize instruction .....	0.20 0.13
Q9F	District network or Internet access used for teaching and learning: Data to inform instructional planning at the school level .....	0.13 0.09
Q9G	District network or Internet access used for teaching and learning: Online professional development provided by your school or district .....	0.07 0.02
Q9H	District network or Internet access used for teaching and learning: High-quality digital content (i.e., web-based learning materials or any text, images, sounds, and video that have been digitized) .....	0.07 0.02
<b>Question 10: Timeframe for Resolving Computer Related Issues</b>		
Q10A	Time it usually takes to: get a computer repaired at your school .....	0.13 0.22
Q10D	Time it usually takes to: get curricular support for teachers who need help with integrating technology into the curriculum at your school .....	0.13 0.18
<b>Question 11: Full-time Staff Responsible for Technology Support and/or Technology Integration</b>		
Q11	Is there a full-time person in your school whose only responsibility is technology support and/or technology integration? .....	0.07 0.03
<b>Question 12: Extent of Helping School Staff with Technology Integration or Technical Support</b>		
Q12ACOL1	Extent district-level technology staff helps school staff integrate technology into instruction .....	0.07 0.02
Q12BCOL1	Extent school-level technology staff helps school staff integrate technology into instruction .....	0.07 0.08
Q12CCOL1	Extent school-level administrators help school staff integrate technology into instruction .....	0.07 0.03
Q12DCOL1	Extent teachers help school staff integrate technology into instruction .....	0.07 0.09
Q12FCOL1	Extent vendor(s) help school staff integrate technology into instruction .....	0.13 0.13
Q12BCOL2	Extent school-level technology staff provides technical support .....	0.07 0.08
Q12CCOL2	Extent school-level administrators provide technical support .....	0.13 0.07
Q12ECOL2	Extent library media specialists provide technical support .....	0.07 0.07
Q12FCOL2	Extent Vendor(s) provide technical support .....	0.07 0.03

See notes at end of table.

**Table B-2. Percent of cases with imputed data in the respondent sample, and percent of cases with imputed data the sample represents, by questionnaire item: Fall 2008—Continued**

Questionnaire item	Respondent sample (unweighted)	National estimate (weighted)
<b>Question 13: Extent of Agreement or Disagreement with Statements on Educational Technology in School</b>		
Q13A Agreement with: Teachers are sufficiently trained in technology usage .....	0.07	0.12
Q13E Agreement with: Technology is a priority of the district administration .....	0.13	0.17
Q13F Agreement with: Technology infrastructure is adequate (e.g., adequate Internet speeds) .....	0.07	0.09
Q13G Agreement with: Technical support for educational technology is adequate .....	0.20	0.23
Q13H Agreement with: Funding for educational technology is adequate .....	0.07	0.12
Q13I Agreement with: Funding for educational technology is being spent in the most appropriate ways .....	0.07	0.10
Q13J Agreement with: Use of educational technology is adversely affected by competing priorities in the classroom .....	0.13	0.27
<b>Question 14: Instructional Classrooms</b>		
Q14 Total number of instructional classrooms in your school -Exclude library media centers and computer labs .....	0.26	0.30

NOTE: Data were imputed using hot-deck imputation procedures.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Educational Technology in U.S. Public Schools, Fall 2008," FRSS 92, 2008.

## Data Reliability

Although the Educational Technology in Public Schools survey was designed to account for sampling error and to minimize nonsampling error, estimates produced from the data collected are subject to both types of error. Sampling error occurs because the data are collected from a sample rather than a census of the population, and nonsampling errors are errors made during the collection and processing of the data.

## Sampling Errors

The responses were weighted to produce national estimates (table B-1). The weights were designed to reflect the variable probabilities of selection of the sampled schools and were adjusted for differential unit (questionnaire) nonresponse. The nonresponse weighting adjustments were made within classes defined by variables correlated with response propensity: instructional level (elementary or secondary/combined), categories of enrollment size, categories for percent of students eligible for free or reduced-price lunch, and locale. Within the final weighting classes, the base weights (i.e., the reciprocal of schools' probabilities of selection) of the responding schools were inflated by the inverse of the weighted response rate for the class. The findings in this report are estimates based on the sample selected and, consequently, are subject to sampling variability. General sampling theory was used to estimate the sampling variability of the estimates and to test for statistically significant differences between estimates.

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 public elementary and secondary schools that have laptop computers on carts for instructional use is 57.5 percent, and the standard error is 1.3 percent (tables 1 and 1a). The 95 percent confidence interval for the statistic extends from

[57.5 – (1.3 x 1.96)] to [57.5 + (1.3 x 1.96)], or from 55.0 to 60.0 percent. The 1.96 is the *critical value* for a statistical test at the 0.05 significance level (where 0.05 indicates the 5 percent of all possible samples that would be outside the range of the confidence interval).

Because the data from the FRSS educational technology survey 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. To generate accurate standard errors for the estimates in this report, 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.

All specific statements of comparisons made in this report have been tested for statistical significance at the .05 level using Student's *t*-statistic to ensure that the differences are larger than those that might be expected due to sampling variation. Adjustments for multiple comparisons were not included. Student's *t* values were computed to test the difference between estimates with the following formula:

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

where  $E_1$  and  $E_2$  are the estimates to be compared and  $se_1$  and  $se_2$  are their corresponding standard errors. Many of the variables examined are related to one another, and complex interactions and relationships have not been explored.

## Nonsampling Errors

Nonsampling error is the term used to describe variations in the estimates that may be caused by population coverage limitations and data collection, processing, and reporting procedures. The sources of nonsampling errors are typically problems like unit and item nonresponse, differences in respondents' interpretations of the meaning of questions, response differences related to the particular time the survey was conducted, and mistakes made during data preparation. It is difficult to identify and estimate either the amount of nonsampling error or the bias caused by this error. To minimize the potential for nonsampling error, this study used a variety of procedures, including a pretest of the questionnaire with technology specialists for elementary and secondary schools. The pretest provided the opportunity to check for consistency of interpretation of questions and definitions and to eliminate ambiguous items. The questionnaire and instructions were also extensively reviewed by NCES and the data requester at the Office of Educational Technology. In addition, 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 for surveys received by mail, fax, or telephone.

One potential source of nonsampling error is nonresponse bias. 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. For this survey, nonresponse occurred when an eligible sampled school did not complete the school questionnaire. The overall unweighted and weighted response rates are 78 and 79 percent, respectively. Therefore, a nonresponse bias analysis was conducted for the survey. The analysis looked for potential nonresponse biases and examined whether any additional weighting adjustments for nonresponse beyond the usual FRSS procedures should be considered.



The analysis included an examination of response rates by the classification variables (school characteristics) and a comparison of the base-weighted distributions of school characteristics for the total sample versus the respondents. 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 response rates varied significantly by locale, region, race/ethnicity status (defined by percent combined enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native), and enrollment size. To compensate for the differential survey response rates, weight adjustments were developed and applied to the base weights. 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 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 weight adjustments removed most of the disparities between the weighted distributions of the respondents and the distributions of the total 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 4.3 percent before adjustment to 2.1 percent after adjustment. Similarly, for secondary/combined schools, the mean absolute relative bias across all categories went from 5.2 percent before adjustment to 2.2 percent after adjustment. A comparison of weighted estimates of selected 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 weight adjustment procedures eliminated or reduced the difference between the nonresponse-adjusted estimate for the respondent sample and the corresponding base-weighted estimate for the selected sample. Further evidence of the potential bias reductions for numeric variables is given by a comparison of weighted estimates of selected survey items before and after nonresponse adjustment, where it was found that for numeric variables related to counts of computers or devices, the nonresponse-adjusted estimates were generally greater than the corresponding base-weighted estimates prior to adjustment. Since the responding schools tend to be smaller and less urban than the population as a whole, the observed differences suggest that the unadjusted estimates understate the values of these types of numeric variables.

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. Additional information about the nonresponse bias analysis is available in the survey documentation for the forthcoming public-use data file (NCES 2010-037).

## Definitions of Analysis Variables

Many of the school 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. However, this *First Look* report focuses on national estimates and bivariate relationships between the analysis variables and questionnaire variables rather than more complex analyses.

**Instructional Level**—This variable is based on the grades reported in question 16 on the survey questionnaire. There was no item nonresponse for this question. Data for combined schools (those with both elementary and

secondary grades as defined below) are included in the totals and in analyses by other school characteristics, but are not shown separately. Thus, data are reported for 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

**Enrollment 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 schools. The variable was collapsed into the three categories below.

**Less than 300 students**

**300 to 999 students**

**1,000 or more students**

**Community Type**—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.

The variable used in this report 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 schools.

**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

**Region**—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 schools. 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

**Percent Combined Enrollment of Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native students**—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 schools. This variable was collapsed into the four categories below for the report.

**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 Lunch**— 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 survey questionnaire. If question 15 was not answered, this variable was obtained from the 2005–06 CCD School Universe file. Data were available for all responding schools from either question 15 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**

## Definitions of Terms Used in This Report

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.

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

**LCD projector:** Liquid Crystal Display.

**DLP projector:** Digital Light Processing.

**Windows ME:** Millennium Edition.

**Voice over IP (Internet Protocol):** Technology, also referred to as VoIP, used to make voice calls via a broadband Internet connection instead of a regular (or analog) phone line. Some VoIP services can only be used to call other people using the same service, but other services can be used to call anyone who has a telephone number. Calls can be transmitted directly from a computer, a special VoIP phone, or a traditional phone connected to a VoIP adapter.<sup>10</sup>

## Contact Information

For more information about the survey, contact Peter Tice, Early Childhood, International, and Crosscutting Studies Division, National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education, 1990 K Street NW, Washington, DC 20006, e-mail: [peter.tice@ed.gov](mailto:peter.tice@ed.gov); telephone: (202) 502-7497.

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<sup>10</sup> This is based on the definition provided by the Federal Communications Commission at <http://www.fcc.gov/voip/>.

# Appendix C

## Questionnaire

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U.S. DEPARTMENT OF EDUCATION  
NATIONAL CENTER FOR EDUCATION STATISTICS  
WASHINGTON, D.C. 20006-5651

FORM APPROVED  
O.M.B. No.: 1850-0733  
EXPIRATION DATE: 10/2009

**EDUCATIONAL TECHNOLOGY IN U.S. PUBLIC SCHOOLS, FALL 2008**

**FAST RESPONSE SURVEY SYSTEM**

This survey is authorized by law (P.L. 103-382). While participation in this survey is voluntary, your cooperation is critical to make the results of this survey comprehensive, accurate, and timely. Your answers may be used only for statistical purposes and may not be disclosed, or used, in identifiable form for any other purpose unless otherwise compelled by law. (Public Law 107-279, Education Sciences Reform Act, Section 183.)

**Please answer this survey using Fall 2008 information.**

**Definitions**

**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.

IF ABOVE SCHOOL INFORMATION IS INCORRECT, PLEASE UPDATE DIRECTLY ON LABEL.

Name of Person Completing This Form: \_\_\_\_\_

Title/Position: \_\_\_\_\_

Telephone Number: \_\_\_\_\_ Email: \_\_\_\_\_

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

THANK YOU. PLEASE KEEP A COPY OF THE SURVEY FOR YOUR RECORDS.

**PLEASE RETURN COMPLETED FORM TO:**

**Mail:** Cindy Gray (8096.12.03)  
Westat  
1650 Research Boulevard  
Rockville, Maryland 20850-3195  
**Fax:** 800-254-0984

**IF YOU HAVE ANY QUESTIONS OR COMMENTS, CONTACT:**

Cindy Gray at Westat  
800-937-8281, Ext. 4336 or 301-251-4336  
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**Please answer this survey using Fall 2008 information.**

1. How many computers does your **school** have (for instructional or administrative use)? Do not include handheld devices (e.g., Palm OS, Windows CE, Pocket PC, BlackBerry). Count all other computers, including those used by students, teachers, school administrators, and other school staff. Include both laptops on carts and computers available for students to take home. *(If none, enter 0. Row a should equal row b plus row c.)*

- a. Total number of computers ..... \_\_\_\_\_
- b. Number for administrative use **only**..... \_\_\_\_\_
- c. Number for instructional use (used for instruction all or part of the time) \_\_\_\_\_

2. Of the **instructional computers** reported in question 1c, how many are in each of the categories below? *(If none, enter 0. The sum of questions 2a-c should equal question 1c.)*

- a. Desktops ..... \_\_\_\_\_
- b. Laptops/notebooks..... \_\_\_\_\_
- c. Other computer types, such as tablet PCs *(specify)* \_\_\_\_\_
- d. Total (this total should equal the number of **instructional computers** in question 1, row c)..... \_\_\_\_\_

3. Of the **instructional computers** reported in question 1c, how many are in each of the categories below? Report computers located in labs in row c, even if the lab is located in the library/media center. *(If none, enter 0. The sum of questions 3a-e should equal question 1c.)*

- a. Laptop computers on carts..... \_\_\_\_\_
- b. Located in **classrooms** (excluding laptops on carts) ..... \_\_\_\_\_
- c. Located in **computer labs** (excluding laptops on carts)..... \_\_\_\_\_
- d. Located in **library/media center(s)** (excluding laptops on carts)..... \_\_\_\_\_
- e. Other location (excluding laptops on carts); *specify* \_\_\_\_\_
- f. Total (this total should equal the number of **instructional computers** in question 1, row c)..... \_\_\_\_\_

4. Of the **instructional computers** reported in question 1c, how many: *(If none, enter 0.)*

- a. Have Internet access ..... \_\_\_\_\_
- b. Are available for students to take home..... \_\_\_\_\_
- c. Are less than 1 year old..... \_\_\_\_\_

5. Which operating system(s) or platform(s) are used on the **instructional computers** within your school? *(Indicate yes or no on each line.)*

	<b>Yes</b>	<b>No</b>
a. Windows 3.1 or DOS.....	1	2
b. Windows 95, 98, or ME.....	1	2
c. Windows NT or 2000.....	1	2
d. Windows XP.....	1	2
e. Windows Vista.....	1	2
f. Mac OS 10 or higher.....	1	2
g. Mac OS 9 or earlier.....	1	2
h. Other operating system, e.g., Linux <i>(specify)</i> _____	1	2



6. How many **handheld devices** (e.g., Palm OS, Windows CE, Pocket PC, BlackBerry) does your school provide to administrators, teachers, and students? *Exclude classroom response systems ("clickers"). (If none, enter 0.)*
- a. For administrators ..... \_\_\_\_\_
  - b. For teachers ..... \_\_\_\_\_
  - c. For students to use in specific classes ..... \_\_\_\_\_
  - d. For students to use the entire school day ..... \_\_\_\_\_

7. For each of the following devices, please report the number that your school provides for instruction. *(If none, enter 0.)*
- a. LCD and DLP projectors ..... \_\_\_\_\_
  - b. Videoconference units..... \_\_\_\_\_
  - c. Interactive whiteboards (e.g., SMART Boards, Activboards)..... \_\_\_\_\_
  - d. Classroom response systems; count number of classroom sets *(definition on cover)*..... \_\_\_\_\_
  - e. Digital cameras (still and video) ..... \_\_\_\_\_
  - f. MP3 players/iPods ..... \_\_\_\_\_
  - g. Document cameras *(definition on cover)* ..... \_\_\_\_\_

8. Which of the following best describes the wireless network access in your school? *(Circle only one.)*
- No wireless network access of any kind..... 1
  - The only wireless connections are from laptops to a cart, with the cart connected to a wall port..... 2
  - Wireless network access is available in part of the school..... 3
  - Wireless network access is available in the whole school..... 4

9. Does your school use its district network or Internet access to provide the following for teaching and learning? *(Indicate yes or no on each line.)*

	Yes	No
a. Two-way teleconferencing, e.g., videoconferencing.....	1	2
b. Telecommunications (voice over IP).....	1	2
c. Online student assessment provided by your school or district.....	1	2
d. Access for students to online distance learning.....	1	2
e. Standardized assessment results and data for teachers to use to individualize instruction ....	1	2
f. Data to inform instructional planning at the school level.....	1	2
g. Online professional development provided by your school or district.....	1	2
h. High-quality digital content (i.e., web-based learning materials or any text, images, sounds, and video that have been digitized) .....	1	2

10. At your school, how long does it usually take to: *(Circle one on each line.)*

	Less than 1 hour	1 to 8 hours	2 to 5 days	1 to 3 weeks	A month or more
a. Get a computer repaired .....	1	2	3	4	5
b. Get help on a software problem or question.....	1	2	3	4	5
c. Get network services restored when the network goes down .....	1	2	3	4	5
d. Get curricular support for teachers who need help with integrating technology into the curriculum .....	1	2	3	4	5

11. Is there someone **in your school full-time** whose **only** responsibility is technology support and/or technology integration?

Yes..... 1      No..... 2

12. Please provide the following information:

**In part 1**, indicate the extent that people in each role help school staff integrate technology into instruction.

**In part 2**, indicate the extent that people in each role provide technical support for educational technology in your school (e.g., troubleshooting/maintenance for hardware, software, or networks).

(Circle one for integration and one for technical support on each line.)

Role	1. Help school staff integrate technology into instruction				2. Provide technical support			
	Not at all	Minor extent	Moderate extent	Major extent	Not at all	Minor extent	Moderate extent	Major extent
a. District-level technology staff ..	1	2	3	4	1	2	3	4
b. School-level technology staff ..	1	2	3	4	1	2	3	4
c. School-level administrators .....	1	2	3	4	1	2	3	4
d. Teachers .....	1	2	3	4	1	2	3	4
e. Library media specialists .....	1	2	3	4	1	2	3	4
f. Vendor(s) .....	1	2	3	4	1	2	3	4
g. Students .....	1	2	3	4	1	2	3	4
h. Parents or non-staff volunteers .....	1	2	3	4	1	2	3	4
i. Other (specify for each part): ..	1	2	3	4	1	2	3	4
1. Integration: _____								
2. Technical: _____								

13. Please indicate the extent to which you agree or disagree with each of the following statements as it relates to using educational technology in the instructional program at your school. (Circle one on each line.)

	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree
a. Teachers are sufficiently trained in technology usage .....	1	2	3	4
b. Teachers are sufficiently trained to integrate technology into classroom instruction .....	1	2	3	4
c. Teachers are interested in using technology in classroom instruction .....	1	2	3	4
d. Teachers construct lessons in which students use a range of educational technologies .....	1	2	3	4
e. Technology is a priority of the district administration .....	1	2	3	4
f. Technology infrastructure is adequate (e.g., adequate Internet speeds) .....	1	2	3	4
g. Technical support for educational technology is adequate .....	1	2	3	4
h. Funding for educational technology is adequate .....	1	2	3	4
i. Funding for educational technology is being spent in the most appropriate ways .....	1	2	3	4
j. Use of educational technology is adversely affected by competing priorities in the classroom .....	1	2	3	4

14. What is the total number of instructional classrooms in your school? **Exclude** library media centers and computer labs. \_\_\_\_\_ Number of classrooms

15. What percent of the students in your school are eligible for the federally funded free or reduced-price lunch program? (If none, enter 0.) \_\_\_\_\_ %

16. Which of the following grades are taught at your school? (Circle all that apply.)

PK   K   1   2   3   4   5   6   7   8   9   10   11   12   Ungraded